

Financial management and performance of Foundation Trusts

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Abstract

In 2003 a new type of provider organisation enjoying a range of freedoms and flexibilities – Foundation Trusts – was created, and NHS Hospital Trusts were able to apply for “Foundation status”. The phased introduction of FTs represents an opportunity to compare the characteristics of the ‘early adopters’ with those of other Trusts and to undertake preliminary quantitative exploration of whether the new financial structures facing FTs have produced any differences in performance compared to other Trusts. This paper studies whether Foundation status had a significant effect on financial management and performance of Trusts. We find that the policy intervention of offering best performing Trusts the opportunity to apply for Foundation status had the intended impact, acting as an effective instrument to further improve the financial management and performance of Foundation Trusts. Whether this is perceived as desirable or not depends on the potential for the creation of a gap between the best and worst performing Trusts.

Key words: financial management, performance, Foundation Trusts

JEL classification: I18, I11

1. Introduction

In 2003 Parliament passed the Health and Social Care Act to create a new type of organisation transforming English National Health Service (NHS) Trusts into Foundation Trusts (FTs). The bill was part of a major programme of reforms introduced in 2000 with the NHS Plan and implemented over time. The package of reforms included the introduction of Payment by Results (PbR) casemix reimbursement, competition from new independent (private) treatment centres, practice-based commissioning and the extension of Patient Choice. The introduction of FTs was therefore just one strand within a complex set of reforms across the whole health care system.

FTs are independent not-for-profit public benefit corporations, modelled on cooperative societies and mutual organisations (Maltby, 2002). They are still required to meet national targets, like other Trusts, but have more freedom to decide how they achieve these standards. Foundation status brings a range of additional freedoms from central controls, and in particular they have greater financial flexibility: they do not have to break-even every financial year, are allowed to retain financial surpluses, can invest in buildings and new services, manage their own assets, borrow both from the public and the private sector, recruit and reward staff with more competitive salaries and will be subject generally to less central monitoring and control.¹ Greater autonomy is expected to bring benefits for local services: FTs will face incentives to develop their business and adapt their financial and operating structure to local needs, whilst improving their overall performance and meeting national targets. In particular, FTs will face a different set of constraints (limited borrowing from private sector, more control over appointing directors, binding contracts with the organisations commissioning services from the Trust, use of national tariffs to price their activities) and incentives (more control over their own future activity, more and quicker access to capital investment, more local control over setting priorities, more potential competition among Trusts, and more freedom in employment of new staff) that may encourage them to change their behaviour.

FTs are being introduced in a phased manner (Department of Health, 2002). The first phase of implementation occurred in 2004/05 (wave 1). In October 2002 the best performing Trusts (assessed in terms of having achieved the highest rating for national performance – “three stars”) were allowed to apply for Foundation status.² In December 2002 twelve Trusts were shortlisted.

¹ Borrowing from the private sector will be subject to the Prudential Borrowing Limit set by a new regulator Monitor. Further details on financial freedom can be found in Healthcare Commission (2005) and Department of Health (2006).

² The star ratings are a composite index score given to each NHS Trust and are supposed to provide an overall assessment of performance across a number of indicators. The NHS Performance Ratings system places Trusts into

Successful applicants were allowed to operate as ‘shadow’ FTs from July 2003 and to become fully operational as NHS FTs in April 2004. In July 2004, another twenty Trusts received the Secretary of State’s support for their application. Successful applicants became fully operational in January 2005, subject to meeting the requirements of the application process. From 32 shortlisted applicants, 26 were fully operative as FTs in 2004/05. Further phases of implementation are scheduled for 2005/06 and following years (wave 2, 3 and so on). Although eligibility is set at the highest performance rating, not all eligible Trusts have chosen to apply for Foundation status. Equally, during the protracted application phase, some FTs have lost stars from the time they applied for Foundation status in 2002/03 to the time of wave 1 FTs in 2004/05 (Figure 1). Nonetheless, they have not seen their FT status withdrawn. Table 1 shows the percentage of Trusts receiving each star rating, for the five years since the Performance ratings system has been in place and the percentage of FTs in both the two and three star categories.

[Figure 1 about here]

[Table 1 about here]

Although it is possible in principle to examine a wide range of characteristics associated with FT status, in this preliminary paper we focus only on aspects of financial management and performance. The phased introduction of FTs represents an opportunity to compare the characteristics of the ‘early adopters’ (wave 1) with those of other Trusts and to undertake preliminary quantitative exploration of whether the new financial structures facing FTs have produced any differences in performance compared to other Trusts. This analysis forms the baseline for future work where we will be able to investigate the addition of later wave FTs and whether changes in financial management of FTs endure once they learn to exploit their new regulatory regime.

In order to explore the financial management of FTs we focus on two different measures: retained surplus/deficit as a proportion of total expenditure and the Reference Cost Index. The choice of surplus/deficit as a financial management measure is driven by the increased freedoms which FTs have to retain financial surpluses and equally to not run a financial surplus every year. These freedoms may enable them to take a longer planning horizon when it comes to borrowing and investment decisions and may give them longer-term financial advantages. Our second choice of financial management measure, the Reference Cost Index (RCI), is an activity weighted average of a Trust’s Healthcare Resource Group (HRG) unit costs relative to the national average. With the introduction of HRG casemix funding under Payment by Results (PbR), Reference Costs are used

one of four categories, according to the level of performance: from highest (awarded three stars) to poorest (awarded zero stars). Performance ratings are defined over some key government targets, such as waiting times and financial management. For further details, see Jacobs and Smith (2004).

to set the national tariff on which Trusts are reimbursed. The RCI can be used to determine a Trust's relative efficiency - the lower the RCI score, the higher its efficiency. FTs with lower casemix costs may be able to exploit benefits from economies of scope (focusing on the mix of services with costs below national tariff) and economies of scale (expanding the volume of activity for services with costs below national tariff).

We explore whether there are any differences between wave 1 FTs and non-FTs in these two measures of financial management by using a difference in difference (DID) methodology to test whether there is a difference in financial management between FTs and non-FTs following the introduction of the policy intervention of Foundation status. In effect, we therefore track these two financial management measures over time for FTs before they actually became FTs and investigate how they compare to non-FTs over time. We explore the robustness of our results using the two dependent variables, two different control groups and three estimation methods, explained in the following section.

2. The methodology

The difference in difference (DID) methodology (Blundell and Costa Dias, 2000; Wooldridge, 2002) enables us to compare the change in financial management for FTs before and after the Foundation status introduction in 2004/05 (the policy intervention) with the change in financial management for Trusts in a comparator group that is not undergoing the intervention - such as all non-FTs (control group), over the same period. The DID method enables us to estimate the average effect of Foundation status on the financial management of FTs. Our data covers a 5-year period (2000/01 - 2004/05), with 4 years of data relating to the period prior to the introduction of FTs and 1 year of data post-FTs. We construct an FT year dummy variable to capture the 5 years of FT data, including the intervention year.

To identify the average effect of the policy intervention, we estimate a DID model:

$$y_{it} = \beta_0 + \beta_1 FT_k + \sum_{s=2}^5 \beta_2 TD_s + \sum_{k=0}^1 \sum_{s=2}^5 \beta_3 FT_k TD_s + \beta_4 X_{it} + \varepsilon_{it} \quad (1)$$

where y_{it} is the financial management measure (either surplus or RCI³) for Trust i in year t , FT_k is a dummy variable for Foundation status where $FT_k = 1$ if a Trust is a FT and 0 otherwise, TD_s is a dummy variable for Foundation status year where $D_s = 1$ to 5, 1 = base year (2000/01) and 5 = wave 1 Foundation status year (2004/05), and X_{it} are observable factors affecting the dependent variable for Trust i in year t .

³ High cost Trusts will have an RCI above 100 and low cost Trusts below 100. RCI includes excess bed days (that fall outside of nationally set lengths of stay trimpoints) and is adjusted by the Market Forces Factor to take account of some areas of the country with higher costs for staff, land or buildings.

We include FT year effects to control for all other unobserved temporal factors affecting the dependent variables. The FT main effect FT_k controls for all time invariant differences in the characteristics of Trusts in the FT group and the control group. The interaction of the FT year and FT main effect identifies the change in the dependent variable from the base year for FTs relative to the Trusts in the comparator group (say all non-FTs). The DID methodology assumes that all other temporal factors affecting the dependent variable have the same effects for FTs and non-FTs (control group). Thus we assume any changes over time, which we do not control for in the models, particularly between years 4 (the pre-policy intervention year) and year 5 (the FT policy intervention year), affect FTs and non-FTs in the same way.

The tests for the significance of the difference in the dependent variable for the FT group ($FT_k = 1$) between years 4 ($TD_s = 4$) and 5 ($TD_s = 5$) with that of the control group ($FT_k = 0$), are derived from equations (1) as follows:

$$DID = \left[\begin{array}{l} \left(E(FM_{it} | FT_k = 1, TD_s = 5) - E(FM_{it} | FT_k = 1, TD_s = 4) \right) \\ - \left(E(FM_{it} | FT_k = 0, TD_s = 5) - E(FM_{it} | FT_k = 0, TD_s = 4) \right) \end{array} \right]$$

It follows that the DID in the dependent variable in year 5 relative to year 4 is as follows:

$$\begin{aligned} DID &= [(\beta_{25} - \beta_{24} + \beta_{315} - \beta_{314}) - (\beta_{25} - \beta_{24} + \beta_{305} - \beta_{304})] = \\ &= [(\beta_{315} - \beta_{314}) - (\beta_{305} - \beta_{304})] = [(\beta_{315} - \beta_{314})] \end{aligned} \quad (2)$$

To test whether there is a significant difference in the change in the dependent variables, respectively, between the pre-policy intervention year 4 and the post-policy intervention year 5 for FTs relative to the control group, we test whether equation (2) is significant.

When using the DID methodology, we need to choose a comparator group with which to compare the FTs before and after they acquire FT status. Several groups are possible but we focus on the following:

- a. All non-FTs
- b. Non-FTs with 3 star status

The first control group, all non-FTs, consists of Trusts which were not FTs in the financial year 2004/05, tracked back over time. The choice of this control group is intuitively plausible, since we wish to test whether changes in the dependent variable are the result of a specific reform (Foundation status) and how this impacts on all Trusts in England. The advantage of all non-FTs as a control group is that coefficient estimates in the regressions may be more robust since we have a large sample size. The disadvantage of all non-FTs as a control group is that it may include Trusts which are very different to those in the FT group in terms of their performance, characteristics and operating environments and may therefore not provide particularly useful comparisons in some respects.

The second control group is three star non-FTs and consists of Trusts which were not Foundation Trusts in 2004/05 even though they were eligible to apply for Foundation status. This group is more likely to contain Trusts that have similar characteristics to the FTs, therefore overcoming one of the disadvantages of using the all non-FT group. Using this control group is therefore likely to produce more reliable but less robust coefficient estimates in the regressions, as the Trusts are likely to be quite well matched to FTs, but give a smaller sample size.

Figures 2 and 3 plot the two dependent variables from 1997/98 onwards, for FTs and the two control groups, namely all non-FTs and three star non-FTs. It is clear that FTs have the lowest RCI and the highest retained surplus. All non-FTs have the highest retained deficit, while the three star non-FTs have the highest RCI.

Whilst Figure 2 illustrates a tendency for non-FTs to mirror FTs in terms of performance, Figure 3 suggests there is potential for Foundation status to extend the performance gap between the very best and worst Trusts. With the implementation of the reform (financial year 2004/05), the gap between all non-FTs and three star non-FTs became wider and non-three star non-FTs may in future struggle to catch up with better performing Trusts.

[Figure 2 about here]

[Figure 3 about here]

Using the DID methodology, for each of the above control groups we ran three types of estimation techniques: Ordinary Least Squares (OLS), a fixed effects and a random effects model.

We ran OLS clustering on Trusts. We also specified the Huber / White sandwich estimator of variance to calculate robust standard errors. We ran the equivalent of a fixed effects model using the areg estimator in Stata 9 (Stata, 2005). The model again allows the option of clustering on Trusts and the calculation of robust standard errors. The third estimation method is a population-averaged panel-data model which is equivalent to a random effects model. Using the xtgee estimator in Stata 9 (Stata, 2005), it estimates a general linear model and allows one to specify the within-group correlation structure for the panels. We included the mean of the time-varying variables as well as the deviation from the mean for these variables, the Mundlak adjustment (Mundlak, 1978). The model again allows the option of calculating robust standard errors.

We tested for multicollinearity using the variance inflation factors (VIFs) for the independent variables specified in the fitted model and dropped variables if there was evidence of collinearity. In all three estimation methods a regression specification error test (RESET) was performed (Ramsey, 1969) and results are shown in each of the regression tables.

The three estimation techniques provide a useful comparison to one another regarding the stability of coefficient estimates. However, the fixed effects model may pick up much of the

unobserved heterogeneity in the Trust-specific effect. Hence when comparing the DID results under different estimation techniques, the fixed effects are the preferred results. The fixed effects model does not however provide an estimate of the β_l coefficients, which both the OLS and random effects models do provide. For the graphical representations of the DID models, the random effects results have been used.

3. The data

Our data is annual and covers a period of 5 years, starting 2000/01, following the introduction of the Performance Rating system and the announcement of the Foundation status policy. The database includes 4 years of data prior to the introduction of FTs and 1 year of data post FTs (a full year in which FTs have been running). The database contains the Reference Cost Index for all Trusts within England. However surplus/deficit data is not available for 10 out of 26 FTs in 2004/05 only. This is one of the ironies of the increased freedoms of FTs – they are no longer subject to the same data requirements.⁴

All other explanatory Trust variables which are included in the regression models are for all Trusts within England. The dataset covers a very large number of variables on expenditure, resource use, performance and staffing from numerous sources, including the Department of Health, the Healthcare Commission, Hospital Episodes Statistics (HES), hospital activity statistics (HAS) and CIPFA data. Table 2 shows the descriptive statistics for the dependent variables and the explanatory variables included in the models.

[Table 2 about here]

4. Difference in difference results

In this section we present the results for the difference in difference (DID) model in which we test whether the policy intervention group (FTs) relative to the two control groups (all non-FTs and 3 star non-FTs) were any different in terms of the change in RCI and financial surplus between years 4 and 5.

Table 3 shows the regression results for the DID model as set out in equation (1). For each group we have run the DID model using the three estimation procedures outlined. Results for RCI and financial surplus are discussed separately.

[Table 3 about here]

⁴ This data should be available in Trust Financial Returns (TFRs) and we are currently trying to obtain this from the FT regulator, Monitor.

4.1. RCI

The coefficients β_{11} in the OLS and random effects results give the main effect for FTs which are negative in all cases, suggesting a lower overall RCI for FTs relative to each control group, and they are always significant. The size of the coefficients in the all non-FTs control group suggest that FT's RCI was about 6 points lower and in the 3 star non-FT control group about 7 points lower.

The next 4 β_2 coefficients give the change in RCI relative to the base year 1 and suggest an increase in RCI for each year relative to the base year, except for year 5 in the 3 star non-FT control group. Coefficients are mostly non-significant. The next 4 β_3 coefficients give the interaction effects between Foundation status and the FT year effects. These pick up differences for FTs over and above the overall year trends in the β_2 coefficients. These are mostly positive but insignificant.

We searched for significant β_4 explanatory variables in the database of Trust variables. A different set of explanatory variables was used in each of the 6 regressions, depending on which emerged as significant. In the random effects models the Mundlak adjustment is used, thus including the mean of the particular explanatory variable and the deviation from the mean of that variable. Similar sets of control variables appear to be significant across many of the models.

Of particular interest is the variable 'occupanc' in the OLS regression for both comparator groups suggesting that the percentage of occupied beds has a negative impact on RCI. Other control variables show that Trusts with lower average length of stay have a lower RCI, Trusts with a higher daycase rate or a higher emergency rate or a higher rate of episodes have a lower RCI, while Trusts with lower waiting times have a lower RCI, suggesting RCI as a proxy for efficiency.

The R-squared for the fixed effects models is around 71 percent, but substantially lower in the OLS models around 12 to 17 percent. The RESET test for omitted variable bias and specification error is passed in five of the six models.

Our main interest in these results is to test the overall difference in difference in RCI for the FT group relative to the comparator groups in year 5 versus year 4.⁵ We do this by testing whether equation (2) is significant, or in effect whether β_{315} minus β_{314} is significant (for example in the random effects model with all non-FTs as comparator -0.343 minus $1.521 = -1.178$).

In all the models the DID is non-significant and negative in the all non-FT comparator group and positive in the 3 star non-FT comparator group. On average the effect of the FT policy intervention on the FT treatment group was to reduce RCI by around 1 point between year 4 and

⁵ We could also test the DID for year 5 versus other years, including the baseline year 1, but in this analysis we focus on the pre-intervention and post-intervention years.

year 5 compared to the all non-FT comparator group. On the other hand, the effect of the FT policy intervention on the FT treatment group is positive around 1.8 points between year 4 and year 5 compared to the 3 star non-FT comparator group. This is most likely due to the fact that 3 star non-FTs had a higher RCI than all non-FTs, but they managed to reduce it in the intervention year which meant the difference between 3 star non-FTs and FTs in years 4 and 5 became smaller (albeit that these differences are insignificant).

Figures 4a and 4b show the RCI for FTs relative to each of the two comparator groups for each of the five years. We use the random effects estimates from the previous results to show this. We estimate the outcome for FTs in each year using equation (1) and produce confidence intervals for each estimate. Zero in this case represents the comparator group. Thus if the confidence intervals overlap zero, the change is not significant relative to the comparator group. The coefficient estimate for the baseline year 1 from the above results corresponds to the FT effect (β_{11}) -5.394 for the all non-FTs comparator group and -7.493 for the 3 stars non-FTs comparator group. The coefficient estimate for year 2 is therefore the main FT effect (β_{11}) plus the interaction effect in year 2 (β_{312}). The coefficient estimate for year 3 is the main FT effect (β_{11}) plus the interaction effect in year 3 (β_{313}), and so on.

Figure 4a shows a downward trend in RCI from year 3 onwards and results suggest that the RCI for FTs in year 5 was significantly lower than the all non-FTs comparator group. When comparing FTs to 3 star non-FTs as in Figure 4b, we see there is no significant difference between the RCI for FTs and 3 star non-FTs across all 5 years, since the confidence intervals overlap in almost each period.

[Figure 4a about here]

[Figure 4b about here]

4.2. Financial surplus/deficit

The coefficients β_{1l} in the OLS and random effects are negative in all cases but close to zero, suggesting overall a higher surplus for FTs relative to each control group. However, these coefficients are significant for the random effects model only. Moreover, while the surplus as a proportion of total expenditure for FTs is around 2.5% higher than all non-FTs, this gap becomes consistently smaller with the 3 star non-FTs (around 0.5%).

The next 4 β_2 's suggest a decrease in surplus for each year relative to the base year. All coefficients are significant for all specifications with the all non-FT control group, but statistically non-significant for all specifications with the 3-star non-FT comparator group. All four sets of results for the all non-FT comparator group show a decrease in surplus in year 5 relative to the

base year of around 17%. For 3 star non-FTs, even though not significant, the coefficients show a decrease of around 13% in year 5 relative to the base year.

The next 4 β_3 coefficients give the interaction effects between Foundation status and the FT year effects. These are all positive and all significant for the all non-FT comparator group.

Of particular interest in the β_4 explanatory variables is the variable *meanwait* in the OLS regression for both comparator groups suggesting that the average waiting time has a negative impact on surplus. Other control variables show that Trusts with lower drugs expenditure have higher surplus.

The R-squared for the fixed effects models is around 26 percent, but substantially lower in the OLS models around 9 percent. The RESET test is passed in five of the six models.

The DID is significant and negative in the all non-FT comparator group but not significant in the 3 star non-FT comparator group. On average the effect of the FT policy on the FT group was to improve financial management (as measured by retained surplus) by around 10% between year 4 and year 5 compared to the all non-FT comparator group. On the other hand, the effect of the FT policy on the FT group is almost negligible between year 4 and year 5 compared to the 3 star non-FT comparator.

Figures 5a and 5b show the surplus for FTs relative to each of the comparator groups for each of the five years. The coefficient estimate for the baseline year 1 and the coefficient estimates for years 2, 3, 4 and 5 are computed as described in the previous section. The figures show an upward trend in surplus from year 1 and results suggest that the surplus as a proportion of expenditure for FTs in year 5 was significantly higher than both comparator groups.

[Figure 5a about here]

[Figure 5b about here]

5. Discussion and conclusion

The results presented suggest that Foundation status as a policy intervention was successful in terms of the financial management of Trusts, in as much as we saw a significant improvement in the retained surplus/deficit with respect to all comparator groups (as shown in Figure 5).⁶ However, there was already a significant difference between FTs and comparator groups in the pre-intervention year. This may have been due to the fact that FTs were gearing up with improved financial management in the long application process to FT status and there were therefore anticipatory effects.

⁶ These results may of course be subject to change when the full data on surplus/deficit for all FTs is available.

The policy also delivered an improvement in performance as measured by a significant reduction in the Reference Cost Index in the year of the policy intervention compared to the all non-FT control group (as shown in Figure 4a). With respect to the three star non-FT control group, the change in the Reference Cost Index was not significant. This result might be due to the preliminary stage of implementation of the policy. Indeed, some of the features of the policy have not yet been explored, e.g. the ability of borrowing capital from the private sector.⁷

These results seem to lend some weight to the scepticism expressed by some commentators in relation to the impact of FTs. In particular, the concern that Foundation status may divide the health care system and therefore increase health inequalities by widening the gap between the best and the worst performing Trusts, promoting what may be seen as a two-tier system (Dixon, 2002, Unison Report, 2002, Kmietowicz, 2003, Lewis, 2003 and Rowe and Bond, 2003). This may in principle be achieved through the ability of FTs to attract scarce staff away from other Trusts and the opportunity to invest in services and niche markets that afford them increased competitiveness.

Indeed if it is the case that the worst performing Trusts have ended up in their particular situation in part because they are constrained by the current rules for non-FTs in terms of borrowing and investment, then there may be an argument for allowing the worst, rather than best performing Trusts, to take advantage of the extended freedoms. Otherwise, there may be a risk of seeing the least performing Trusts locked into a downward spiral as FTs are not only in a better position to compete for staff and patients, but also to outsource the services on which they do not hold a financial advantage with respect to the national tariff, and to whether improve their competitiveness with respect to other Trusts.

Foundation status will also allow Trusts to improve performance, by changing the mix of supplied services in order to benefit from economies of scope. Furthermore, where limited capacity will be an operating reality, it will be easier for FTs to overcome capacity constraints in services where economies of scale exist, allowing them to supply care at lower costs.⁸ The ability to exploit economies of scale will also be enhanced via investment in facilities that attract patients, such as parking premises, and recruitment of staff with good reputations.⁹ FTs will also be free to decide on the efficient mix of (physical and also human) capital that allows them to attain higher levels of efficiency. FTs will also be motivated to design staff payment schemes that provide the

⁷ In 2004 none of 20 early adopters of the Foundation status had borrowed from the private capital market (Mooney, 2004).

⁸ For example Moorfields Eye Hospital has raised capital funds in order to anticipate the opening of an international children's eye hospital (Robinson, 2005).

⁹ FTs can expand their capacity and develop new services such as new operating theatres, cardiology and surgical units, rapid diagnostic and assessment centres, and accelerated development of technology such as positron emission tomography (PET). Cambridge University Hospital NHS Foundation Trust has for example invested in refurbishment and purchased additional IT equipment; Guy's and St Thomas' Hospital NHS Foundation Trust has invested in major refurbishment (Healthcare Commission, 2005 and Robinson, 2005).

necessary incentives for efficient production. By offering tailored employment terms and conditions, they will be able to attract staff from competitor Trusts exacerbating the shortage of labour supply for poorly performing Trusts and therefore negatively affecting the labour markets in which FTs and non-FTs compete (Jobanputra and Buchan, 2003).

There may well be further knock-on effects as a consequence of the Payment by Results (PbR) policy that has been introduced simultaneously. In this initial phase FTs receive a fixed payment – the national tariff – for each patient treated. Given that FTs have the lowest RCI among all Trusts, average costs are well below the national tariff and FTs achieve a positive surplus. Once PbR is fully implemented, differences in competitiveness between Trusts will play a greater role in their ability to enhance performance and augment their surplus. Even if they are equally efficient, non-FTs might be penalised under PbR simply because they face greater constraints and the health system may enter a vicious circle in which FTs become more efficient and profitable at the cost of greater deficits incurred by non-FTs. Our results provide some evidence that this may indeed be happening. Before policy implementation, the three star non-FTs were performing better in terms of retained surplus than the all non-FT group (Figure 3) and also had the highest star rating indicators. However, given that on average they had the highest RCI (Figure 2), they have opted out from applying for Foundation status in order to avoid losses under PbR. Once the policy has been implemented, we observe that these Trusts have caught up with FTs in terms of surplus, but the relative differences in terms of RCI persisted. If these differences were to continue in the future, these Trusts would face financial losses, once PbR is fully implemented.

The counter-argument to the view presented above is that the FT policy will drag up the performance of all Trusts by producing the required incentives for continuous improvement amongst all Trusts as they compete to win business and retain their competitive position. Our results suggest this may indeed be a possibility. The non-FTs are improving by reducing their RCI and generating extra surpluses. Whether this will endure is the subject of our future work.

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Tables and figures

Table 1: Percentage of acute Trusts receiving each star rating

	0 stars	1 star	2 stars		3 stars		Number of acute Trusts
2000/01	7	13	60		20		207
2001/02	5	19	48		28		200
2002/03	8	18	38		36		176
2003/04	6	17	34		43		173
			non-FTs	FTs	non-FTs	FTs	
2004/05	5	22	28	3	31	11	173

Figure 1: Percentage of FTs and non-FTs gaining or losing zero, one or two stars in financial year 2003/04 - 2004/05

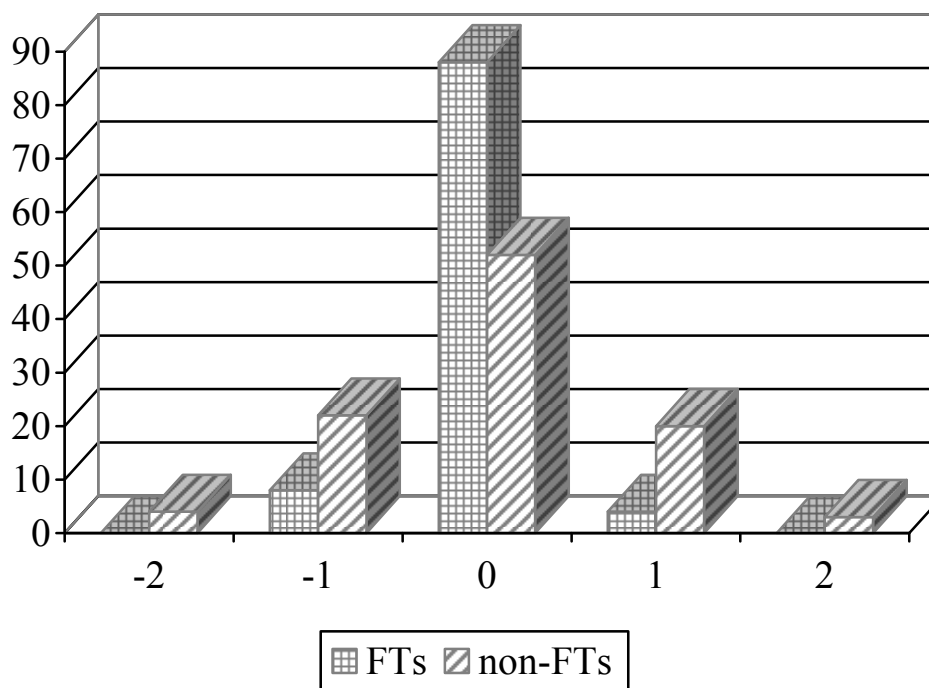


Table 2: Descriptive statistics and variable definitions, pooled data 2000/01-2004/05

Variable	Definition	Source	n	Mean	Std Dev.	Min	Max
surplus	Retained surplus (deficit) for the financial year as proportion of total expenditure	CIPFA	907	-0.037	0.197	-1.769	0.817
rci	Reference Cost Index including excess bed days adjusted by the Market Forces Factor (MFF)	DoH	909	99.594	11.587	61.173	173.084
ft_always	Dummy variable =1 if the Trust is a FT or =0 if the Trust is not a FT	derived	929	0.136	0.343	0	1
ft_3stars_always	Dummy variable =1 if the Trust is a 2/3 star FT or =0 if the Trust is a 3 star non-FT	derived	389	0.324	0.469	0	1
occupanc	Percent occupied beds	HAS	916	84.022	6.166	57.321	97.201
tot_imaging_tests_avbeds	Total imaging and radiodiagnostic tests as proportion of available beds	derived from HAS	904	221.667	57.699	0	468.673
tot_imaging_tests_occuppc	Total imaging and radiodiagnostic tests as proportion of occupied beds	derived from HAS	904	264.363	68.932	0	557.491
alos	Average length of stay	HES	915	5.932	4.012	0.615	53.400
daycase_spell	Number of day cases as proportion of total inpatient spells	derived from HES	915	0.427	0.135	0	0.955
emerg_spell	Number of emergency admissions as proportion of total inpatient spells	derived from HES	915	0.343	0.100	0.002	0.959
ep_spell	Total inpatient episodes as proportion of total inpatient spells	derived from HES	915	1.113	0.078	1	2.083
meanwait	Mean waiting time expressed in number of days	HES	909	93.900	31.592	0	253
medequipmaintx_drugsx	Medical & surgical equipment purchase and maintenance expenditure as proportion of drugs expenditure	derived from CIPFA	905	1.262	6.732	0.060	202.073
drugsx_clinsupp	Drugs expenditure as proportion of total clinical supplies and services expenditure	derived from CIPFA	907	0.407	0.238	0.004	5.946
totcost_avbeds	Total expenditure as proportion of available beds	derived from CIPFA and HAS	906	203866	94124	0	1304379

Figure 2: Reference Cost Index including excess bed days adjusted by the Market Forces Factor

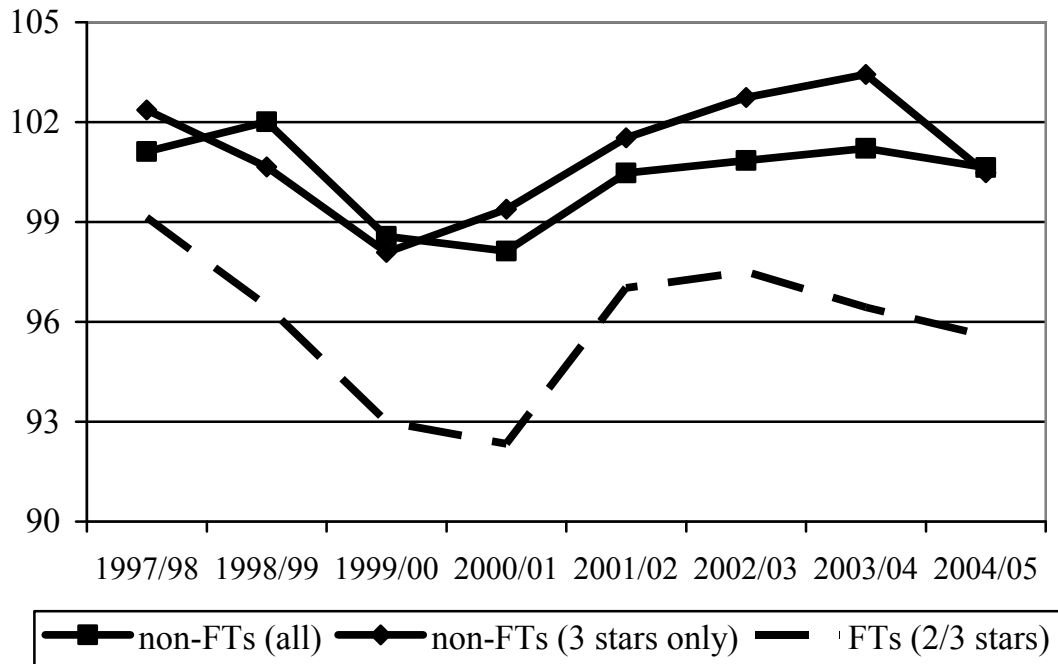


Figure 3: Retained surplus (deficit) for the financial year as proportion of total expenditure

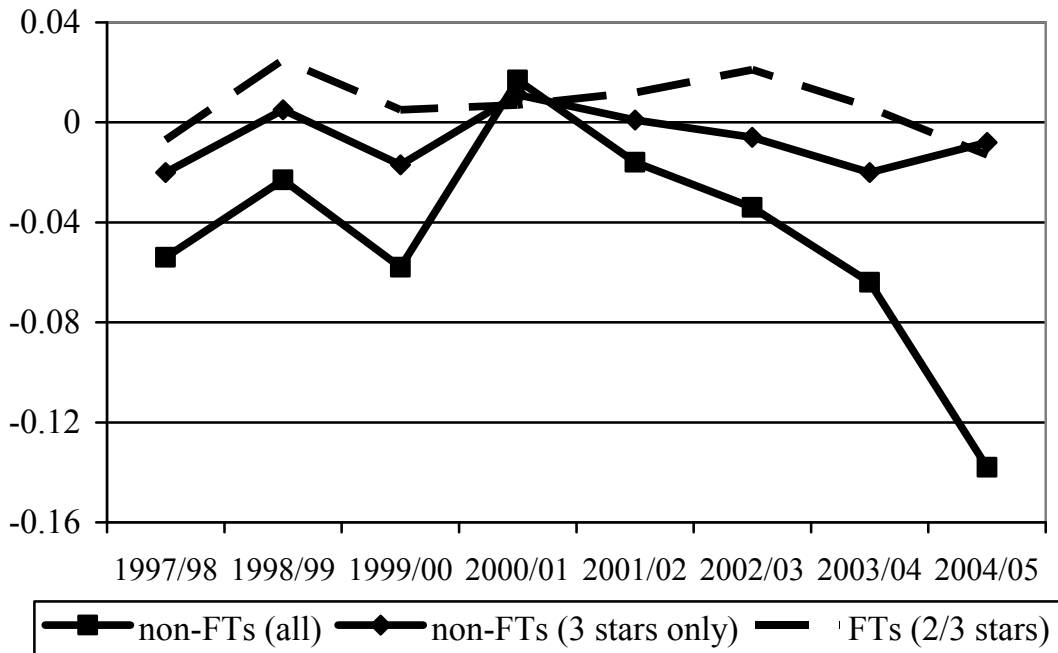


Table 3: Regression results for difference in difference model for overall effect of FT status on RCI and retained surplus/deficit

	RCI						Surplus/Deficit					
	All non-FT Trusts			3 star non-FT Trusts			All non-FT Trusts			3 star non-FT Trusts		
	OLS	Fixed Effects	Random Effects	OLS	Fixed Effects	Random Effects	OLS	Fixed Effects	Random Effects	OLS	Fixed Effects	Random Effects
FT dummy (β_{11})	-6.194 (2.989)**		-5.394 (2.985)*	-6.773 (3.758)*		-7.493 (3.895)*	-0.019 0.013		-0.037 (0.021)*	-0.003 (0.029)		-0.008 (0.031)
Year 2 (2001/02) (β_{22})	1.708 (1.436)	2.940 (0.905)***	0.761 (1.110)	2.374 (3.232)	0.536 (2.342)	0.798 (2.281)	-0.031 (0.013)**	-0.037 (0.015)**	-0.042 (0.015)***	-0.006 (0.029)	-0.006 (0.028)	-0.005 (0.027)
Year 3 (2002/03) (β_{23})	2.339 (1.380)*	2.651 (0.978)***	0.808 (1.211)	3.907 (3.072)	0.549 (2.586)	1.245 (2.570)	-0.056 (0.023)**	-0.061 (0.028)**	-0.075 (0.022)***	-0.009 (0.035)	-0.012 (0.043)	-0.006 (0.039)
Year 4 (2003/04) (β_{24})	0.556 (1.787)	2.873 (1.021)***	0.071 (2.054)	2.400 (3.620)	1.953 (2.523)	2.670 (2.499)	-0.089 (0.019)***	-0.092 (0.021)***	-0.098 (0.019)***	-0.025 (0.033)	-0.024 (0.039)	-0.016 (0.036)
Year 5 (2004/05) (β_{25})	0.574 (1.809)	2.296 (1.151)**	0.818 (1.902)	-0.464 (3.494)	0.200 (2.485)	0.616 (2.425)	-0.173 (0.030)***	-0.167 (0.030)***	-0.166 (0.028)***	-0.018 (0.029)	-0.007 (0.033)	-0.014 (0.030)
FT dummy*Year 2 (β_{312})	2.477 (3.667)	1.347 (2.673)	1.701 (2.541)	2.613 (4.755)	1.850 (3.329)	1.760 (3.137)	0.043 (0.019)**	0.048 (0.021)**	0.036 (0.022)	0.021 (0.033)	0.022 (0.032)	0.018 (0.032)
FT dummy*Year 3 (β_{313})	2.846 (3.611)	2.145 (2.707)	2.725 (2.656)	1.692 (4.601)	3.078 (3.600)	2.751 (3.440)	0.054 (0.024)**	0.060 (0.028)**	0.064 (0.026)**	0.014 (0.036)	0.021 (0.043)	0.010 (0.040)
FT dummy*Year 4 (β_{314})	2.209 (3.492)	0.853 (2.981)	1.521 (2.921)	0.417 (4.489)	1.558 (3.988)	1.839 (3.730)	0.082 (0.023)***	0.101 (0.028)***	0.100 (0.030)***	0.031 (0.038)	0.040 (0.042)	0.024 (0.040)
FT dummy*Year 5 (β_{315})	1.251 (3.481)	0.570 (2.758)	-0.343 (3.027)	2.121 (4.379)	3.518 (3.774)	3.596 (3.459)	0.201 (0.044)***	0.193 (0.038)***	0.192 (0.041)***	0.025 (0.040)	0.043 (0.041)	0.028 (0.038)
(β_4)s: occupanc	-0.321 (0.082)***			-0.294 (0.122)**								
tot_imaging_tests_avbeds	0.016 (0.008)*											
tot_imaging_tests_occuppc								0.001 (0.000)**				
alos	0.381 (0.228)*				0.731 (0.175)***							
daycase_spell	-15.702 (5.200)***			-14.527 (8.273)*								
emerg_spell	-16.931 (4.949)***			-18.649 (5.988)***								
ep_spell	-22.240 (6.261)***				-7.162 (4.021)*							
meanwait	0.033 (0.013)**				0.107 (0.049)**		-0.006 (0.003)**			-0.008 (0.004)**		
drugsx_clinsuppx							-0.087 (0.025)***	-0.140 (0.020)***		-0.096 (0.016)***	-0.128 (0.010)***	
totcost_avbeds							0.024 (0.008)***					
emerg_spelllbar			-17.467									-0.107

devemerg_spell			(7.020)**					(0.061)*				
			-46.292					-0.007				
			(27.318)*					(0.265)				
daycase_spellbar			-15.949									0.073
			(6.579)**									(0.037)**
devdaycase_spell			-12.418									0.052
			(10.438)									(0.052)
alosbar			-0.053			-0.544		-0.002				
			(0.265)			(0.524)		(0.002)				
devalos			0.778			0.727		0.005				
			(0.229)**			(0.145)**		(0.003)*				
occupancbar			-0.247			-0.330						
			(0.147)*			(0.285)						
devoccupanc			-0.211			-0.413						
			(0.092)**			(0.134)**						
meanwaitbar			0.030			0.031		-0.001				-0.005
			(0.019)			(0.043)		(0.000)**				(0.003)*
devmeanwait			0.059			0.101		0.000				-0.014
			(0.026)**			(0.046)**		(0.001)				(0.007)**
tot_imaging_tests_occuppcbar								0.000				
								(0.000)				
devtot_imaging_tests_occuppc								0.001				
								(0.000)**				
drugsx_clinsuppbar								0.027				-0.009
								(0.048)				(0.022)
devdrugsx_clinsupp								-0.147				-0.126
								(0.022)**				(0.006)**
medequipmaintx_drugsxbar			0.803									
			(0.090)**									
devmedequipmaintx_drugsx			0.020									
			(0.009)**									
Constant (β_0)	154.487	97.334	129.697	136.417	92.873	127.845	0.064	-0.058	0.121	0.112	0.056	0.019
	(8.536)**	(0.663)**	(12.064)**	(12.393)**	(6.385)**	(21.347)**	(0.029)**	(0.062)	(0.063)*	(0.030)**	(0.021)**	(0.025)
Observations	907	909	894	388	388	388	868	857	851	339	340	339
R-squared	0.169	0.710		0.123	0.715		0.092	0.295		0.095	0.223	
RESET	11.240**	6.690**	5.680**	10.320**	0.210	37.570**	2.590*	0.620	2.290**	6.280**	3.700**	17.100**
Test for DID	-0.958	-0.283	-1.864	1.704	1.960	1.757	0.119	0.092	0.093	-0.006	0.003	0.004
	(2.467)	(1.668)	(2.339)	(3.213)	(1.972)	(2.002)	(0.044)**	(0.034)**	(0.033)**	(0.034)	(0.031)	(0.031)

Robust t statistics in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%

Figure 4a: Reference Costs Index: FTs relative to all non-FTs comparator group

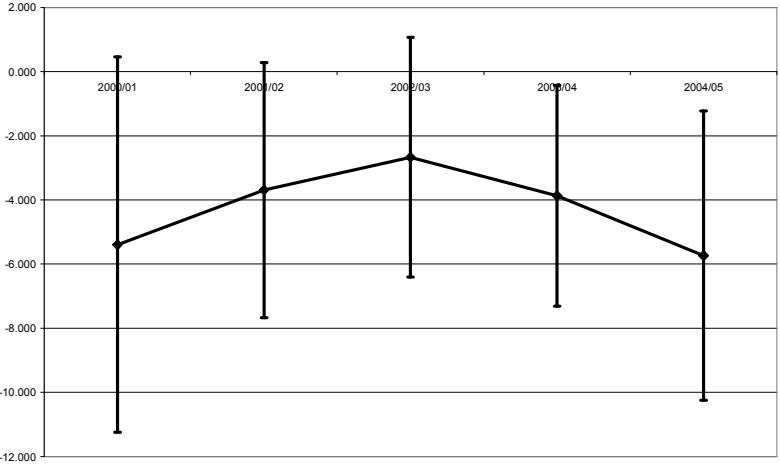


Figure 4b: Reference Costs Index: FTs relative to 3 star non-FT comparator group

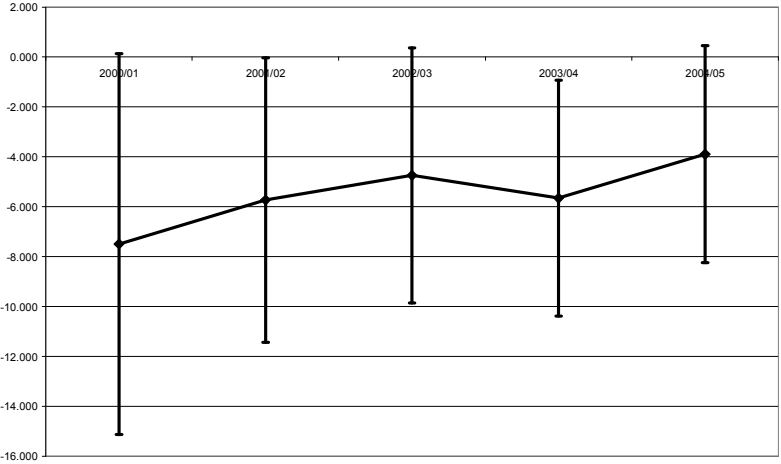


Figure 5a: Retained surplus (deficit) as proportion of total expenditure: FTs relative to all non-FTs comparator group

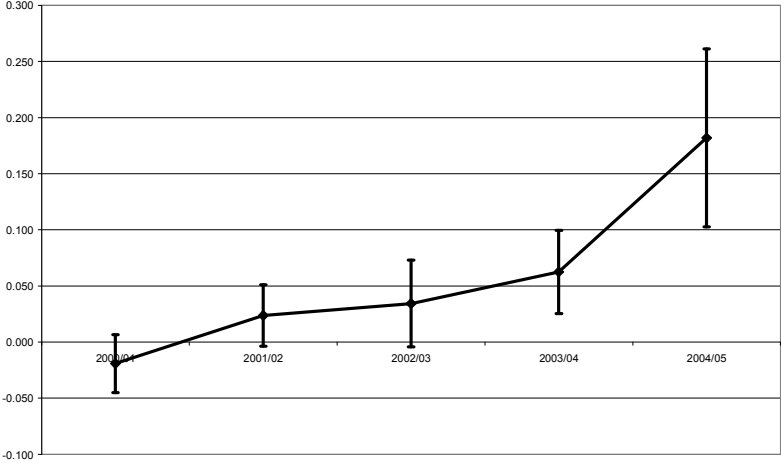


Figure 5b: Retained surplus (deficit) as proportion of total expenditure: FTs relative to 3 star non-FT comparator group

