Evaluation of the Introduction of the Makinson Incentive Scheme in Jobcentre Plus

Interim Report

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Executive Summary

This report uses economic theory and statistical analysis to provide an interim evaluation of the introduction of the Makinson scheme into Jobcentre Plus (JCP).

Makinson is a team based incentive scheme. Economic theory of team incentives provides the hypotheses we test in this report. Our hypotheses are:

- The bigger the team, the less the impact of the scheme, possibly due to free riding. Teams in the JCP are defined by district. So teams will be large if offices are large or if there are many offices in a district or both.
- The design of the bonus (paid if teams reach two of their 5 targets) may encourage teams just to try to hit their targets and not to exceed them
- The design of the bonus may encourage teams to focus effort on a limited set of activities

Lack of data at this stage means that we can only analyse the impact of the Makinson scheme on job entries, and examine behaviour with respect to monthly targets in one region only.

Our statistical approach is to examine the effect of the scheme, netting out factors that may affect performance over and above the impact of the scheme. The factors that are netted out are differences in staffing, labour market conditions, and seasonal factors. Once these are controlled for we find:

- The scheme has had a significantly positive effect on job entries.
- This effect is smaller in larger offices, and is smaller in districts with many offices.
- On average, the effect is of the order of an increase of around 11.1%. This translates into about an extra 11,311 job entry points per month, or 2,300 extra people placed into jobs per month.
- Analysis of behaviour against targets in one region shows some evidence that teams try to exactly hit their targets.

Finally this is an interim report. It can be based on only partial data as the full data is not yet available. Because of other organisational change coinciding with the introduction of the scheme, we are not able to rule out all possible confounding factors. Next year's final report should be able to deal with both of these issues.

Contents

1. Signposting the Report

This report first briefly documents the nature of the Makinson incentive scheme and the relevant organisational structure of JCP. Second, we set out what economic analysis tells us of the likely impact of the scheme. Thirdly we present the empirical analysis and discuss our main results. Finally we provide a summary of the results. Appendices give further details on the theory, data and statistical techniques.

Clicking on the hyperlinks below will take you straight to the relevant sections:

2. The Incentive Scheme

The Makinson approach

The team-based incentive scheme designed for JCP is part of a programme to improve efficiency and productivity in the public sector. Similar incentive schemes have been designed for Child Support Agency and HM Customs and Excise. The idea of piloting a team-based incentive scheme in public agencies dates back to the Makinson report (2000). John Makinson (then Group Finance Director of Pearson plc) was recruited to the Public Service Productivity Panel to analyse how performance-based incentives operated in four public organisations (Benefits Agency, Employment Service, HM Custom and Excise, and Inland Revenue) and how they might be improved. In his report particular emphasis is made on the use of team-based incentives, with the view that teamwork better reflects the way in which most public servants actually work. In particular the reasons for adopting team-based rewards, according to the document, are as follows:

- "The public service ethos stresses the importance of collective rather than individual achievement. Team-based rewards would, if properly executed, reinforce this positive affinity and motivation.
- Team based rewards are more capable of measurement. There is an abundance of benchmark data available in each agency on the relative performance of individual offices on a variety of measures.
- Team rewards would address concerns that individual performance measurement reflects biases against women, ethnic minorities and part-time workers.
- It will be easier to integrate pay incentive with non pay-based recognition in a team framework. The "office of the month", rewarded by a benefit in which everyone can share, is a less divisive idea than the "employee of the month". It also provides an opportunity to recognise team behaviour.
- Team rewards foster a spirit of internal competition between offices, which is more productive than internal competition within an office"[1].

The Makinson report makes some recommendations on how incentives should be designed and distributed. In particular

- Every member of staff should have a bonus opportunity representing at least 5% of base salary.
- Incentives should relate to targets already embodied in the Public Service agreements (PSA) of the respective agencies - this is to ensure that incentives reinforce the strategic objectives of the organisation - and no employee should be judged on a wide range of targets.
- As a rule of thumb, five targets should be the maximum for junior grades and eight targets the limit for more senior staff.
- Team-based incentives should in general relate to the performance of an individual office. The relative performance of offices and districts should be made widely available within each agency.

[1] Makinson (2000), p. 17.

- Incentives should be funded largely from improved productivity. The entitlement of individual agencies should be based on their overall performance. Extra funding for performance incentives should be released not just for making cost savings, but also for better than targeted service delivery and overall performance.

As we shall see some of these recommendation have been followed by the designers of the incentives scheme at JCP.

Brief outline of the history and structure of JCP

Jobcentre Plus was created in April 2002 as the result of a major reorganisation within the Benefits Agency and the Employment Service, which started in June 2001. At this time the Benefits Agency and the Employment Service became part of the same Department (the Department of Work and Pension), in order to bring together their work.

This major reorganisation meant redesigning districts (the 126 original districts were reorganised in 90 districts in April 2002), setting new PSA targets and changing the way of delivering business. In particular new offices were formed: the Pathfinder Offices which offer an integrated service and combine the work of the original social security offices and jobcentres. These new offices were first introduced in the 17 Pathfinder districts, formed in October 2001, in order to launch Jobcentre Plus. New Jobcentre Plus offices are being introduced and this structural change is still in progress and by 2006 Jobcentre Plus offices will operate in all 90 districts. There has been a further structural change in JCP since Sept 2002. The triangular hierarchical structure is now more decentralised: (Head offices and Regional offices decision making, districts more operative)

Now there are 90 Districts and 1300 offices: 17 are the Pathfinder Districts, where there is at least one Pathfinder office and 73 Districts where we have Jobcentre offices (ex-ES) and Social Security offices (ex-BA).

The scheme structure and targets

<u>The Teams</u>

These are the 17 Pathfinder Districts – that is, the team is the District. These districts differ in the number of Pathfinder offices. Members of a team are:

- everyone working for the District Manager

- disability employee advisors (under the control of District Managers by April 02)
- fraud and investigation staff (not managed by District Managers, but do contribute to the MVFE target)

There are from 500 to 2000 people in a team.

The targets

The targets are the same as the annual Jobcentre Plus targets. However, for Pathfinder districts there is a stretch factor added to this. The District manager is responsible for achieving the Makinson targets. There are five targets, briefly discussed below:

- Job Entry
- Customer Service
- Employer Outcome
- Business Delivery
- Monetary Value of Fraud and Error

Job Entry

This is based on a points system, which varies with the priority of the client. The higher the priority of the client, the more points are earned. Altogether there are five different points categories covering the range of Jobcentre Plus clients. They are:

Priority Client Group 1	Job entry points score **12**
Jobless Lone Parents including people on the New Deal for Lone Parents Those on the New Deal for Disabled People People with Disabilities in receipt of a specified primary benefit Other people in receipt of a specified primary benefit	
Priority Client Group 2	Job entry points score **8**
People on the New Deal 50 plus People on the New Deal 25 plus Those on the New Deal for Young People Employment Zones Other People with Disabilities not included in Priority Client Group 1 Jobseeker's Allowance (JSA) long term claimants	

Priority Client Group 3	Job entry points score **4**
JSA short term claimants	
Priority Client Group 4	Job entry points score **2**
Unemployed non claimants	
Priority Client Group 5	Job entry points score **1**
Employed people	

There are additional scores for

- Job entries in disadvantaged areas, defined on the basis of a high proportion of ethnic minorities or the poorest labour market status.and low income, and
- Every JSA client who remains off benefit 4 weeks after starting a job

Pathfinder districts were grouped into two bands (A and B), based on the percentage of Pathfinder offices in the district. Band A contains up to 20% of Pathfinder offices and were allocated a stretch factor of 5%. Band B have more than 21% of Pathfinder offices and were allocated an extra 7.5% of the target.

Customer Service

This target measures performance in meeting the standards and commitments in the Jobcentre Plus Customers' Charter and the Employers' Charter.

Customer service is measured under four headings:

- Speed - How quickly staff answer the telephone, greet a customer, deal with customers on the telephone, and face to face
- Accuracy - The accuracy of information staff give on the telephone and face to face
- Proactivity - How well staff understand customers' requests, anticipate their needs and how successfully the services are tailored to meet their individual needs
- Environment - The quality of the premises, facilities, and their accessibility and physical condition.

The target is divided in two key areas: service to clients and service to employers. Service to **clients** is measured against all four elements of Speed, Accuracy, Proactivity and Environment as all are included in the Customer Charter. For service to **employers**, the Environment element is not measured because relatively few employers visit the offices.

The table below shows the proportion of the total Customer Service target allocated for each of the four service elements for both clients and employers.

Service Element	Clients	Employers
Speed	25%	33.3%
Accuracy	25%	33.3%
Proactivity	25%	33.3%
Environment	25%	Not applied to employers

Information on performance against this target is collected by independent research companies.

For the client service component, performance is measured via a so-called *mystery shopping* approach. This consists of a quarterly programme, where the assessors use a variety of techniques to measure all the single elements of the target. In particular, they go into Jobcentres Plus Offices, acting out the role of a customer (Scenario Visit). Assessors also go into Jobcentre, Social Security Offices and Jobcentre Plus Offices, to assess the environment in which services are delivered (Environmental Assessment). Mystery shoppers telephone Jobcentres, Social Security Offices, and Jobcentre Plus Offices, to see how quickly they answer the telephone and how well they answer a given scenario (Telephone Timing, Telephone Scenario).

For the employer measure, another independent contractor is responsible for measuring the single elements. This is done through a survey, in the form of an employer telephone questionnaire.

The service to clients' elements count for 75% of the customer service target and the service to employers counts for the remaining 25%.

Employer Outcome

This is monitored as part of customer service. It measures:

- if the vacancy was filled (75% of the target is achieved by performance against this element)
- if the vacancy was filled in a time scale that met the employers' needs (25%)

Information on performance is collected by an independent research company who telephones a random sample of employers notifying vacancies to Jobcentre Plus.

Business Delivery

This measures performance in 5 key Jobcentre Plus processes.

Key Process	**What is Measured**	**How it is Measured**
Income Support (IS) Accuracy	Processing of IS claims is compliant with accuracy requirements and standards	Full claims check of a sample of cases by specialist teams.
Jobseeker's Allowance (JSA) Accuracy	Processing of JSA claims is compliant with accuracy requirements and standards (including Jobseeker's Agreements)	Full claims check of a sample of cases by specialist teams.
Labour Market Interventions	Booking of advisory interviews, including the mandatory New Deals. Action to follow up failure to attend Jobcentre Plus mandatory interviews or employer interviews complies with timeliness requirements	Sample of cases reviewed regionally by Jobcentre Plus checkers. Performance measured using a graduated system of points scores.
Incapacity Benefit medical Testing	Decisions made following a medical testing intervention to comply with evidence and timeless requirements	Cases assessed for timeliness requirements through IT system, which produces monthly data. Accuracy of medical test decisions measured by a sample of claim checks by specialist teams.
Basic Skills Screening (identify people in certain client groups who have literacy, language and numeracy skill needs)	Long-term JSA claimants and participants in the voluntary New Deals are screened for literacy, language and numeracy skill needs in accordance with specified requirements	Cases checked through the Labour Market System

Performance in each of the 5 Business Delivery target categories is measured against a single national target, expressed as a percentage. Performance is measured by taking an average of the results for all the 5 categories, each contributing 20% to the overall score.

Monetary Value of Fraud and Error.

This is to reduce the money lost in Income Support and Jobseeker's Allowance payments caused by

- mistakes made by customers
- mistakes made by staff
- customer fraud

The Benefits Agency has had this target since 1998. The long term aim is to reduce overall losses by 25% by 2004 and by 50% by 2006.

Two specialist teams measure MVFE. They visit each district 3 times a year. The 6 largest districts are treated as 2 districts for this purpose and are visited 6 times a year. During each visit the teams examine a specified number of randomly selected sampled IS and JSA cases. For this target all 17 Pathfinder districts are grouped together.

The Bonus structure

Each of the five targets carries a 1% bonus for each team member, calculated on their basic salary. So the absolute amount of the bonus gained depends on salary grade. The District must hit at least two targets to get any bonus, and if all 5 are reached there is an extra 2.5% of basic salary.

3. What impact might the scheme have: the predictions for JCP from economic theory

The design of an optimal incentive scheme is a complex matter. The measurability of performance, the size of the team, the multi-dimensionality of tasks are all elements to be considered. In Appendix A we briefly review what theory has to say about incentives in teams. This section uses this analysis to put forward hypotheses as to what might be the effect of the Makinson scheme in JCP.

The incentives in the JCP scheme

It is clear that the design of an optimal incentive scheme is a complex matter. The measurability of performance, the size of the team, the multi-dimensions of tasks and the characteristics of the organisation are all elements which need to be considered in the design of team-based incentives and in any evaluation of a scheme.

The nature of JCP

In terms of tasks, JCP provides support for people of working age by helping them in the job search and in claiming for benefits. A wide variety of customers approach JCP, with different needs: young people, lone parents, disable people, people over 50+. Different programmes and activities have to be undertaken in order to match their different needs. JCP staff are engaged in multiple activities, which are very difficult to measure.

JCP is a not-for profit organisation so there is not an indicator of overall performance comparable to profit in a private company. So assessing performance is complicated and requires that all the different activities undertaken are taken into consideration. Some of these activities are complements – more effort in one task means greater performance also in another task- and some are substitutes – more effort on one task means less effort on another.

The implications for the operation of the JCP incentive scheme

Given this, what can expect from the incentive scheme? We focus on how the teams were defined, which targets where chosen and the reward system.

Teams

There are 17 teams, defined at District level. The number of offices in each district varies from a minimum of 32 to a maximum of 171. The number of people varies from 500 to 2000. This definition of a team is very broad. The team is created merely by the reward system, in that individual rewards depend on the performance of the whole district. While staff interact within offices, there is little need for interactions between team members located in different offices and carrying out their tasks independently. Team members may find it hard to identify with their team.

As a consequence we can expect:

- The free-riding problem to be quite substantial. In small groups, office managers and peer pressure may mitigate this.
- The compensation system will not be enough to provide incentives for better performance so responses will be limited and some form of (additional) monitoring to hit output targets essential.
- The bigger the team, the less the impact of the scheme.

Targets

There are 5 targets to reach: job entry, customer service, employer outcome, business delivery and monetary value of fraud and error. The JCP environment is clearly a multi-tasking context. The current scheme has:

- Positive interdepencies between targets. For example, a good performance in the customer service target may have spillover effects on the employer outcome: understanding well the customers' requests, meeting their individual needs and giving them accurate information (these are the proactivity and accuracy elements of the customer service target) may speed up the process of filling vacancies (employer outcome). This may also facilitate the creation of job entries.
- Negative interdepencies between targets. The business delivery target and the monetary value of fraud and error may be substitute activities in relation to job entry, customer service and employer outcome: more time spent on income support or jobseekers' claims means less time to be devoted to the creation of job entries.
- Difficulties of measuring targets. Some of the targets relate to outputs that are very difficult to measure. The customer service and the employer outcome represent the quality of the service offered by JCP, but measurement of this is difficult and has to rely on surveys and the mystery shopping approach. The business delivery target covers very different activities and is also measured from random samples. Performance on these is measured at district level, so that the contribution of a single office to these targets may be not easy to distinguish and the precision of measurement may be quite poor The measurement of the monetary value of fraud and error target is even more difficult and there is only one measure for all the teams in the scheme. The difficulty in measuring outputs is intrinsic in the nature of the output of JCP and also depends on the fact that the agency has only a limited amount of funds that can be

allocated to measure performance. Better precision in measurement could be achieved if bigger sample sizes could be used, but this implies more resources to be spent in doing surveys and visiting premises.

- Measures of performance at one level and rewards at another. Effort on job entries is undertaken and measured at office level. But the bonus relates to the targets set at district level. If targets are hit at district level, all offices in that district will get the bonus. So if some offices do not hit their targets but at district level they are met, they still get the bonus.
- Varying labour market conditions across areas. These will have an impact on the outcome of JCP staff actions yet be beyond their control.

We expect the consequences of these features to be to weaken the power of the scheme through

- Free riding
- Possible allocation of effort in unintended directions
- Possible lack of attempts to hit those targets measured at district level

The design of the bonus

Each of the five targets carries a 1% bonus. So equal weight is attached to all five targets for bonus payment purposes. At least two targets must be reached to get any bonus, and if all 5 are reached there is an extra 2.5% of basic salary. Given the difficulty of relating one's effort to measured performance, and given that team bonuses are paid whenever two targets are hit, we can expect

- offices to focus on some targets and giving up on overall success (i.e. not trying to reaching all 5 targets)
- As any additional performance beyond the target is not compensated for, it is in the workers' interest to just hit the target and not to do any better than just hitting it.

Finally, there is one aspect of the scheme that may overcome some of these problems. Each district has a District Manager who is responsible for achieving the targets and has autonomy in deciding how to allocate the targets down to office level. If these District Managers decide to allocate targets to offices pro-actively, they can have an important role in monitoring

performance at office level. The allocation of targets at office level may make offices aware that their performance will be assessed. This could alleviate the free-riding problem.

4. Empirical Analysis

We begin with an overview of our methodology, and then present our main results. Note: we refer to districts in the Makinson incentive scheme as Makinson districts, and new Pathfinder offices as Pathfinder offices. So old-style ex-ES offices in Makinson districts are referred to as non-Pathfinder offices in Makinson districts.

A basic description of the data on job entries and the other target outcomes, and staffing are in Appendix B.

Methodology

Policy Evaluation

The key question for any policy evaluation is a very simple one: is the outcome any different with the new policy, than it would have been without it? In this context, the outcomes are the set of measures of outputs and the satisfaction of client groups (we are also interested in productivity). The major difficulty in a policy evaluation is to define the counter-factual, what would have happened without the policy. Some assumptions have to be made to *estimate* what the outcome would have been in the absence of the policy. The best approach (in this non-experimental setting) is to use another, similar, set of organisations as a control group. In our context, the control group has to be similar to the policy group and, importantly, subject to the same general set of influences. The idea is to compare the *change* in outcome in the targeted organisation with the *change* in outcome for the control organisation. For obvious reasons, this is called a "difference in difference" approach. This is the technique we will use for our final report, looking at the difference between the year 2002/3 and 2003/4.

For this interim report, that approach is not possible as a comparison between 2001/02 (before the incentive policy) and 2002/03 is compromised by a number of other simultaneous organisational changes (as noted above). We therefore simply compare the offices in Makinson districts with those in non-Makinson districts, and try to control for as many potentially confounding factors as possible. As we have noted in our earlier correspondence, this is not perfect, but is all that is feasible for this report. If allocation of Makinson status to

districts is random, as opposed to being correlated with factors influencing performance, then our results will give a fair estimate of the impact of Makinson. Any non-randomness that we do not control for directly with covariates will introduce bias.

Our Modelling approach

Our approach is based on economic models of production where staff can apply more or less effort to raise output. The incentive scheme is meant to raise effort and so output. Economists have modelled precisely the sort of threshold schemes used in JCP. So output will depend on the number of people working, on the equipment they have to deal with, and their effort. The latter is unobservable to us, but is assumed to depend on the presence of the incentive scheme. This is the hypothesis we test here: after controlling for as many other factors as we can observe, any remaining difference between the scheme and non-scheme districts is due to the effects of the incentive scheme itself.

We undertake this analysis in two stages[2]. First we run a regression over the whole period to isolate an office average effect. This controls for seasonal and other common time effects, for fluctuations of numbers of staff and in the labour market over the period. Second, we take this calculated average for each office and examine how these compare across offices included and excluded from the incentive scheme.

It is important to be aware what is captured by these adjusted office averages. They depend on the:

- average size (staff) of the office,
- average labour market conditions,
- Pathfinder office status
- Makinson district status
- Other unobservable characteristics of the office

We need therefore to adjust for the first three of these before we can attempt to isolate the Makinson effect. But it is clear that without either a random assignment of districts to Makinson status, or a proper difference-in-difference set-up, any effects might be attributable

[2] In future work we will make this more explicit using multi-level modelling.

to correlation of the fifth factor above and Makinson status. For example, suppose that more efficient districts were more likely assigned to the Makinson scheme. Then any positive effect we find from Makinson may well be attributable to the innate level of achievement. Or if districts with more challenging labour markets were more likely to be included, then we will underestimate any effect of the scheme. There are other techniques that we can bring to bear on this problem given more time, propensity matching for example, as well as utilising a difference-in-difference approach as the next year of data becomes available.

The controls in the first stage

We examine the staff data to decide the most useful and parsimonious way to include it in the regression. Unsurprisingly, the numbers of staff in different grades are highly correlated – so for example, there is roughly 1 EO to 2 AOs. Also, many offices do not have any staff of high grade. We therefore decided to use the sum of EOs and AOs as the measure of office staff.

There is no information available on the quality of the equipment and infrastructure with which office are equipped. We are therefore forced to make the assumption that this is not correlated across offices with scheme status. However, as discussed above, one important feature of the infrastructure that we do know is whether an office is a Pathfinder office. These are newly (re)fitted, and perform a different set of tasks to other ex-ES offices.

One complicating feature in the present context is that the main output of JCP – job entries – is dependent to quite a strong degree on outside factors. The strength of the local labour market has been shown to matter a great deal in influencing flows out of unemployment, and so it seems likely that it will affect job entries. We measure this in the following way. Using the postcode of the JCP office, we locate it in a ward and then a Travel To Work Area (TTWA98). We then extract claimant inflow and vacancy inflow data from NOMIS for each TTWA and for each month. We use the inflow data rather than the stock data, as the stock data will be endogenous for (depend on) the efficiency of the office. The inflow partly represents the task facing the office, and partly is a good proxy for the stock. It could be argued that the inflow itself will be endogenous – an efficient office encourages more vacancies to be advertised in it – but we believe this is likely to be second order. In any case, we repeat our analysis with just the claimant inflow.

Results

In this report we analyse only the impact of Makinson on job entry. Because of time constraints and late availability of data, we have not been able to look at the following features in this report:

- Customer satisfaction outcomes both in their own right and in relation to job entry outcomes
- Job entries by client group
- Role of district managers

Overall impact of the Makinson scheme on job entry

First stage

The first stage regression results are in Tables 1 to 4. These are in two pairs. Tables 1 and 2 look at different ways of modelling the labour market conditions, and 3 and 4 examine the best way to model the relationship between output and the number of staff. There is no obvious best way of doing this from economic theory, so we allow the data to influence our choice. We present results both from a regular regression incorporating variation over offices and over time (tables 1 and 3) and fixed effect regressions which only use variation over time (tables 2 and 4). Differences between offices are swept up into the adjusted office effects that we analyse in the next section. We work on a log scale[3] to minimise the impact of heteroskedasticity.

There are a number of data issues that are important in the labour market data. Claimant inflows are available for all our period. As noted above, they both measure (some of) the "raw material" for Job Centres to work with (so might be expected to positively influence job entries), but are also a proxy for the state of the local labour market (and hence have a negative impact). Vacancy inflows represent a partial measure of jobs available to secure a job entry, and so should have a positive effect; these data are only available from June 2002, so we lose two months at the start of the period using them. These months were before the scheme was fully announced to staff. If we want to normalise the flows to principally capture time series variation, we can use local (TTWA) population, but this data is only available for

[3] i.e. take logs of the total job entry points

England and Wales. So the columns are not directly comparable as they are estimated on slightly different datasets.

We find significant effects of the local labour market on job entries. In all cases, vacancy inflows take the expected positive sign. The sign on claimant inflows varies between specifications, but in the fixed effect regressions is always negative – reflecting a worsening labour market. We show below that the office average effect of claimant inflows is positive, which makes sense – the long run average is a measure of the amount of inflow JCP staff have to work with. The OLS regressions combine both effects and so are positive in some columns in Table 1. We adopt a specification that takes the (log of the) ratio of vacancy inflows to claimant inflows. This normalises the variables without restricting the sample to England and Wales, has support from the literature on matching functions, and is accepted by our data. Our results show that a worsening labour market makes it harder to secure job entries. This in turn makes it harder for staff to achieve their targets and earn bonuses. The size and significance of the effect means that this is not a trivial risk factor that staff bear.

Turning to the staff data, as noted above, we take as our staff measure the sum of the number of EOs and AOs in the office, staff-in-post and casuals. This is highly correlated with any other sensible measure of staff, so we are confident that it captures the true labour power available to office managers. For functional form, we tried a simple linear model, a quadratic model and a log linear model.

Above we noted that almost all of the variation in staff is across offices and very little over time within an office. Therefore we expect the coefficients to be very different between the OLS and the fixed effect estimation, and the tables bear this out. We find a very strong effect of staff in the OLS, but very little in the panel analysis because it is simply absorbed by the fixed effect. (We shall see that the estimated office fixed effects are strongly related to office average size).

The final points to note from these first stage regressions are the importance of seasonal effects, and that the regressions explain around half of the overall variation. We chose the specification in column 3 of table 4 (the same as column 4 in table 2). We extract the estimated office effects, and subject these to analysis. Note that these necessarily have mean zero, but we adjust them by adding back the grand mean to ensure they have the same mean as the equivalent raw data.

Second stage

The office effects are average office job entry points after allowing for differences across offices in staff, local labour market conditions and seasonal effects. Table 5 shows the mean and dispersion of these effects and Figure 1 gives the full distribution. The figure shows some large outliers at the left tail of the distribution, but otherwise the pattern is reasonably normal. The table also shows some preliminary unconditional comparisons across different office and district types. Comparing offices in non-Makinson districts with non-Pathfinder offices in Makinson districts, we see that the offices effects are fairly similar in the two districts, with the former being slightly higher. Pathfinder offices are clearly associated with lower job entry figures. Figures 2 to 4 present the whole distributions for these comparisons.

Table 6 takes things a little further. Splitting the sample by office size and labour market conditions we present data means again for a comparison of Pathfinder and Makinson status. We see that for small offices non-Pathfinder Makinson offices perform similarly to non-Makinson offices while for larger offices, the non-Makinson offices do better. There appears to be little difference by labour market conditions. However, these comparisons do not allow for other factors so we turn to regression analysis of these office averages to unravel the effect of different factors.

Before that, note the differences between the characteristics of offices in Makinson and non-Makinson districts. Table 7 shows that offices in Makinson districts are slightly bigger, less likely to be a District ("HQ") office, have marginally worse labour market conditions and are slightly more numerous per district.

Our main regression results are presented in tables 8 and 9. We start with basic explanatory factors in column 1 of table 8. Big offices (defined in terms of staff) produce more job entries; offices in labour markets with a lot of claimant inflows on average produce more job entries (note that the labour market variable is vacancy inflows/claimant inflows so a negative sign on the variable means a positive relationship with job entries). These are both as expected. Offices having the status of a District Office yield more job entries holding all else constant. A Pathfinder office produces significantly fewer job entries than an otherwise equivalent office[4].

[4] This is presumably because staff in these offices are performing benefits-related activities as well as job entry tasks; it may also reflect the transitional disruption to the new status.

The key variables we are interested in are the Makinson variables. Column 2 shows that being in an incentivised district has an insignificant effect on job entries. However, after allowing for heterogeneity of response by including an interaction of Makinson status and office size (column 3), we find a significant impact of Makinson. Makinson has a positive effect that declines with office size. This effect fits our predictions from the economic analysis presented above. Our interpretation is that bigger offices face a greater free-rider problem and so the incentive payment is less effective in eliciting higher effort. In column 4 we add a variable that measures the number of offices in the district[5], and allow its effect to differ in Makinson and non-Makinson districts. It has no effect in the latter and a negative effect in the former. This also has an interesting interpretation. It suggests that there is little interaction between offices in non-incentivised districts, but that this is attempted in incentivised districts but less effective in districts with many offices. Finally, we examine whether the number of high grade staff in the office has any independent effect but it appears not to. Deleting insignificant variables, we end up with the preferred specification in column 6. This regression explains about half of the variation between offices, and shows significant and heterogeneous effects from the incentive scheme.

The different effects of the scheme by size are interesting and important to the design of the scheme. We therefore pursue them in a little more detail. Column 1 of table 9 breaks the effect up into different office size bands. We find that the effect of the scheme does not decline monotonically with size, but the impact is roughly constant until about 60 (this is AOs + EOs). We have tried different cut-off points, but the data prefer a cut-off of 60. We present our final preferred specification in column 6. This implies that the incentive scheme has an effect in offices up to size 60, and no effect thereafter. The effect declines with the number of offices in a district. To get some feel for the importance of this, note that of the offices in the final regression, 847 out of the 942 are below 60, and 70% of staff (as measured by our 'AOs plus Eos' measure) are in such offices; 183 out of 217 Makinson offices (59% of staff) are below this cutoff.

We can use these estimates to calculate the expected gain from the incentive scheme. We compute the percentage gain for each district as (for offices with less than 60) as: 100*((exp(0.308 – 0.014*#)-1)), where # represents the number of offices in that district, and the coefficients 0.308 and 0.014 (this is 0.019 for Makinson districts minus 0.005 for non-

[5] These are offices with positive job entries – not all JCP offices.

Makinson districts) are taken from column 3 of table 9. This produces a conservative estimate and will if anything understate the effect, compare to column 6. The results of this are in table 10. Districts with few offices show a substantial gain. We expect that the districts with 15 or fewer offices per district to achieve their stretch targets; the others may struggle to do so, because of having more large offices, and many offices per district.

In summary, this analysis shows that – after allowing for observed differences between offices - the offices in the incentive scheme

- show a higher job entry performance
- the impact depends on the office size and the number of offices per district.

It needs to be re-emphasised that these estimates are only unbiased if the original assignment of Makinson status to districts was random. To the extent that that is not true, we may simply be picking up the effect of another characteristic that raises job entry performance and is correlated with the assignment process.

How do the targets set during the year relate to job entry patterns?

We can only do this analysis for Yorkshire and Humberside where we have data on targets at monthly level. So we examine how districts within the Yorkshire and Humberside region perform in Job Entry outcomes relative to their targets. We do this to see how these targets relate to behaviour. Calderdale and Kirklees is the only Makinson district within Yorkshire and Humberside and we analyse how performance in this district compares to performance of the other nine districts in the region. In particular we analyse the difference between actual performance and the target set.

Figure 5a cumulates the difference between actual performance and targets over time, from April 2002 to December 2002. Whilst Hull consistently performs at the highest level and Barnsley and Rotherham the lowest relative to the targets, the performance of the Pathfinder district is average. We then focus on the Calderdale and Kirklees district and select the three client groups on which this district was concentrating and compare the change in behaviour over time with the other districts. The purpose of this analysis is to guage whether there is any difference in the behaviour of the Makinson district over time, with regard to its ability to hit the Job Entry target compared to the non- Makinson districts. The highest number of job entries were achieved for the Non Claimant, Short Term Unemployed and Employed

categories. For clarity, the districts are divided into groups which perform similarly and then compared to the Makinson district.

Non-Claimants

Comparing against districts which display most volatility, shown in Figure 5b and 5c, Calderdale and Kirklees seems better managed as it produces more consistent results: the difference between actual performance and the targets moves closely around zero. Hull's behaviour, for example is more erratic in terms of its job entries. Figure 5d shows that the behaviour of Calderdale and Kirklees more closely resembles the districts displaying less variation in performance: Leeds, Bradford and Sheffield.

Short-Term Unemployed

At first glance there seems to be a tendency for the Makinson district to under-perform, relative to the target. However it is also worth noting that, compared to Barnsley and Rotherham whose performance wildly fluctuates from one month to another, the Pathfinder district behaves consistently. In Figure 5g the difference between actual performance and the targets, whether positive or negative, is lower than in the other two graphs, and again the performance within Calderdale and Kirklees closely maps the targets set.

Employed

The achievement of Employed job entries relative to the target is close to zero for all months in the Pathfinder district; more so than in other districts. A possible explanation for this is that the teams aim at just hitting the targets; exerting no more or no less effort than is required to hit the stretch target. It is worth noting a change of behaviour in Calderdale and Kirklees district following the publication of the Pathfinder targets in June 2002 to the teams.

In summary this analysis of targets shows that

- offices tend to respond to targets
- offices may try not to overshoot the target

5. Summary of findings

Our statistical approach is to examine the effect of the scheme, netting out factors that may affect performance over and above the impact of the scheme. The factors that are netted out

are differences in staffing, labour market conditions, and seasonal factors. Once these are controlled for we find:

- The scheme has had a significantly positive effect on job entries.
- This effect is smaller in larger offices, and is smaller in districts with many offices.
- On average, the effect is of the order of an increase of around 11.1%. This roughly translates into an extra 11,311 job entry points per month over all Makinson offices of size 60 or less, or 2,300 extra people placed into jobs per month.
- Analysis of behaviour against targets in one region shows some evidence that teams try to exactly hit their targets.

Finally this report is only based on only partial data as the full data is not yet available. And because of other organisational change coinciding with the introduction of the scheme, we are not able to rule out all possible confounding factors: these results rest on the assumption that Makinson status is not systematically assocatied with other factors which make offices perform better.

6. Tables and Figures

Table 1

OLS Regressions using different Labour Market Variable forms
Dependent variable: Log total job entry points

	(1) vac/population, cf/population	(2) cf/population	(3) vac, cf non-normalised	(4) vac/cf
Log Staff	0.660	0.647	0.680	0.698
	(0.010)**	(0.009)**	(0.011)**	(0.029)**
Log Normalised Claimant Inflows	0.188	0.247		
	(0.029)**	(0.026)**		
Log Normalised Vacancy Inflows	0.355			
	(0.029)**			
Log Claimant Inflows			-0.093	
			(0.023)**	
Log Vacancy Inflows			0.104	
			(0.025)**	
Log Labour Market				0.082
				(0.037)*
May 2002		0.109		
		(0.029)**		
June 2002		-0.025		
		(0.029)		
July 2002	0.041	-0.040	-0.015	-0.025
	(0.029)	(0.029)	(0.030)	(0.015)
August 2002	0.235	0.147	0.169	0.171
	(0.029)**	(0.029)**	(0.030)**	(0.012)**
September 2002	0.048	0.064	0.108	0.095
	(0.029)	(0.030)*	(0.030)**	(0.015)**
October 2002	0.297	0.289	0.274	0.270
	(0.029)**	(0.029)**	(0.030)**	(0.017)**
November 2002	-0.000	0.005	0.057	0.060
	(0.029)	(0.030)	(0.030)	(0.016)**
December 2002	-0.498	-0.608	-0.607	-0.621
	(0.030)**	(0.029)**	(0.030)**	(0.018)**
Constant	6.832	5.365	3.785	3.839
	(0.207)**	(0.155)**	(0.049)**	(0.092)**
Observations	5636	7257	5636	6469
R-squared	0.55	0.52	0.53	0.55

Robust standard errors in parentheses; * significant at 5% level; ** significant at 1% level
Note – 'staff' means the sum of AOs and EOs in the office.

Table 2
Fixed Effect Regressions using different Labour Market Variable forms
Dependent variable: Log total job entry points

	(1) vac/population, cf/population	(2) cf/population	(3) vac, cf non-normalised	(4) vac/cf
Log Staff	0.112	0.107	0.113	0.096
	(0.031)**	(0.031)**	(0.038)**	(0.037)**
Log Normalised Claimant Inflows	-0.322	-0.291		
	(0.033)**	(0.038)**		
Log Claimant Inflows			-0.160	
			(0.046)**	
Log Vacancy Inflows			0.213	
			(0.029)**	
Log Labour Market				0.194
				(0.019)**
May 2002		0.084		
		(0.013)**		
June 2002		0.044		
		(0.014)**		
July 2002	-0.041	-0.000	-0.002	-0.012
	(0.011)**	(0.013)	(0.014)	(0.012)
August 2002	0.144	0.185	0.190	0.188
	(0.010)**	(0.013)**	(0.015)**	(0.012)**
September 2002	0.129	0.165	0.080	0.070
	(0.012)**	(0.015)**	(0.014)**	(0.012)**
October 2002	0.270	0.313	0.276	0.263
	(0.010)**	(0.013)**	(0.014)**	(0.012)**
November 2002	0.120	0.156	0.075	0.078
	(0.013)**	(0.016)**	(0.015)**	(0.012)**
December 2002	-0.655	-0.611	-0.579	-0.602
	(0.011)**	(0.013)**	(0.017)**	(0.012)**
Constant	3.901	4.046	5.219	5.679
	(0.207)**	(0.236)**	(0.475)**	(0.115)**
Observations	7257	7257	5636	6469
Number of officeid	823	823	822	942
R-squared	0.50	0.50	0.57	0.57

Robust standard errors in parentheses; * significant at 5% level; ** significant at 1% level
Note – 'staff' means the sum of AOs and EOs in the office.

Table 3
OLS Regression with varying staff variables; using chosen labour market variable as vac/cf
Dependent variable: Log total job entry points

	(1) Linear	(2) Quadratic	(3) Log
Labour Market	-6.228	13.696	
	(8.376)	(7.951)	
Staff	9.090	14.957	
	(0.166)**	(0.260)**	
Staff Squared		-0.036	
		(0.001)**	
Log Labour Market			0.082
			(0.020)**
Log Staff			0.698
			(0.009)**
July 2002	-17.874	-14.785	-0.025
	(16.828)	(15.911)	(0.027)
August 2002	79.913	83.000	0.171
	(16.837)**	(15.920)**	(0.027)**
September 2002	62.106	61.288	0.095
	(16.782)**	(15.868)**	(0.027)**
October 2002	192.378	182.450	0.270
	(17.139)**	(16.209)**	(0.027)**
November 2002	59.198	52.946	0.060
	(17.058)**	(16.131)**	(0.027)*
December 2002	-225.720	-228.969	-0.621
	(17.109)**	(16.178)**	(0.027)**
Constant	270.588	131.987	3.839
	(17.515)**	(17.275)**	(0.034)**
Observations	6714	6714	6469
R-squared	0.36	0.43	0.55

Robust standard errors in parentheses; * significant at 5% level; ** significant at 1% level
Note – 'staff' means the sum of AOs and EOs in the office.

Table 4
Fixed Effect Regression with varying staff variables; using chosen labour market variable vac/cf
Dependent variable: Log total job entry points

	(1) Linear	(2) Staff Square	(3) Log
Labour Market	35.353	35.369	
	(7.284)**	(7.284)**	
Staff	-0.707	-0.148	
	(0.565)	(0.824)	
Staff Squared		-0.005	
		(0.005)	
Log Labour Market			0.194
			(0.019)**
Log Staff			0.096
			(0.037)**
July 2002	-10.956	-10.941	-0.012
	(7.219)	(7.220)	(0.012)
August 2002	86.655	86.620	0.188
	(7.235)**	(7.235)**	(0.012)**
September 2002	56.653	56.591	0.070
	(7.142)**	(7.142)**	(0.012)**
October 2002	186.907	186.672	0.263
	(7.408)**	(7.412)**	(0.012)**
November 2002	65.201	64.957	0.078
	(7.281)**	(7.286)**	(0.012)**
December 2002	-215.995	-216.224	-0.602
	(7.373)**	(7.377)**	(0.012)**
Constant	504.979	496.231	5.679
	(20.200)**	(22.273)**	(0.115)**
Observations	6714	6714	6469
Number of officeid	986	986	942
R-squared	0.39	0.39	0.57

Robust standard errors in parentheses; * significant at 5% level; ** significant at 1% level
Note – 'staff' means the sum of AOs and EOs in the office.

Table 5: Describing the Fixed Effects

Fixed Effect	Mean	Median	1st Quartile	3rd Quartile	Count
Total	6.002	6.052	5.522	6.525	942
Pathfinder Offices	5.752	6.073	5.389	6.640	48
Non-Pathfinder Offices	6.015	6.051	5.522	6.520	894
Offices in Makinson Districts	5.939	6.042	5.478	6.526	217
Offices in Non-Makinson Districts	6.021	6.053	5.524	6.524	725
Non-Pathfinder offices in Makinson districts	5.993	6.025	5.478	6.514	169

Table 6: Breakdown of Fixed Effects

Table 6a: Table of Fixed Effects: Total

			Pathfinder Office			*Total*
		Yes		No		
Makinson District	Yes	Mean	5.752	Mean	5.993	
		Count	48	Count	169	217
	No	Mean		Mean	6.021	
		Count		Count	725	725
Total			48		894	942

Table 6b: Table of Fixed Effects: Small Offices (<25 Staff)

			Pathfinder Office			*Total*
		Yes		No		
Makinson District	Yes	Mean	5.244	Mean	5.565	
		Count	11	Count	84	95
	No	Mean		Mean	5.569	
		Count		Count	371	371
Total			11		455	466

Table 6c: Table of Fixed Effects: Large Offices (>=25 Staff)

			Pathfinder Office			*Total*
		Yes		No		
Makinson District	Yes	Mean	5.903	Mean	6.415	
		Count	37	Count	85	122
	No	Mean		Mean	6.493	
		Count		Count	354	354
Total			37		439	476

Table 6d: Table of Fixed Effects: Good (above average) Labour Market Conditions

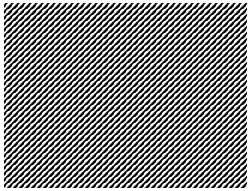
			Pathfinder Office			*Total*
		Yes		No		
Makinson District	Yes	Mean	5.167	Mean	5.763	
		Count	15	Count	71	86
	No	Mean		Mean	5.793	
		Count		Count	276	276
Total			15		347	362

Table 6e: Table of Fixed Effects: Poor (below average) Labour Market Conditions

			Pathfinder Office			*Total*
		Yes		No		
Makinson District	Yes	Mean	6.018	Mean	6.159	
		Count	33	Count	98	131
	No	Mean		Mean	6.161	
		Count		Count	449	449
Total			33		547	580

Note – ‘staff’ means the sum of AOs and EOs in the office.

Table 7: Office characteristics summary by Makinson District Status

		Pathfinder Office (%)	Staff (AO + EO)	Number of offices in District	District (HQ) Office (%)	Mean labour market conditions
Offices in Non-Makinson Districts	Mean		29.47	11.354	0.105	0.189
	Median		24	11	0	0.144
	Sd		26.76	4.061	0.307	0.335
	Q10		7	6	0	-0.142
	Q90		57	17	1	0.612
Offices in Makinson Districts	Mean	0.221	36.111	14.475	0.065	0.182
	Median	0	27	16	0	0.176
	Sd	0.416	32.727	5.156	0.246	0.26
	Q10	0	8	7	0	-0.129
	Q90	1	78	22	0	0.545
All offices	Mean	0.051	31	12.073	0.096	0.187
	Median	0	25	12	0	0.175
	Sd	0.22	28.366	4.53	0.294	0.319
	Q10	0	8	7	0	-0.129
	Q90	0	61	17	0	0.57

Note – ‘staff’ means the sum of AOs and EOs in the office.

Table 8: Regressions on the Fixed Effects
Dependent variables is Office Fixed Effect

	1	2	3	4	5	6
Pathfinder Office	-0.697	-0.687	-0.538	-0.583	-0.583	-0.582
	(0.085)**	(0.093)**	(0.105)**	(0.106)**	(0.106)**	(0.106)**
District Office	0.248	0.247	0.236	0.232	0.232	0.232
	(0.065)**	(0.065)**	(0.064)**	(0.064)**	(0.064)**	(0.064)**
log Staff	0.563	0.563	0.592	0.589	0.589	0.593
	(0.023)**	(0.023)**	(0.025)**	(0.026)**	(0.026)**	(0.025)**
Mean labour market conditions	-0.175	-0.175	-0.171	-0.161	-0.161	-0.16
	(0.058)**	(0.058)**	(0.058)**	(0.058)**	(0.058)**	(0.058)**
Makinson District Status		-0.013	0.107	0.436	0.436	0.493
		(0.048)	(0.063)	(0.147)**	(0.147)**	(0.133)**
Makinson Status*Staff			-0.004	-0.005	-0.005	-0.005
			(0.001)**	(0.002)**	(0.002)**	(0.001)**
Number of Offices in District				-0.005	-0.005	
				(0.005)	(0.005)	
Makinson Status*Number of offices				-0.02	-0.02	-0.025
				(0.009)*	(0.009)*	(0.008)**
% High grade staff in office					0.015	
					(0.63)	
Constant	4.299	4.301	4.211	4.275	4.275	4.207
	(0.075)**	(0.076)**	(0.081)**	(0.109)**	(0.111)**	(0.081)**
Observations	942	942	942	942	942	942
R-squared	0.45	0.45	0.46	0.47	0.47	0.47

Note – ‘staff’ means the sum of AOs and EOs in the office.
Standard errors in parentheses; * significant at 5% level; ** significant at 1% level

Table 9: Regressions on the Fixed Effects – Alternative Size Variables
Dependent variables is Office Fixed Effect

	1	2	3	4	5	6
Makinson Office, staff <= 12	0.262	0.333				
	(0.160)	(0.146)*				
Makinson Office, 12 < staff <= 25	0.285	0.351				
	(0.159)	(0.147)*				
Makinson Office, 25 < staff <= 40	0.351	0.413				
	(0.150)*	(0.138)**				
Makinson Office, 40 < staff <= 60	0.293	0.353				
	(0.161)	(0.152)*				
Makinson Office, staff > 60	0.016	0.073	-0.285			-0.292
	(0.168)	(0.159)	(0.120)*			(0.120)*
Makinson District Status			0.308	0.282	0.299	0.371
			(0.137)*	(0.137)*	(0.140)*	(0.124)**
Makinson Office, staff > 50				-0.181		
				(0.115)		
Makinson Office, staff > 40					-0.124	
					(0.094)	
Number of Offices in District	-0.006		-0.005	-0.006	-0.006	
	(0.005)		(0.005)	(0.005)	(0.005)	
Makinson Status*Number of offices	-0.018	-0.024	-0.019	-0.017	-0.018	-0.024
	(0.009)	(0.008)**	(0.009)*	(0.009)	(0.009)	(0.008)**
Observations	942	942	942	942	942	942
R-squared	0.46	0.46	0.46	0.46	0.46	0.46

Note – also included in the regressions are intercept, Pathfinder Office status, District Office status, log staff, and mean labour market conditions; the coefficients not shown but available from the authors.
Note – 'staff' means the sum of AOs and EOs in the office.
Standard errors in parentheses; * significant at 5% level; ** significant at 1% level

Table 10: Calculating the Gain in Performance

	Number of offices per district					
	0 – 5	6 – 10	11 – 15	16 – 20	21+	Total
% Gain	31.4	22.5	14.2	6.5	0.0	
Number of districts	1	8	2	4	2	17
Ratio of offices with less than 60 staff to total offices	4/5	53/71	25/26	56/72	43/43	181/217
Average % Stretch	7.5	8.3	6.25	5.0	5.0	6.29

Note: mid-points used to calculate expected gain

Uses regression results from table 9 column 3 (which understate gain relative to col. 6)

Figure 1: Distribution of Office Fixed Effects (Adjusted mean log TJEP)

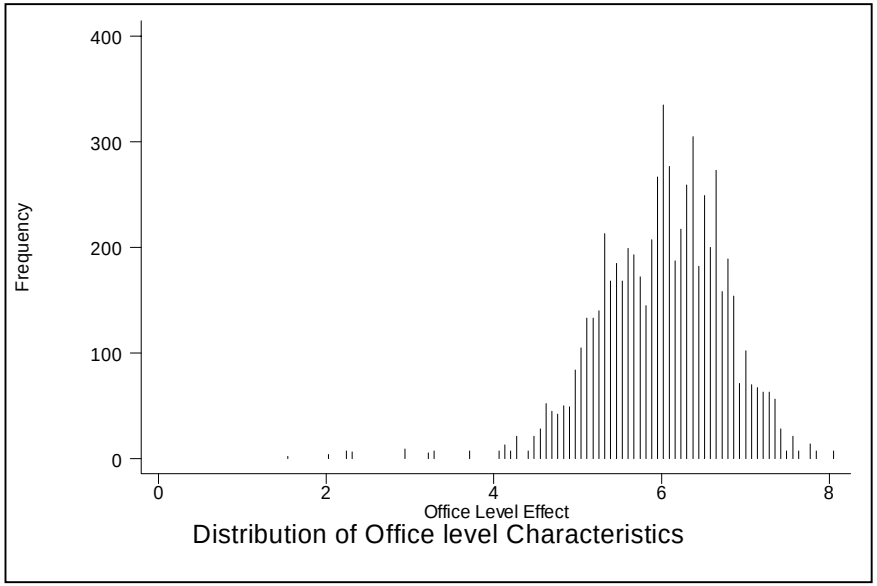
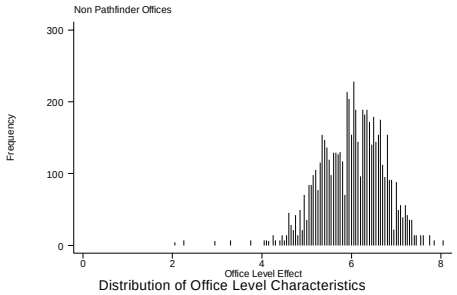


Figure 2: Distribution of Office Fixed Effects (Adjusted mean log TJEP) – by Pathfinder Office Status



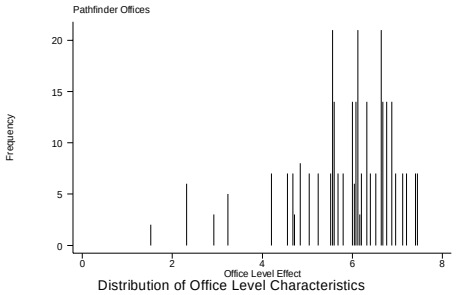
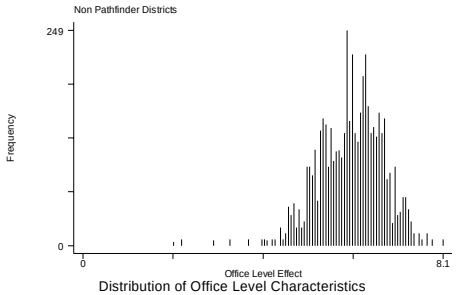


Figure 3: Distribution of Office Fixed Effects (Adjusted mean log TJEP) – by Pathfinder District Status



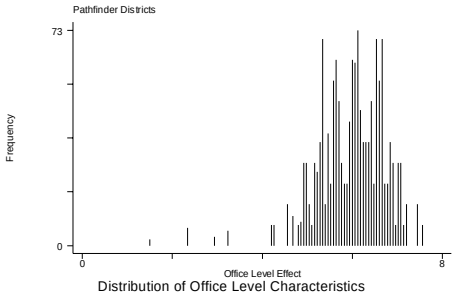
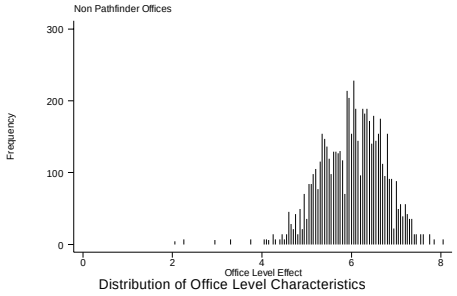


Figure 4: .. Distribution of Office Fixed Effects (Adjusted mean log TJEP) – by Pathfinder and Makinson Status



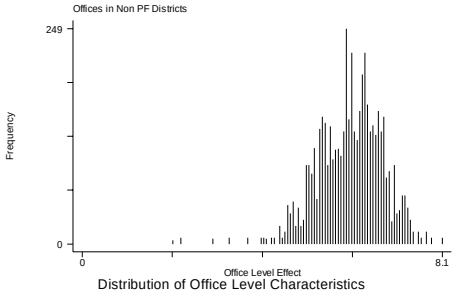


Figure 5: Performance over the year to date, Yorkshire and Humberside

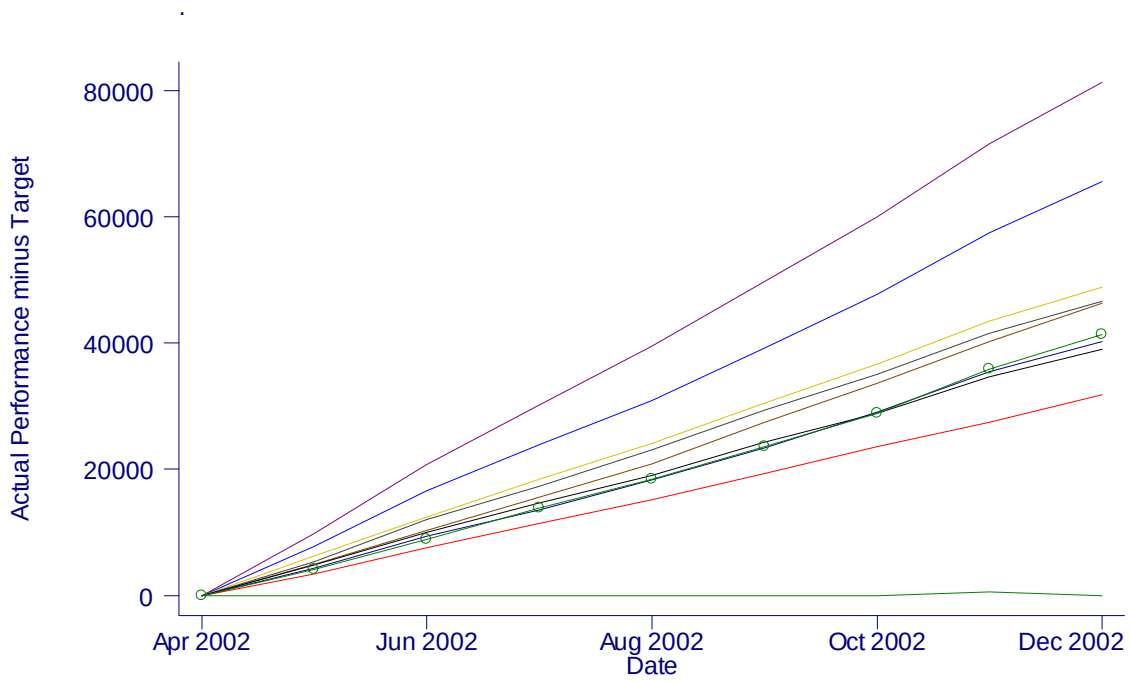


Figure 5a: Cumulative Total JE Score

Figure 5b – 5j: Performance over the year to date, Yorkshire and Humberside

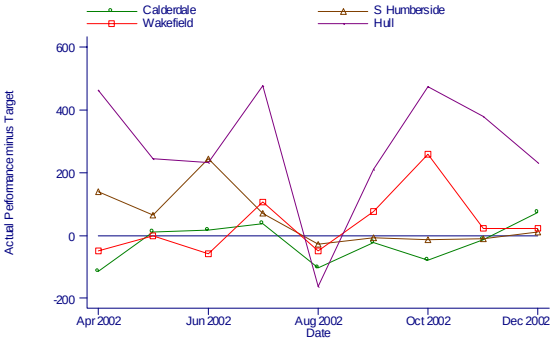


Figure 5b: Non Claimants

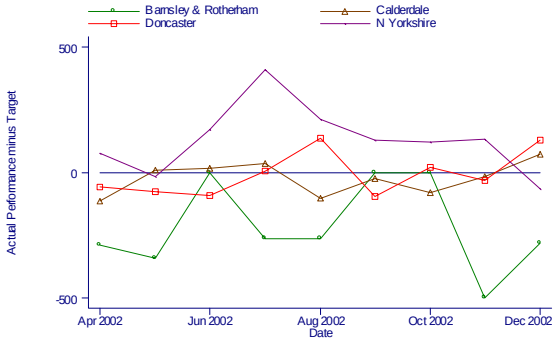


Figure 5c: Non Claimants

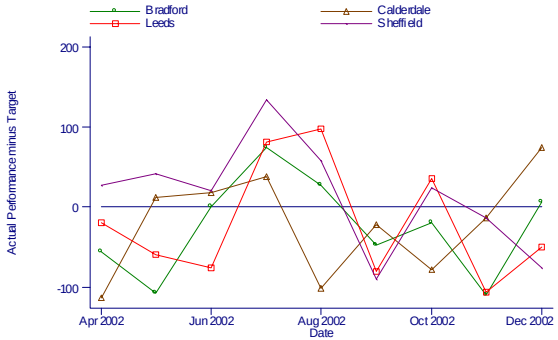


Figure 5d: Non Claimants

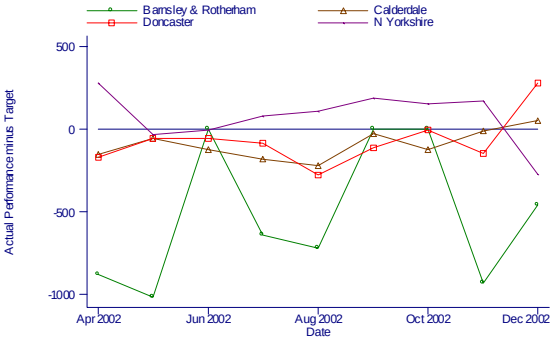


Figure 5e: Short Term Unemployed

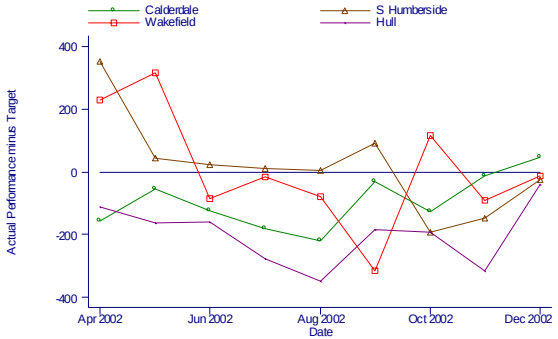


Figure 5f: Short Term Unemployed

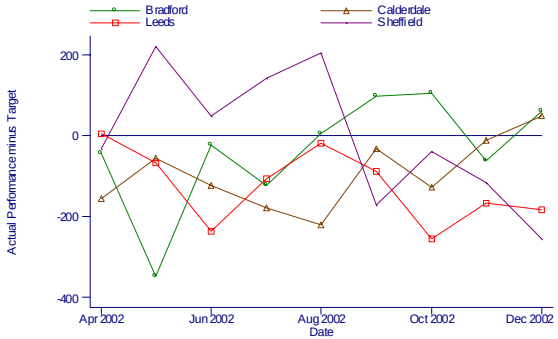


Figure 5g: Short Term Unemployed

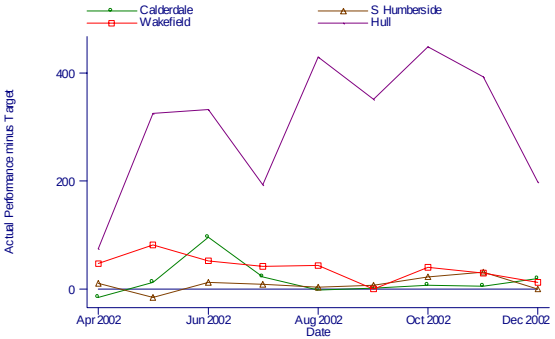


Figure 5h: Employed

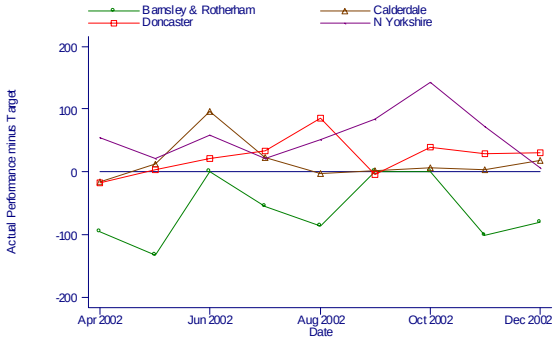


Figure 5i: Employed

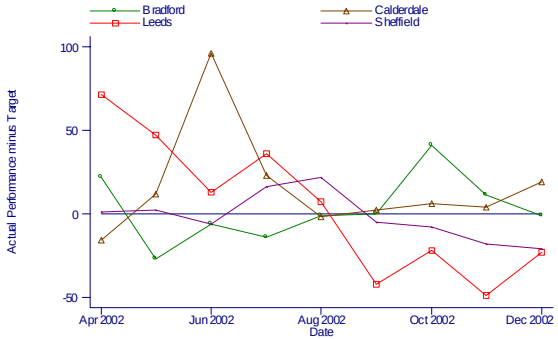


Figure 5j: Employed

7. References

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B. Holmström “Moral hazard in teams”, Bell Journal of Economics, 13, 1982, 324-340.

H. Itoh “Incentives to help in multi-agent situations”, Econometrica, 59, (3),1991, 611-636.

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8. Appendix A: A brief review of the economic theory of team incentives

A general insight from the economic literature on the theory of incentives in teams is that the effectiveness of group rewards on individual and group performance depends on the type of the organisation where the scheme is implemented and on the characteristics of its production process. More precisely there are several aspects related to the type of the organisation and to how output is produced and measured that need to be considered in designing the optimal incentive scheme. The optimal incentive scheme is that which delivers the desired effects on performance with the minimum cost for the designer.

In this section we briefly review the theory of incentives in teams. We focus on the predictions of how the optimal reward scheme should be designed and on the characteristics of public sector agencies that have an impact on the delivery of incentives. Given this we identify the points of strength and weaknesses of the incentive scheme designed at JCP.

The use of incentive schemes in teams

Incentive schemes are used whenever there are two parties writing a contract and one has imperfect information on some elements/aspects that have an important impact on the outcome of the transaction but cannot be contracted for. One example, which is relevant for our context, is the case of moral hazard. Problems of moral hazard arise in situations in which one individual (the principal) hires another to take an action for him as her "agent" and this latter has private information on the action (e.g. effort) he chooses.

If the action were observable, the contracting problem between the two individuals would be relatively straightforward and the contract would simply specify the exact action to be taken by the agent. However, when effort is not observable by the principal, the compensation scheme has to be designed in a way that indirectly gives the agent the incentive to take the correct action. In the case of individual production, paying an individual the full value of his output will induce the efficient level of effort, in that final output, if perfectly measured as in the case of a monetary outcome, provides a good indicator of the agent's effort. The incentive to exert the desired level of effort is provided by linking the agent's compensation to his performance. An incentive scheme can then be defined as a reward system where part or all of the reward depends on performance. The power of the incentive scheme is measured by how much the compensation depends on final output. High powered incentives schemes are those schemes where the proportion of the reward which depends on performance is predominant.

How precisely performance is measured is of paramount importance for the effectiveness of an incentive scheme. When a precise measure of output is available, the principal can better infer the agent's effort from the output and hence can set higher incentives.

Delivering incentives in a team is more complex than in the case of individual output. In a team final output is made up by all team members' contributions, and hence even if the principal observes final output perfectly, it is not a good indicator of each agent's inputs. Holmstrom (1982) provides one of the seminal contributions to the theory of incentives in teams. He shows that, in a setting where team members depend on each other to produce final output, i.e where there are complementarities in production, if all the output of the team is shared among team members, team members are induced to free ride.

The intuition behind this idea is that paying an amount equal to total output to team members creates a negative externality for the team. If output is fully shared among team members, when an agent decreases her contribution, the value of total output will decrease and the sum of all agents' shares will decrease. Hence the agent who cheats will not pay in full for the consequences of her act. The cost of one person's shirking (in terms of the share of lower joint output) will be passed onto the others. The private marginal cost of shirking will be less than the social marginal cost (borne by all members of the team) and the level of effort chosen by the individual will be lower than the Pareto efficient level. Intuitively, this free-rider problem becomes greater in large organisations.

Holmstrom shows that it is possible to solve this free-rider problem by choosing an appropriate reward system. The optimal system of rewards in teams depends on how precisely output can be measured. First, if final output is perfectly measurable, a first best solution is attainable by imposing a system of group penalties whenever output falls below the desired level. This acts as an incentive to exert efficient levels of effort. Second, if output is measured with error (this will occur whenever output is not a monetary outcome) the size of the team becomes relevant for designing the optimal compensation scheme. Defining the optimal reward scheme is easier in small teams, where each agent has a substantial impact on the probability distribution of final output. In this case it is possible to elicit the appropriate level of effort through a reward system similar to the certainty case. In a large team, the contribution of each worker to joint production is less clear to identify and financial rewards are not enough to promote the desired action. The greater the uncertainty in output measurement and the greater the size of the team the more complex is the design of an optimal incentive scheme and explicit (financial) rewards will not be enough to get the desired actions. Some form of monitoring will becomes necessary.

<u>The use of team-based rewards in the absence of complementarities in production</u>

The Holmstrom analysis focuses on teams where agents' contributions to final output are interdependent. However, team-based rewards can also be used when the contribution of team members can be separately observed, so that there are no complementarities in production, but there are some positive aspects of teamwork that one might wish to promote.

Team-based rewards can be used to foster *cooperation* among team members. Milgrom-Roberts (1991) suggest that if co-operation within a group of individuals is important for the overall organisational objectives, then rewarding individual performance can detract from team performance by raising the marginal cost of effort in co-operating. Itoh (1991) analyses the relationship between financial incentives and 'helping' effort. He addresses the issue of whether it is always the case that, in moving from an individual based contract (i.e. one where individuals are paid only for

their own output) towards one where rewards are based on teamwork, agents are induced to increase the level of helping effort. He finds that whether cooperation can be induced through financial rewards depends on the strategic interactions among agent's attitudes towards performing multiple tasks. In particular, agents can be induced to provide help, even for a small change in the wage schedule, if they get positive benefit from both types of effort. If, instead, tasks are similar and agents only care about the total amount of effort, they are reluctant to provide even a small amount of help. In this case a large perturbation of the individual-based contract is required to induce any helping effort from the individual.

Team based rewards may be used to benefit from the positive externalities of teamwork. Teamwork may facilitate a process of *communication and sharing of job experience*. It may also induce *peer monitoring*. If members of a team work in the same location and the organisation of work is such that they are able to observe each other, if their reward is linked to the team performance, they are more inclined to monitor how their peers are performing. This can help in enforcing proper levels of effort and tackle the free-rider problem. Teamwork can help insulate individuals against poor outcomes beyond their control as rewards are shared at a level bigger than the individual - *risk pooling*.

Which of these is more important depends on the organisation and the nature of output. In the context of JCP the positive externality of risk pooling created by the use of team-based rewards may be the most relevant. Final output in JCP consists of putting people into jobs. The creation of job entries is subject to the risk of adverse labour market conditions: an unanticipated crisis in a local business may create substantial job losses, which may be difficult to tackle, whatever the effort of the staff in JCP. Achieving a given number of job entries not only depends on how hard staff at JCP work, but also on the type of the customer they deal with and the local labour market situation. This implies that the outcome of JCP is uncertain. Setting rewards conditional on individual performance would expose staff in JCP to too much risk in case of a local shock and hence would not be a good incentive device. If individual rewards are linked to the output of a whole district instead, the risk of not reaching a certain number of job entries due to some local shocks is spread among all the offices in the district and staff may be better motivated to achieve a targeted number of job entries.

Delivering incentives in the public sector

There are some characteristics of public sector agencies that play an important role in the design of an incentive scheme. Dixit (2000) provides an overview of the differences between the private and public sector and how these impact on the optimal incentive scheme. Here we briefly mention those that are relevant for JCP.

Measuring performance in the public sector

An important aspect in designing the optimal reward system is how easy output is to measure. In the public sector output is often vaguely measured. This means that the information on the actions of agents is quite difficult to infer from the available measure of performance. The theory suggests in this case that weaker incentive schemes should be used.

Multi-tasking

Public sector agencies are complex organisations and are generally required to deliver a range of outcomes. This has an important impact on the incentive scheme. In particular, the interaction among the different tasks affects the power of the incentive scheme: if actions are substitutes the use of high powered incentive schemes may have undesirable effects on overall performance. This is because exerting more effort on one task increases the marginal cost of any task that is a substitute and the agent can end up neglecting some tasks. In this case each outcome cannot be rewarded in isolation and lower powered incentives should be used.

An interesting case arises when activities are substitutes from the perspective of the agents (more time spent on one activity means less time on others), but they are complements from the perspective of the principal (the principal wants high performance in all of them). Hence the agent is willing to devote more time to the less difficult activities, whereas the principal prefers him to devote time to all activities. Marx and MacDonald (2001) show that if the principal is unsure about the agent's preferences over tasks, setting rewards on success on individual tasks may be suboptimal in that it may induce workers to focus and specialise in the less costly tasks. Results suggest that in this situation the system of reward should be non-monotonic, in that it defines different rewards according to the observed failure, partial success or full success on all tasks. The authors show that it is useful to reward failure on all tasks to some degree since this reduces the risk the agent has to bear for spreading his time across multiple activities. Of course the reward for overall failure cannot be too large in that this outcome is easily achieved by the agent. Likewise the payment of success for achieving a subset of the tasks shouldn't be too large to avoid giving the agent an incentive to specialise only on some tasks. To avoid adverse specialisation it is typically optimal to reward no success more than partial success. In order to make general success attractive to the agent, since success on multiple activities is difficult to achieve, the compensation for succeeding must be very high. In conclusion, in an optimal contract, full success and only full success is rewarded highly and little specific compensation is awarded for each task.

Low powered incentive schemes should also be used when the different outcomes are measured with different errors. If each outcome could be rewarded in isolation, then the optimal incentive scheme would set higher incentives on the more easily measurable outcomes, as they provide a more accurate indicator of the effort exerted by the agent. However, in a context where there are multiple dimensions of output, this would make the agent concentrate on the tasks which are more accurately measured. Therefore the principal has to weaken the incentives on the more accurately measured tasks.

In conclusion, in a multitasking environment higher incentive schemes may be vulnerable to gaming by agents. This needs to be given particular weight in the public sector where principals may face more risk than in the private sector due to the fact that (a) it is more difficult to diversify the risks of bad outcomes of public policies and (b) there are critical threshold levels of public tolerance for failure by politicians. So politicians and senior civil servants can be very risk averse (in contrast with the assumption of the standard model where principals are risk neutral and do not have any concern for risk). The consequence of this is that politicians and senior civil servants may be *more* inclined to use high powered incentive schemes rather than setting low powered incentives schemes.

9. Appendix B: Activities and staffing of offices and districts

Job entries

We begin by examining job entries. Table A1 shows the district annual job entry point targets. For non-Makinson districts the target is the basic target. For Makinson districts it is the stretch target. The mean for non- Makinson districts is 82048 points: the mean for Makinson districts is almost 20,000 higher. But the table also shows that there is large cross-district variation in the target set across both groups. The standard deviations and the interquartile ranges are large. In both groups the mean is above the median, indicating that there are expected to be some high performing offices.

Figure A1 shows all job entries by month for the months April 02 to December 02. This shows that job entries rose upto October and then fell sharply in the last two months of calendar year 2002. Examination of district average per office job entries show that this pattern is mirrored across districts, but there is variation between the districts. In each month there are a handful of districts that have considerably higher average number of job entries per office than the rest of the distribution.

Table A2 shows the average performance, across all offices, of monthly job entry placements, broken down by client group for the period April 02 to Dec 02. The table is ranked by job entry points, so the first line shows the client group which accounted for most points and the last line shows the client group which accounted for least points. Most points are gained for placement of individuals in those categories which are given less points. On average, non claimants account for 29 placements per month and short term unemployed account for 22 placements per month. The lowest mean number of placements are for people in categories which are given the most points. Placements of individuals on the New Deal for Disabled People were only 0.15 placements per month and placements of Disabled People receiving inactive benefits were just under 1 per month. In general, the number of placements falls as the weighting of the group rises.

Table A3 shows the average number of job entries weighted by job entry points. This shows the same pattern as Table A2: placements of individuals in low weighted categories account for most activity on average. The last line shows the mean total number of monthly job entry points per office. This is 545. This is rather higher than the performance of the median office, indicating that there are some offices that get a lot of points. The inter-quartile range is large. The minimum is 250 and the maximum 1400. The top 5 percent of the districts get considerably more than the rest. So there is quite a lot of variation across office in job entry performance. Further this variation in performance across offices occurs in both Makinson and non-Makinson districts.

In summary, the data show considerable within district and within office variation in job entry performance.

In contrast there is little across district variation in performance on all other targets. Table A4 shows average district performance on employer outcomes. The table gives performance on the overall weighted employer outcome target (resolution accounts for 75 percent of the target and response for 25 percent) and performance in the three

measured areas. The average performance is just under 87 percent. In contrast to job entry performance there is little variation in performance across districts. The performance of the median office is very little different to the performance of the mean and the standard deviation and interquartile ranges are very small.

Table A5 shows average district performance on customer outcomes (first two quarters of the year only). The overall score is 84 percent. Again all districts performed very similarly. In terms of the components, there is little difference between the mean employer and customer service score. The highest performance on the employer outcomes was for accuracy and for customer outcomes was for speed. The pro-activity scores were lowest for both employer and customer outcomes.

Table A6 shows the performance against the business delivery targets. The overall total score is just over 90 percent. All districts performed very similarly. Basic skills screening scored lower than any of the other components.

This relative lack of variation across districts in the quality outcome measures, along with the lack of recent data for these targets, justifies our concentration on the job entry outcomes.

Staffing

We would expect office (and district) performance to reflect, in part, the number of staff in the offices. The data show that there is considerable variation in the number of staff per office in each district. Table A7 shows that smallest district has on average 11 staff per office and the largest has 103. The mean is 45 staff per office that is well above the median, indicating that there are some considerably larger offices in some districts. There is also variation in the staffing numbers at each grade.

Figures A2 and A3 examine the variation across months in the number of staff in 7 categories by district. It can be seen that the average number of staff in each category is fairly constant across the time period for which we have data, though there is some (not shown here) variation in numbers in each grade per office across districts.

Given the design of the Makinson scheme, we might also expect the impact of the incentive scheme to depend on the number of offices within a district. The top panel of Figure A4 shows that the size distribution of offices in terms of staff is related to the average office size within the district. Districts are ranked according to mean office size. Then for each district we plot the mean and the 25^{th} and 75^{th} quartiles of the office size distribution. The graph shows that the variation in office size rises as the average size of the office in the district rises. In other words, those districts that have on average larger offices also have larger variation in the size of offices so contain a broader range of size of office. The bottom two panels show that this pattern occurs in both Makinson and non-Makinson districts.

10. Appendix C: Statistical Approach

First stage – estimate office average, conditioning on time-varying variables

We run the following as a fixed effect regression:

$$y_{odt} = (\mu_o + \Delta_d + \pi PFS_o + \gamma M_d) + \beta X_{ot} + \alpha Z_{ot} + \delta_t + \upsilon_{ot} \qquad (1)$$

where y is total job entry points (tjep), X is a staff variable, and Z is a labour market variable. We allow for an office effect μ, a district effect Δ, and effects from PFS – Pathfinder office status – and M – Makinson district status. Finally, δ is set of a time dummy, and ν is random noise. The key parameter of interest is γ – the effect on output of the Makinson incentive scheme.

Note that given the current data setup, a fixed effects regression on (1) above will identify α, β, δ, and ϕ_o where:

$$\phi_o \equiv \mu_o + \Delta_d + \pi PFS_o + \gamma M_d \qquad (2)$$

That is, we cannot separately identify the parameter γ. This is because as yet we do not have any time series variation in Makinson status; that is, we do not have a difference-in-difference set up. Note that office mean size and office mean labour market conditions will also be captured in ϕ_o. So we run (1) as a fixed effect regression on all offices with some job entry points. This yields a distribution of estimated ϕ_o values, one for each office.

Second stage – analyse the distribution of office averages

We compare the distribution of ϕ_o across Pathfinder and non-Pathfinder offices, and across Makinson-district offices and non-Makinson-district offices. Finally, we compare non-Pathfinder offices in Makinson districts, and non-Makinson-district offices. We also control for differences in office size and labour market status. We then summarise these results using regression analysis.

11. Appendix D: Tables and Figures

Table A1

Annual Job Entry Targets per District

Target	Mean	Standard Deviation	1st Quartile	Median	3rd Quartile	No. of observations
Basic Target	82048.2	32002.2	58206	74712	104247	17628
Stretch	101298.9	37270.8	71606	100656	112350	3900

Table A2

Number of Job Entries per Office by Client Group

Client Group	Mean	Standard Deviation	1st Quartile	Median	3rd Quartile	No. of observations
New Deal Disabled People	0.2	0.5	0	0	0	9261
Disabled People receiving Inactive Benefits	0.9	1.4	0	0	1	9261
Other Lone Parents	2.2	2.9	0	1	3	9261
New Deal Lone Parents	5.5	5.6	1	4	8	9261
Other Inactive Benefit Claimants	1.8	2.8	0	1	2	9261
Remaining People with Disability	4.7	4.7	2	3	6	9261
Long Term Unemployed	5.2	5.1	2	4	7	9261
New Deal 25+	2.7	3.6	0	1	4	9261
New Deal 50+	2.7	2.9	1	2	4	9261
New Deal Young People	6.8	7.3	2	5	10	9261
Employment Zone	1.0	4.1	0	0	0	9261
Short Term Unemployed	21.6	18.3	9	17	28	9261
Non-Claimants	28.8	46.3	6	15	34	9261
Employed	12.0	28.0	2	5	12	9261

Table A3

Job Entry Points per Office by Client Group

Client Group	Mean	Standard Deviation	1st Quartile	Median	3rd Quartile	No. of observations
New Deal Disabled People	1.8	6.4	0	0	0	9261
Disabled People receiving Inactive Benefits	11.3	17.2	0	0	12	9261
Other Lone Parents	26.3	35.0	0	12	36	9261
New Deal Lone Parents	65.8	66.9	12	48	96	9261
Other Inactive Benefit Claimants	21.4	33.7	0	12	24	9261
Remaining People with Disability	37.4	37.4	16	24	48	9261
Long Term Unemployed	41.4	40.6	16	32	56	9261
New Deal 25+	21.6	28.9	0	8	32	9261
New Deal 50+	21.5	22.9	8	16	32	9261
New Deal Young People	54.5	58.1	16	40	80	9261
Employment Zone	8.1	32.7	0	0	0	9261
Short Term Unemployed	86.5	73.3	36	68	112	9261
Non-Claimants	57.6	92.5	12	30	68	9261
Employed	12.0	28.0	2	5	12	9261
Total	544.7	462.1	228	419	725	9277

Table A4

Quarterly Employer Outcome Target Achieved per District

Element	Mean	Standard Deviation	1st Quartile	Median	3rd Quartile	No. of observations
Overall EOT	87%	4%	84%	87%	89%	3996
Resolution	86%	6%	83%	87%	89%	3996
Response	89%	5%	85%	88%	92%	3996
KMI	74%	8%	70%	74%	79%	3996

Table A5

Quarterly Customer Service Target Achieved per District (information for first two quarters only)

Element	**Mean**	**Standard Deviation**	**1st Quartile**	**Median**	**3rd Quartile**	**No. of observations**
Overall CST	84%	28%	82%	84%	86%	2930
Employer Outcome Total	84%	3%	82%	84%	86%	2930
EO: Speed	86%	4%	84%	87%	89%	2930
EO: Accuracy	94%	3%	93%	94%	95%	2930
EO: Proactivity	71%	4%	70%	72%	73%	2930
Customer Service Total	84%	3%	82%	85%	87%	2930
CS: Speed	88%	5%	86%	89%	92%	2930
CS: Accuracy	88%	5%	85%	88%	92%	2930
CS: Proactivity	69%	5%	66%	69%	72%	2930
CS: Environment	93%	4%	91%	93%	96%	2930

Table A6

Quarterly Business Delivery Target Achieved per District

Element	*Mean*	Standard Deviation	1st Quartile	Median	3rd Quartile	No. of observations
IS Accuracy	18.5	0.8	18.0	18.6	19.1	5046
Medical Testing	19.5	0.7	19.4	19.6	19.8	3986
JSA Accuracy	18.7	1.0	18.3	18.8	19.5	5046
Labour Market Intervention	19.3	0.4	19.0	19.3	19.6	5062
Basic Skills Screening	14.8	2.3	13.0	15.2	16.4	5019
Overall Score	91%	4%	89%	91%	93%	3983

Table A7

Mean Staff per Office

Mean	Standard Deviation	Median	Minimum	Maximum	No. of observations
45.1	16.7	44.4	11.5	103.4	13680

Figure A1

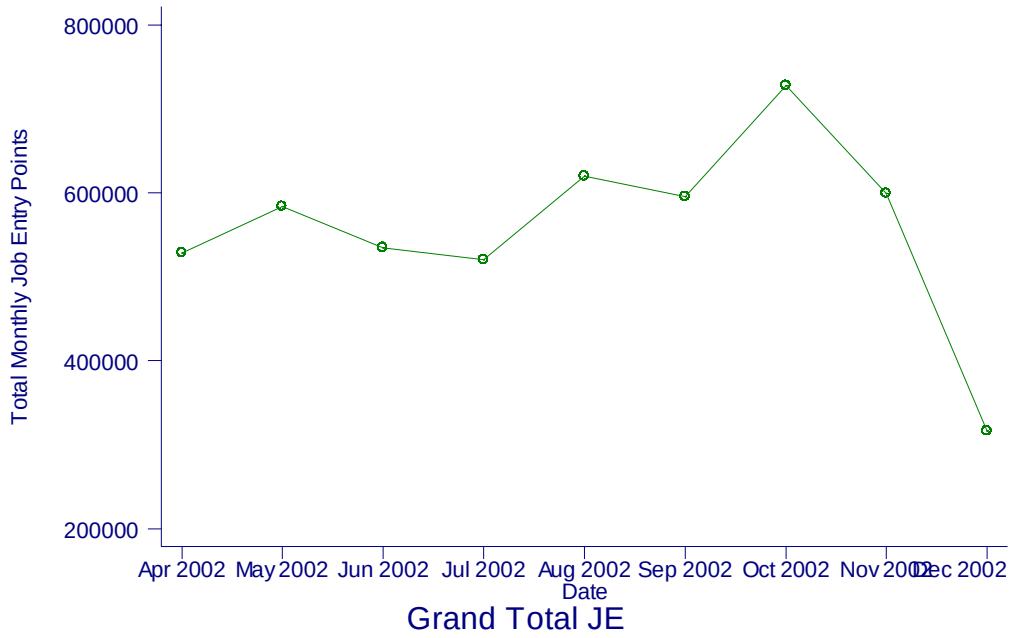


Figure A2

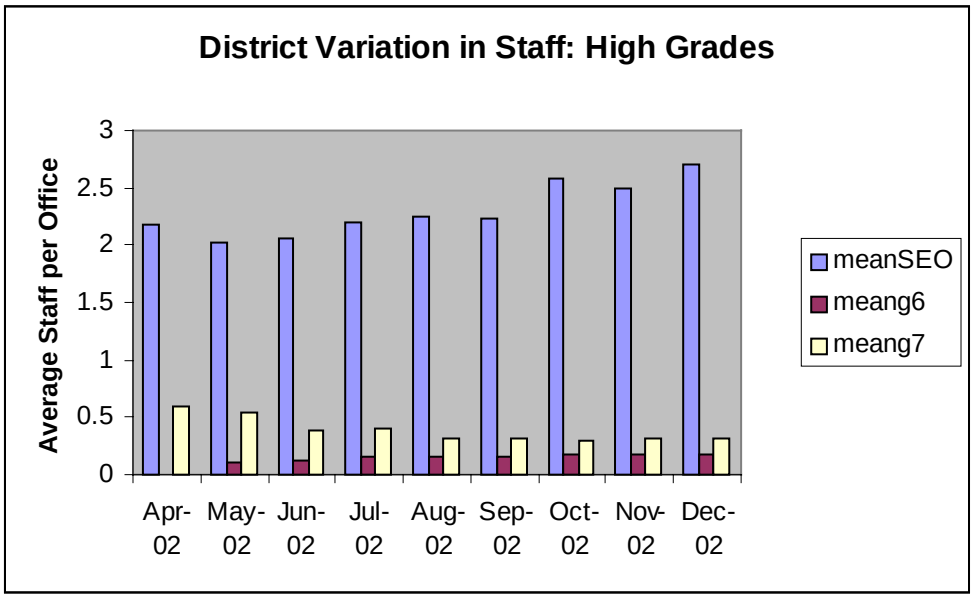


Figure A3

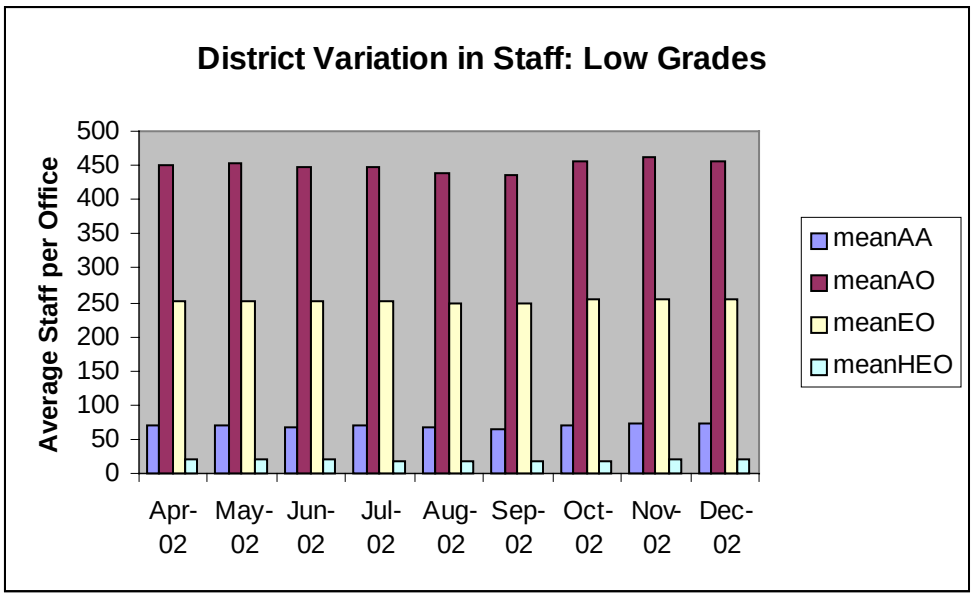
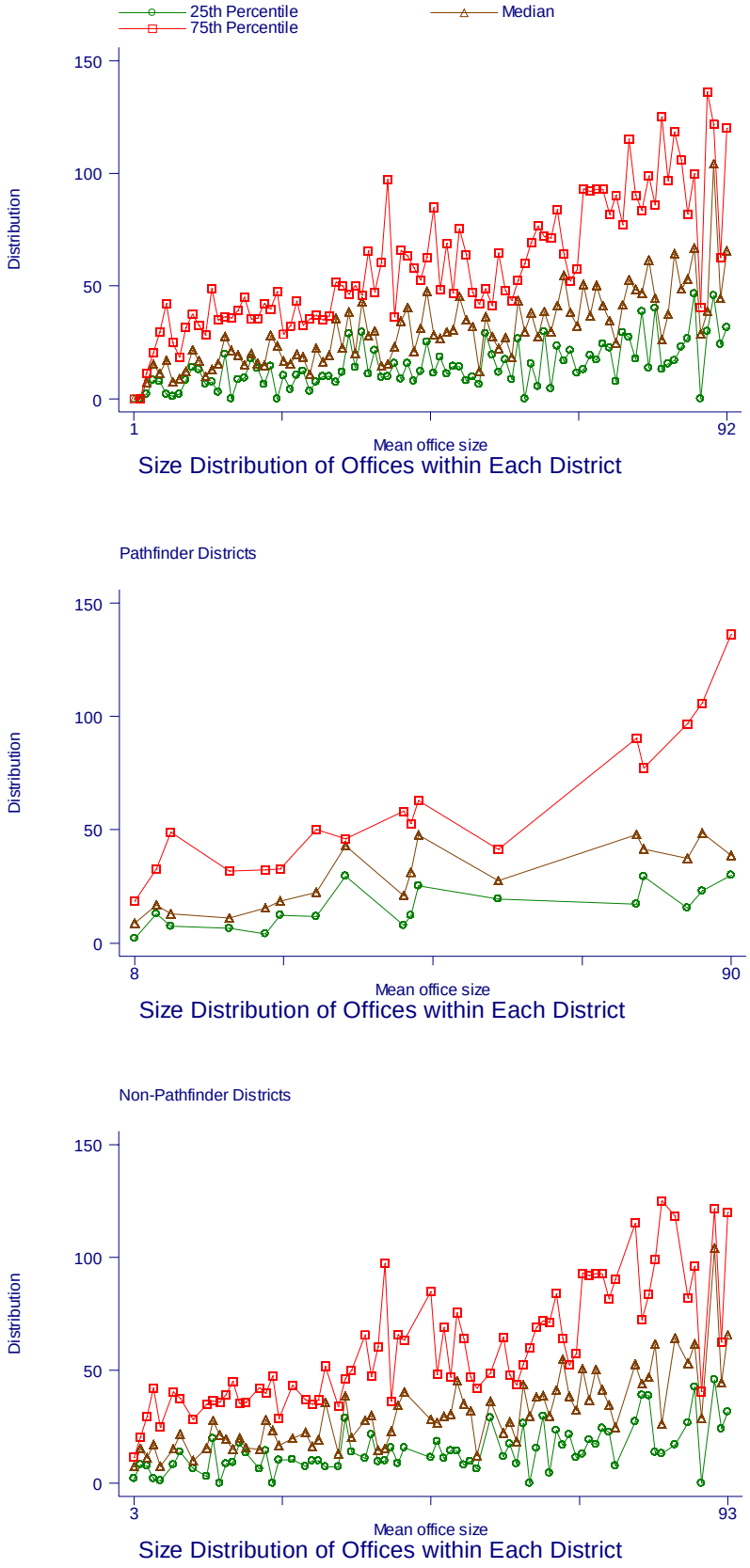


Figure A4


25th Percentile
75th Percentile
Median
Distribution
150
100
50
0
1
92
Mean office size
Size Distribution of Offices within Each District
Pathfinder Districts
Distribution
150
100
50
0
8
90
Mean office size
Size Distribution of Offices within Each District
Non-Pathfinder Districts
Distribution
150
100
50
0
3
93
Mean office size
Size Distribution of Offices within Each District