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Did ‘targets and terror’ Reduce English Waiting Times for Elective Hospital Care?

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May 2007

Working Paper No. 07/179

ISSN 1473-625X

Did 'targets and terror' Reduce Waiting Times in England for Hospital Care?

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May 2007

Abstract

Waiting times have been a central concern in the English NHS, where care is provided free at the point of delivery and is rationed by waiting time. Pro-market reforms introduced in the NHS in the 1990s were not accompanied by large drops in waiting times. As a result, the English government in 2000 adopted the use of an aggressive policy of targets coupled with publication of waiting times data at hospital level and strong sanctions for poor performing hospital managers. This regime has been dubbed 'targets and terror'. We estimate the effect of the English target regime for waiting times for hospital care after 2001 by a comparative analysis with Scotland, a neighbouring country with the same healthcare system that did not adopt the target regime. We estimate difference-in-differences models of the proportion of people on the waiting list who waited over 6, 9 and 12 months. Comparisons between England and Scotland are sensitive to whether published or unpublished data are used but, regardless of the data source, the 'targets and terror' regime in England lowered the proportion of people waiting for planned treatment relative to Scotland.

Keywords: health care, waiting times, targets

JEL Classification: I18, L32

Electronic version: <http://www.bris.ac.uk/Depts/CMPO/workingpapers/wp179pdf>

Acknowledgements

We thank those at ISD Scotland and the Department of Health who provided us with data, in particular David Bailey for preparing the samples from HES and SMR01 and Stephen Young for assembling the Scottish waiting list census data. We also thank Shelley Farrar for details of the Scottish target regime. This project received funding from the ESRC as part of the Public Services Delivery Programme.

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1. Introduction

Health care in the United Kingdom (UK) is predominantly provided by the National Health Service (NHS), which is funded by general taxation and is free to the consumer at the point of use. Care is provided by providers who are employed by the NHS, which contracts with primary care providers (General Practitioners) and runs public hospitals¹. Rationing of excess demand is by means of waiting lists. For emergency care, individuals have direct access to specialist treatment, but for planned care, which accounts for around half of all care, they must first contact their General Practitioner (GP). The GP provides a referral to a consultant at a local hospital. The individual waits for this first (outpatient) specialist appointment and, if the specialist agrees that more intensive treatment is required, then waits again for admission to hospital. These waits, particularly those for hospital admission after being seen by a specialist, have historically been very long. For example, in the early 1990s, the government sought to bring down the maximum time waited for planned admissions to two years.

Not surprisingly, the length of these waits has been a key political issue for several UK governments. During the 1990s, the Conservative government instituted market-orientated reforms on the supply side of the UK healthcare market (Cutler, 2002; Propper, 1995) in order to improve NHS productivity. One of their primary aims was to reduce waiting times for planned care. These did fall, but not by as much as the government - or the public - wanted. In 1997 mean waits were still around 23 weeks (Siciliani and Hurst 2004) and maximum waiting times of over 18 months still existed when a new Labour administration was voted in, partly on the basis of concerns over NHS performance². In response, the incoming administration instituted an end to the market reforms and instead reverted to an older policy of central 'command and control' to improve health care performance (Oliver, 2005). Initially, these changes emphasised co-operation and collaboration (Oliver, 2005), but starting in 2000 the English NHS instituted a more aggressive policy in which performance of hospitals was made public and managers sanctioned for poor performance.

¹ Almost all healthcare in the UK is provided by the public sector. A small private sector does exist, specialising in treatments for which there are long waiting lists.

² In addition to concerns over waiting times, there were also concerns that the chief agents of change - a selection of GPs who purchased hospital care directly - instituted a policy which favoured their patients at the expense of others. For evidence see Propper et al, 2002; Gravelle et al, 2002; Dusheiko et al, 2005, 2006.

A key target was waiting times for inpatient care. Waiting times from referral to inpatient admission, with a limited set of other key targets and a ‘balanced score card’ of a wider set of indicators, were used to calculate an annual star rating (which ranged from zero to three) for each NHS hospital. These were published and used as a basis for direct sanctions and rewards in a regime so aggressive it has been likened to the behaviour of the Stalinist regime in the USSR and dubbed ‘targets and terror’ (Bevan and Hood, 2006; Hood and Bevan, 2005). The sanctions were the dismissal of key managers of hospitals for poor performance against these targets and the rewards were the granting of greater autonomy (the freedom to keep certain surpluses and less central control) for hospital managers who performed well.

However, while this regime was implemented in England in 2001, it was not implemented in other parts of the UK. In 1999, the UK government had devolved responsibility for health services and new administrations with responsibility for the provision of NHS care were created in Scotland, Wales and (for some time) Northern Ireland. The previously UK-wide Department of Health’s remit was restricted to England only. So while in 2000³ NHS hospitals in England were set a target of a maximum wait for inpatient treatment of 18 months by the end of March 2001, which was to decrease annually by 3 months until a maximum of six months in March 2005, the NHS in Scotland set a target of 12 months. This remained in effect until 2003/04 and performance against these targets was neither published at hospital level nor given importance in the management of the NHS.

Command and control has been widely used by UK governments as a way of running the NHS, an organisation with over 1.2m employees. As their predecessors, the Labour government assumed that ‘targets and terror’ would work. However, while maximum waits have fallen in England since 2000, it has not been systematically empirically tested whether this is due to the target regime. More generally there have been very few empirical tests of command and control strategies in the NHS, despite their popularity with administrations. The reason is simple: UK governments tend not to experiment. Instead, policies are introduced in all parts of the NHS at once. So robust empirical testing of a target approach has not been possible. Using new data, this paper exploits the ‘natural experiment’ of the common policy environment in England and Scotland prior to devolution and the policy divergence post-2000

³ The NHS uses financial years, so the year 2000 is actually the financial year which run from April 2000 to end of March 2001.

to test the impact of the ‘targets and terror’ regime on waiting times in England between 1997/98 and 2003/04.

We select Scotland, rather than Northern Ireland or Wales, as the appropriate comparator to England. It is the largest of the three devolved administrations and has a greater degree of devolution and independence of its Parliament. It also has a more self-contained healthcare system with fewer cross-border flows compared to Wales. Northern Ireland is very small. Alvarez-Rosete et al (2005) and Bevan and Hood (2006) show that after the introduction of targets waiting times improved in England whilst deteriorating in Wales and Ireland. But neither are able to report figures for Scotland because of potentially important differences in the published data. These arise because devolution was accompanied by divergences in the way data was made public at national level. Scotland did not publish waiting times at hospital level. In addition, those published at national level were calculated on a different basis from those published – at national and hospital level - in England (details are provided later in the paper).

To overcome this problem, we use three different data sources to address the issue of non-comparability. Two of the data series are from the data used by the Department of Health and NHS Scotland to monitor the behaviour of hospital providers. The first of these series are the census data which are published. These are not directly comparable between the two countries. The second are census data which we have augmented with the addition of officially collected but hitherto unpublished data. The third series are derived by us from hospital admissions data, which are not used by the authorities in either country to monitor performance against waiting time targets.

Using all sources of data, our difference in difference estimates indicate that the ‘targets and terror’ policy significantly reduced waiting times. Our estimates show that numbers waiting fell across the whole distribution of waiting time, with the greatest proportionate fall being for the longest waits. So the proportionate reduction in the numbers waiting over six months was around 20% and the proportionate reduction in the numbers waiting 12 months or more was closer to 60%.

2. Methods

We are interested in the impact of the policy not only at the maximum waiting times, but at shorter waits as well, as this is where the bulk of the distribution lies. We therefore analyse quarterly trends in the percentage of persons waiting for planned care for more than ‘x months’, where x is defined as six, nine and twelve, in England and Scotland for the period 1997/8 to 2003/4. The latter two cut offs are maximum targets; twelve months was the permitted maximum at the end of the 2002/3 financial year and nine months was the allowed maximum at the end of 2003/4. Six months is below the target for the period we analyse, but was both a target for the future which was publicly known after 2001, and the large majority of persons wait for this period or less, so examining this cut off allows us to examine the impact of the policy on the bulk of the distribution of persons waiting for care.

We first present graphical analyses to show patterns. To statistically test whether the target regime lowered waiting times we estimate a difference-in-differences (DiD) estimator for each source of data.

We estimate

$$(1) \quad p_{jt} = \alpha + \beta E_j + \gamma I_{[t \in 1]} + \delta I_{[t \in 1]} E_j + x'_{jt} \theta + \varepsilon_{jt}$$

where p_{jt} is the proportion of people on the waiting list waiting longer than x months ($x = 6, 9, 12$), $E_j = 1$ denotes England, t denotes time (in quarters) and $I_{[t \in 1]} = 1$ if the period t is during the policy regime (2000/1 onwards), 0 otherwise and x_{jt} is a set of other time varying covariates which may affect the outcomes. The coefficient of interest is δ .

Devolution took place in 1999/00. Although this was actually one year before the targets and target regime was introduced in England, we omit 1999/0 from our analysis in order not to contaminate the policy off years with any changes that might have happened from the inception of devolution⁴. So 1997/8 and 1998/9 are policy-off years and 2000/1- 2003/4 are policy-on years in England and policy off years in Scotland.

As the DiD estimator of δ in (1) recovers the effect of the policy changes in England only if there are no (exogenous) differential time trends in Scotland and England (Blundell and Costa Dias, 2002), we estimated (1) allowing for different time trends in the two countries, both before and after the policy introduction, in order to pick up the effect of policies which may have been implemented before the targets and terror regime was introduced in England. For similar reasons we also estimated the model allowing for a full set of country specific year dummies.

We initially estimate models without time varying covariates: we then allow for time varying covariates to test that the results are not driven by other policy changes.

3. Data

We use two types of data: waiting list census and hospital discharge data. Census data give a snapshot of the list on a particular date, with information about length of time at the census date but do not provide information on total realised waits. Waiting times in discharge data are collected at the start of the hospital episode, and so provide information about realised waits but not about patients who are still on waiting lists.

Census data

Census data for England are from the quarterly KH07 returns (Department of Health, unpublished; Department of Health, 2007) for 1997/8-2003/4. These cover NHS provided care⁵. They show the size of the list and the numbers waiting in 3 month bands on each census date – the last day of the month in June, September, December and March. The comparable data for Scotland are taken from the monthly SMR3 return (ISDScotland, unpublished). This is an individualised record which includes specialty, date joined the waiting list, and information about eligibility for a waiting list guarantee. We use this to construct Scottish data that match the dates of the English KH07 returns.

⁴ The results are robust to accounting this year as a policy off year.

⁵ In the last year of our data, some NHS activity in England was provided in private sector treatment centres that specialised in providing elective care characterised by long waiting lists. Data are not available on the waiting times for care in these centres. These providers accounted for a small proportion of planned care. As they were used because their waiting times were shorter than those of NHS providers, exclusion of these providers will overestimate the size of any positive gap between England and Scotland.

In both Scotland and England the census data exclude anyone on a planned programme of treatment, as this is scheduled according to clinical factors rather than resource availability. For the period analysed here, such planned treatments comprised 24% of total admissions in England and 18% of those in Scotland. However, statistics for the two countries differ in the inclusion and treatment of certain other patients.

Most importantly, there are those who for personal or medical reasons defer admission (turn down a reasonable offer of admission or fail to turn up for an arranged admission date) or are suspended from the list for a period of time (because they pre-arrange with the hospital that they are unavailable for admission). Such patients are included in the census statistics for England provided they are not suspended from the list on the census date itself. The waiting times of such patients are generally reset to run from the date of deferral. For patients who are suspended, waiting times are calculated excluding the time spent suspended. In contrast, in Scotland, patients with a deferral or suspension were allocated an availability status code (ASC; until 2003/04 known as waiting list guarantee exception codes), which indicated the circumstances that had made them unavailable for admission. These patients were then not covered by waiting list guarantees and were excluded altogether from the published statistics. Until 2003/04, such patients would usually have been put onto the 'deferred' waiting list for which recording of the waiting time was not mandatory.

The SMR3 and KH07 also differ in the treatment of patients judged of low clinical priority, patients awaiting highly specialised treatments and patients waiting for treatment at a time of exceptional strain on the NHS. In Scotland these patients are also covered by ASCs and excluded from reported statistics, whereas in England they are included. As an illustration of the size of the issue, in December 2002, there were just under 109,000 persons waiting in Scotland. The number excluding those with ASCs was just under 79,000. The number waiting in England was just over 1,056,000.

Hence the census data cannot be adjusted to make an entirely like-for-like comparison between the two countries. We cannot identify, from the English data, patients who are equivalent to the patients allocated ASCs in Scotland, so we cannot exclude them from the English data. Nor can we adjust the waiting times of deferred and suspended patients in Scotland in the same manner as for English patients. Finally, a large proportion of patients with ASCs had unknown waiting times prior to 2003/04.

Hospital discharge data

We use a 10 per cent random sample of the discharge Hospital Episode Statistics database (HES) (Department of Health, various) for England and a 50 per cent random sample of the Scottish Morbidity Record (SMR01) (ISDScotland, various) for Scotland. These discharge data are known as episode data. Each of these contains information about inpatient and daycase consultant episodes in the NHS. The episode data comprise admitted patients only and are recorded at the end of each episode when the patient is discharged from care. Waiting times are derived as the difference between the date of decision to admit the patient and the admission date. Around 11% of admissions have unknown waits in England; the comparable figure in Scotland is less than 1%.

To construct a series comparable to the census data we follow the method described by Dixon (2004). We use data on inpatients and daycases discharged from April 1997 to March 2006 and exclude those on a planned program of treatment. We undertake our difference-in-difference analyses for dates upto March 2004 but use the episode data for a longer period in order to avoid the problem of censoring⁶.

Even with these adjustments the episode data are not totally comparable with the Census data. As the episode data are collected after the patient has left the list to be admitted into hospital, they do not include patients who leave the waiting list for other reasons, for example, because they die or no longer need treatment. In England, about 15% of those leaving the list each quarter are removed rather than admitted. The equivalent figure for Scotland is not publicly available. Table 1 summarises the main differences between the three data sources. As the data cannot be made totally comparable, the analyses presented here use all three sources.

4. Results

⁶ Towards the end of any period the stock of people waiting as derived from the episode data will be increasingly censored, as the episode data will exclude patients whose episodes are not completed by a particular date. Individuals will only be censored if they have to wait more than 24 months after March 2004. Our analyses show that there were less than 1% of individuals on waiting lists at the end of March 2003 who waited more than 24 months so we consider that censoring is unlikely to be a problem.

Fig. 1 presents the Census data, with and without ASCs, for June 1997 to March 2004. The first panel shows the proportion on the list waiting 6 months or more, the second those waiting 9 months or more, and the third those waiting 12 months or more. The first panel shows that the percentages waiting 6 months or more in England is higher than the comparable figure from the published data in Scotland for the whole period. Using the published Census data, it would therefore be inferred that the percentages waiting in England were higher. These were the comparisons made by the government in Scotland. However, if the number of ASCs with known waiting times, which is not published, are added back into the Scottish data, the picture is reversed: the percentage waiting in Scotland is higher from March 2000. The percentage waiting including ASCs rises quite sharply after this date, peaking in March 2002 and falling back by the end of the period to a level comparable with that at the beginning.

In terms of the potential impact of the target policy, the English data show a fall in the percentage waiting from the date of the policy onwards, while the Scottish data, with or without ASCs, do not fall for another 2 years.

The second panel presents the percent waiting 9 months or more. The target of zero was to be reached in England by March 2004 and is shown by the vertical line. The figure shows the percentage waiting in England in all specialties fell after 2001 and did appear to reach zero in time for the target deadline of 31st March 2004. In Scotland there was no fall in 2001: any downward trend appears later. There is again a large difference in the picture for Scotland with and without ASCs. Excluding ASCs, the percentage waiting over 9 months appears to reach zero by the end of the period, but including ASCs, the percentage waiting over 9 months is still over 10% at the end of the period.

The third panel presents the percent waiting 12 months or more. The vertical line marks the date at which the target in England was zero. In England there is a fall after 2001 and the percentage appears to have reached zero by the target deadline of 31st March 2003. In Scotland the picture is very different depending on whether ASCs are included or excluded. When they are excluded the percentage waiting over 12 months is zero (or very near) for the whole period. But this is not the case when patients with ASCs are included, so Scotland appears to have met its target but would not have done if it had adopted English rules for classifying patients on inpatient waiting lists.

Figure 2 presents the comparable figures derived from admissions data for the same period. The proportions waiting, in all three panels, are higher in England than in Scotland for all the period. However, as with the census data, the gap between the two countries narrows after the introduction of the policy. A difference between the admissions and the census data in England is evident. The former, which are not used for monitoring purposes, are less clearly downwardly trended than the published census data. The difference may arise because of the relatively high proportion of admissions which have missing waiting times⁷. But there may be a more public policy related reason. Admission data is not regularly cleaned with respect to waiting times as it is not used for monitoring purposes in England. Because of this, incorrect long waits may be left in. Finally, the treatment of deferred and suspended cases in England may downwardly bias the Census data.

In Scotland the two series are more comparable, with the admissions data taking values between the census series with and without ASCs, but without the large rise seen in the ASC data.

Table 2 presents the difference-in-difference estimates of whether the target policy had a statistically significant effect. The estimates are from equation (1) with no time varying controls and a single time trend.

The first column of estimates shows that the policy significantly reduced the proportions waiting 6 months in England relative to Scotland. The proportion waiting 6 months or more fell by between 6 and 9 percentage points more in England compared to Scotland, depending on the time period and data source. The estimates from the admissions data are very similar to those without ASCs. Adding in the ASCs increases the estimated impact of the target regime, as expected given Figure 1.

The second and third columns show the estimated impact of the policy on 9 and 12 month waits is also statistically significant. Again these results are robust to whichever data source is used. Comparing data sources, the patterns in the estimates are very similar across all three waiting times. The estimates from the episode data are very similar to those without ASCs.

⁷ Approximately 10% of episode data have missing admission times in England between April 1997 and March 2004.

These indicate a fall of 4 percentage points in the percentages waiting over 9 months and around 2 to 3 in the proportions waiting over 12 months. Again, the inclusion of ASCs increases the gap between England and Scotland after policy implementation.

In terms of proportionate change, the fall of 6 percentage points for the episode and Census data without ASCs for the six months wait is in the order of a 20 percent fall from the proportions waiting in June 1997. The comparable estimates for 9 and 12 months are of the order of a 35 and 60 percent fall respectively. The largest proportionate fall is therefore for the longest waits i.e. those that were subject to the targets.

Allowing for more complex time effects and time varying covariates

In a short panel at country level the set of potential time varying controls is limited. To test the robustness of our results to possible differences in policies implemented before devolution, we re-estimated (1) allowing for differential time trends in the two countries before and after the policy. In a similar spirit, we also re-estimated (1) allowing for a full set of country specific year dummies. Both sets of results (available from the authors) confirm those shown here: after the policy was implemented the percentages waiting fell in England compared to Scotland.

Both the English and the Scottish governments increased health spending during the period following devolution. There is some lack of clarity about the relative rates of growth: Alvarez-Rosete et al (2005) show that the growth in Scotland in spending per capita in the six years from 1996/7 was slightly less than in England, though these results are very sensitive to the exact time period analysed and which measure of resources is examined. It is possible therefore that the difference we observe is due to differences in resources. We therefore re-estimated (1) adding in a control for total healthcare expenditure per capita in both countries⁸. The results are shown in the left hand side of Table 3. The difference-in-difference estimates fall, particularly for the short waits, but all estimates of the policy remain significant and negative. The coefficients on health care resources per capita (shown in table) are not significantly different from zero in any of the three estimates. As an alternative control for resources, we re-estimated (1) including healthcare expenditure as a share of GDP. The

⁸ Sources for the covariates are given in Table 2.

results (available from the authors) are very similar to those without time varying controls in Table 2 and the coefficients on healthcare expenditure were not significant.

It is possible that the results are driven by differences in population health rather than the effect of the target policy. There is no obvious single measure of health at country level, but the various UK governments use standardised mortality ratios (SMRs) to measure of need in the allocation formulae when allocating healthcare expenditure to bodies at sub-national level. We therefore used SMRs to measure need and reestimated (1) adding annual standardised mortality ratios for each country as a control. The results are shown in the right hand side of Table 3. The difference-in-difference estimate again fall a little, but again all estimates of the policy remain significant and negative. The coefficients on the measure of need are small and not significantly different from zero in any of the three estimates.

5. Discussion

The Labour administration of the last decade has used targets widely to achieve key political goals for the public sector. The NHS has been a particular focus of this approach, with waiting lists being a central focus of an aggressive target regime with heavy sanctions for failure to achieve published targets. But to date, there has been no estimate of the impact of this waiting time target regime on waits for inpatient care in England. In this paper we exploit the natural experiment arising from policy differences between Scotland and England. After devolution, the Scottish government did not adopt targets for the NHS, whilst the English one did. Scotland is a good comparator to England because of its size, the independence of its Parliament with respect to health policy making, and the fact that it is a relatively self-contained healthcare system.

Using a difference-in-differences approach to net out the effect of common trends, and three different sets of data to overcome the particular deficiencies of any one single source, our results show that the target regime in England led to a significant reduction in the percentage of patients waiting at various points of the distribution of waiting times.

Part of our analyses use published data, which may be subject to manipulation precisely because it is published. Numerous papers have shown that in response to targets those being

monitored may manipulate their data (for a recent summary see Propper and Wilson 2003). But for precisely this reason we have analysed both the published data excluding and including those patients who are excluded from published data due to ASCs in Scotland and repeated our analyses using unpublished admissions data that are comparable across England and Scotland. However, the fact that data are missing from all series means the three series cannot be made fully comparable.

Our results also perhaps suggest that making data available in the public domain probably improves – at least over time - its quality. The Scottish Census data including ASCs, which were not published, shows sharp rises in percentages waiting towards the end of the period. Some of this may measure true rises, but comparison with the admissions data suggests some of these increases may reflect lack of attention to ensuring this series was correct: a function of the fact that it was not open to public scrutiny. The English admissions data, which is not used for monitoring purposes, also has a relatively large number of individuals with data missing on waiting times.

Finally, a decrease in waiting times does not, on its own, imply that the policies have been welfare increasing. Reducing long waits does not necessarily lead to shorter mean or median waiting times, though we do find that waiting times fell at the lower (non targeted) end of the distribution. Shorter waiting times may have been achieved by targeting less needy patients, though there is, at present, no evidence of this (Bevan and Hood, 2006) or by reducing other activities. Nor, despite their political importance in systems which ration by waiting lists, do waiting time statistics indicate anything about the quality of outcome.

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Table 1. Categories of patients included in Census and Episode data

Patient category	Census data			Episode data
	England	Scotland (published)	Scotland (inc. ASCs)	
Patients admitted as part of a planned program of treatment	Excl.	Excl.	Excl.	Excl.
Patients suspended from list on census date	Excl.	Excl.	Incl.	Incl.
Patients who have deferred/been suspended prior to census date	Incl. (with adjusted waits)	Excl.	Incl.	Incl.
NHS patients treated in private facilities	Excl.	Excl.	Excl.	Excl.
Patients not discharged (at the end of the episode) by 31 st March 2004	Incl.	Incl.	Incl.	Excl.
Patients never eventually admitted (e.g., those who die, or recover without treatment)	Incl.	Incl.	Incl.	Excl.

Table 2. Difference-in-difference estimates of the impact of the target policy

Data source	Estimated effect of policy on % exceeding:		
	6 months	9 months	12 months
Census data including ASCs	-9.25*** (1.66)	-7.35*** (1.29)	-5.08*** (0.82)
Census data excluding ASCs	-6.08*** (1.50)	-4.10*** (1.02)	-2.55*** (0.56)
Episode data	-6.59*** (1.25)	-4.60*** (0.92)	-3.08*** (0.54)

Notes

1. Estimates for census data (Scotland) have been weighted by the size of deferred and true lists.
2. Standard error in parentheses: * significant at 5%, ** at 1% and *** at 0.1%.
3. Data sources: Hospital waiting times/list statistics: England, 1997/98 to 2003/04. SMR3 Waiting list census: Scotland, 1997/98 to 2003/04. Hospital Episode Statistics: England, 1997/98 to 2005/06. SMR01 General acute inpatient/daycase record: Scotland, 1997/98 to 2005/06.

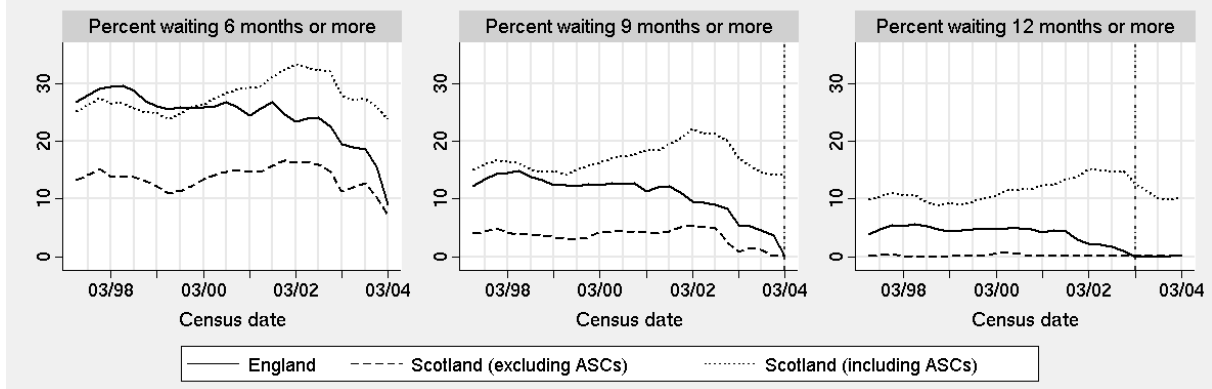
Table 3: Difference-in-difference estimates allowing for healthcare expenditure and population medical need

	Estimated effect of policy on % exceeding:		
	6 months	9 months	12 months
D-in-D coefficient, no time varying controls	-6.08*** (1.50)	-4.10*** (1.02)	-2.55*** (0.56)
D-in-D coefficient with health expenditure per capita	-4.55* (1.79)	-3.00* (1.22)	-2.68*** (0.69)
<i>Coefficient on health exp/capita</i>	-34.8 (22.9)	-25.0 (16.0)	3.08 (8.86)
D-in-D coefficient with standardised mortality rate	-4.79** 1.54	-3.35** 1.07	-2.82*** 0.60
<i>Coefficient on standardised mortality rate</i>	-0.02* (0.1)	-0.01 (0.01)	0.00 (0.00)

Notes

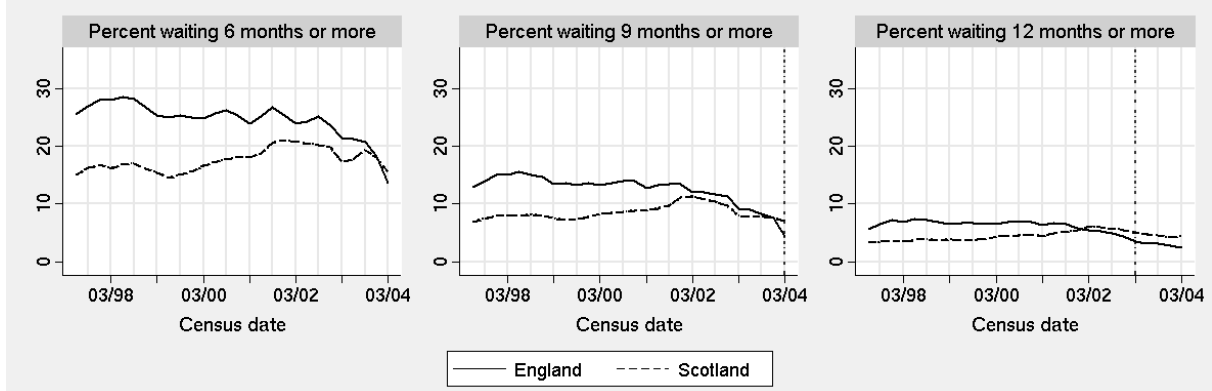
1. The above results are estimated from census data excluding ASCs. Our other data sources give similar results.
2. Estimates for census data (Scotland) have been weighted by the size of deferred and true lists.
3. Standard error in parentheses * significant at 5%, ** at 1% and *** at 0.1%.
4. Per capita health expenditure in logs.
5. Data sources: Hospital waiting times/list statistics: England, 1997/98 to 2003/04. SMR3 Waiting list census: Scotland, 1997/98 to 2003/04. Health expenditure: Public Expenditure Statistical Analyses 2003 (Table 8.3a) 2004 (Table 8.5a) and 2005 (Table 8.5a). National GVA: ONS Regional trends 39 (Table 12.1). Age standardised mortality rate: ONS Population trends 125 (Table 2.2)

Fig 1: Percentages waiting over 6, 9 and 12 months, Census data June 1997-March 2004.



Data source: Hospital waiting times/list statistics: England, 1997/98 to 2003/04. SMR3 Waiting list census: Scotland, 1997/98 to 2003/04.

Fig 2: Percentages waiting over 6, 9 and 12 months, Episode data June 1997-March 2004



Hospital Episode Statistics: England, 1997/98 to 2005/06. SMR01 General acute inpatient/daycase record: Scotland, 1997/98 to 2005/6