

Modelling the Relationship between Needs and Costs:

How accurate resource allocation can deliver personal budgets and personalisation

Authors: Paul Clifford, Rob Saunders, Laura Gibbon

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Abstract

A fundamental question for social policy is how accurately costs can be predicted from individual needs and characteristics. In the UK this question has added salience due to recent policy reforms: the Care Bill 2013 (HM Government, 2013) obliges local councils to offer users of social care 'personal budgets' that enable them to tailor the support they receive to their personal goals and circumstances more precisely than has traditionally been the case. In order for this to work in practice, a method is needed with which to determine the level of funding to be made available to any individual with a given set of needs. Resource allocation systems based upon measures of need are one widely-adopted approach to estimating the cost of the individual service user's care package in a manner directly proportionate to individual need. However, some recent studies have questioned the feasibility and utility of such systems, arguing that the relationship between needs and costs cannot be modelled with sufficient accuracy to provide a useful guide to individual allocation. In contrast, this paper presents three studies demonstrating that this is possible. It is argued that the ability to accurately predict costs from needs both supports personalisation and has wider policy applications.

Introduction

'Putting People First' (Department of Health, 2007) announced the goal of a personalised adult social care system and ushered in the era of '*personal budgets for everyone eligible for publicly funded adult social care support*' (p.3). The right to a personal budget has now been enshrined in the UK Government's Care Bill 2013 (HM Government, 2013). A key element of this new approach has been the development of a resource allocation system (RAS) that provides an 'upfront' indication of the sum of money to which the service user is entitled to meet their social care needs. However, two recent papers (Slasberg et al., 2012, and Slasberg, 2013) have questioned the viability of this approach on empirical grounds. They point out that upfront allocations rely on the assumption that it is possible to '*...standardise and measure needs, and attach a standard monetary value to them*' (Slasberg et al., 2012; p.172). Questioning this, Slasberg et al. come to the conclusion that this is not possible, that '*social care needs are unique to individuals, as are the costs of meeting them*'. The critical issue is whether the relationship between need and cost can be modelled with sufficient accuracy to provide a guide to individual allocation – a question of broad relevance to social policy. This paper presents three studies that explore this fundamental question.

The '£ per point' approach to resource allocation

The favoured method for developing RASs was initially that promoted by the organisation 'In Control' (Poll & Duffy, 2008). This involved the creation of a brief self-assessment questionnaire with a simple scoring system leading to a '£ per point'-based allocation to the service user, where for every additional point 'scored' on the assessment an incremental sum of money is allocated. A similar approach was adopted by the Association of Directors of Adult Social Services (ADASS, 2010) in developing the so-called 'common RAS'. It is this approach that is the subject of the Slasberg et al. (2012) analysis examined here.

This methodology was determined largely by ideological rather than technical considerations. The ideals of brevity, ease of completion and simplicity of scoring were considered paramount. This represented a risky strategy, since it is an empirical matter how many data items are required in order to make an accurate prediction of one variable (cost) from a set of variables relating to a different domain (need). There is no guarantee that it is even possible. Furthermore, any '£ per point' scoring system relies on implicit statistical assumptions, such as there being a broadly linear relationship between needs and costs, that may not be correct. For example, the evaluation of the Department of Health's personal budget pilot programme, the IBSEN project, appeared to find an exponential relationship between difficulties with activities of daily living and costs of support (Glendinning et al 2008, p.100).

The focus on ease of use rather than empirical method is evidenced by the fact that five years after 'Putting People First', the Slasberg et al. (2012) study was the first to examine the relationship between indicative and actual budgets produced using the '£ per point' approach. Their study focused on whether the '£ per point' RAS was 'driving' resource allocation in several councils. In order to evaluate this, Slasberg et al. suggested a method of measurement that displays the ratio between indicative and actual personal budget. If indicative budget (IB) were driving personal budget (PB) then it would be expected that there would be a strong central tendency in the chart, i.e. the majority of ratios would be close to the centre of the chart and there would be increasingly fewer cases falling into the categories of larger ratios shown towards the outside of the chart.

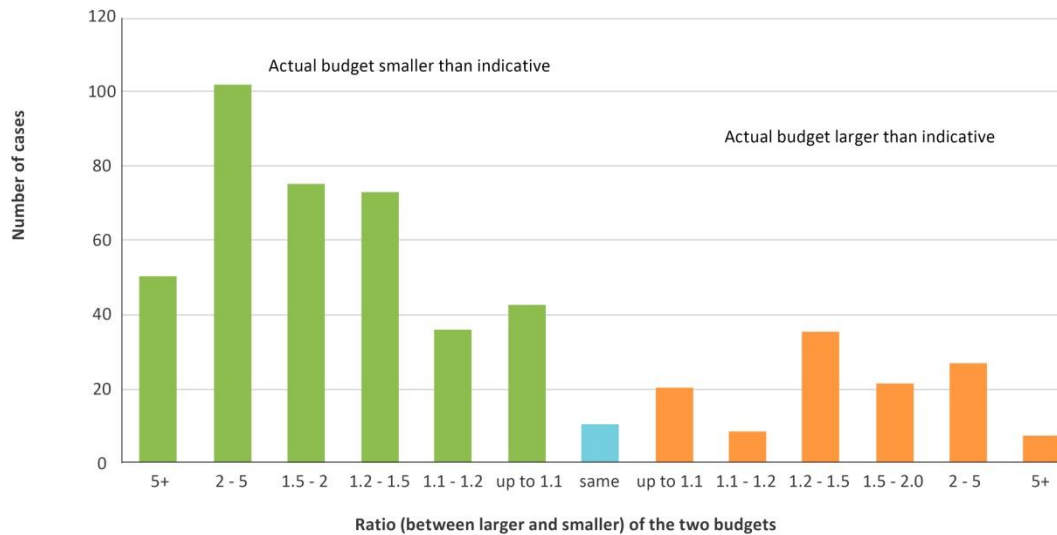
The findings were not encouraging: none of the charts derived from '£ per point' RAS came close to meeting the prediction. An example is reproduced in figure 1, the chart relating to Hartlepool, one of the standard bearers of this approach.

The paper demonstrated a similar lack of central tendency in ratios of IB to PB, even for cases used for recalibration (the process of updating a model to reflect changes in rates and local practice). Collectively, these findings suggested that the IB generated by the RAS was having little impact on determination of final PB.

On this basis, Slasberg et al. (2012) suggest a different approach to personalisation, involving both 'a holistic assessment of need' and a new 'partnership' relationship between councils and service users. However, whilst Slasberg et al.'s conclusion may be valid with regard to the '£ per point' approach, they did not consider the other main approach to have been widely adopted.

Figure 1:

'£ per point' results for Hartlepool



The modelling approach to resource allocation

The alternative approach has been developed by FACE Recording & Measurement Systems, a small company specialising in the development of assessment tools.

The FACE approach has been to develop statistical models of the relationship between need and cost. Rather than using a new 'self-assessment', the main data collection tool has been the FACE 'Overview Assessment' (FACE, 2003). This is a holistic assessment of need accredited by the Department of Health in 2003 to support the policy of 'single assessment' across health and social care. It is used by about 50% of councils in England. Thirty councils have participated in the RAS development, supplying samples of historic cases, including both completed assessments and details of care packages. Analysis has identified a subset of about 30 data items from the Overview Assessment that contribute significantly to cost prediction. These have been brought together into a briefer assessment tool, the FACE 'Needs Profile' (FACE, 2011), which forms the basis for the RAS.

A key feature of the FACE approach is standardisation, not just of the assessment tool but also of costs. In many local areas there is significant variation in the cost of the same service from different providers. Sometimes these are for commercial or historic reasons, such as pre-existing contracts, but such variations may reflect differing delivery costs across, e.g. rural and urban settings. The effect of such variation is that two service users with identical needs may end up with care packages that vary in absolute cost. Were these 'raw' costs to be taken as the basis for modelling, accuracy would potentially be compromised. Hence councils have supplied standard provider costs for modelling purposes and these have been used to standardise the cost of actual care packages for statistical analysis.

The result of the modelling process is not a simple '£ per point' method of allocation but a multi-step algorithm in which what is allocated as each successive need is considered depends in part upon what has previously been allocated. This approach is justified by the fact that the resources required to meet certain needs (e.g. checking for safety every day) depend in part upon what other needs are already being met (e.g. receiving personal care once a day would obviate the need for a separate safety check). Based upon such methods, the FACE RAS model claims a Pearson correlation coefficient of over 0.96 between predicted and standardised costs (Clifford, 2012, p.8). This level of accuracy suggests that contrary to Slasberg et al.'s assertion that the cost of meeting social care needs is unique to individuals, the modelling approach might provide a sound basis for producing an IB. The studies reported below therefore set out to evaluate the FACE RAS against Slasberg et al.'s proposed criterion and to compare the results with those achieved using a '£ per point' approach.

The Studies

Study 1

The first study was undertaken with data supplied by a London Borough council in the process of switching from a '£ per point' RAS to the FACE RAS.

Method and sample

A sample of 61¹ consecutive cases relating to service users over 65 years of age were selected on the basis that:

- They had been assessed by experienced practitioners with good assessment skills
- The assessment process had included completion of the '£ per point' supported self-assessment
- The assessments had been validated and signed-off by senior managers
- They covered a range of need

Service users were assessed using the council's standard assessment methods, including the '£ per point' supported self-assessment questionnaire. The results of the assessment were then used to generate an IB. A support plan was subsequently developed with knowledge of the IB, resulting in a costed care package.

After the care package was developed, the service users were then assessed using the FACE Needs Profile and a second IB generated using the FACE scoring algorithm. The IBs produced by the FACE RAS and the '£ per point' RAS were then compared with the PB agreed during the support planning process.²

¹ The original sample was 75 but for various reasons, including mislaid assessments or service users declining services, the sample reduced to 61.

² The care package costs were supplied in two forms: as actual costs of the care package for each individual, and as standardised costs, in which actual cost was recalculated based upon average standard hourly or daily rates for the local site services such as home care, day care, etc. Standardised costs were used for this study.

Results

The 'Slasberg' ratio graphs for the two approaches are shown in figures 2 and 3.

The '£ per point' RAS shows no central tendency. The FACE RAS shows a clear central tendency.

Figure 2:

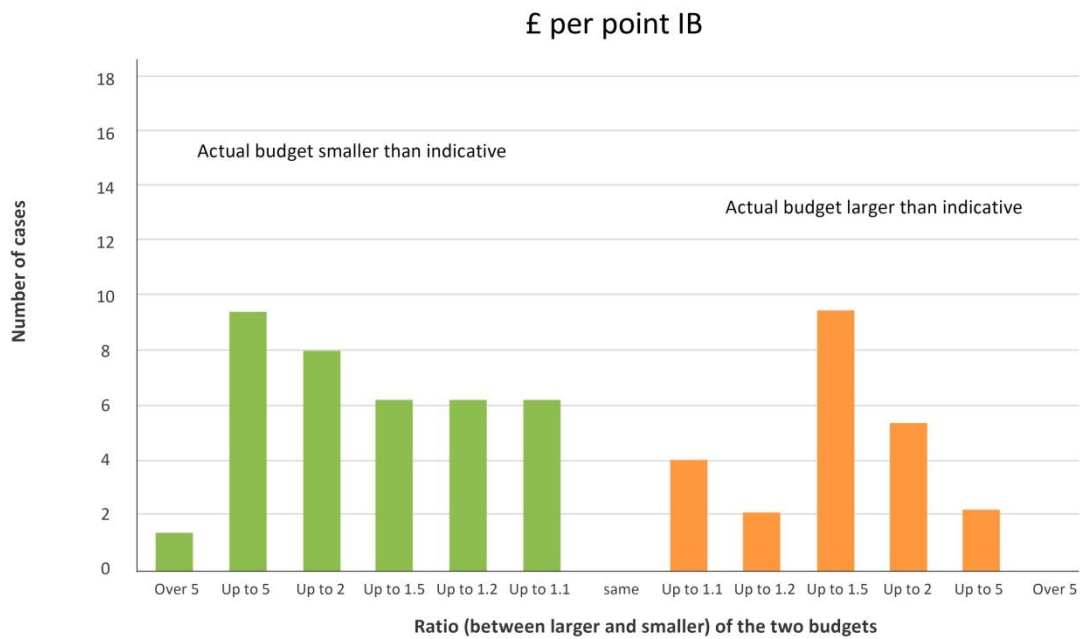
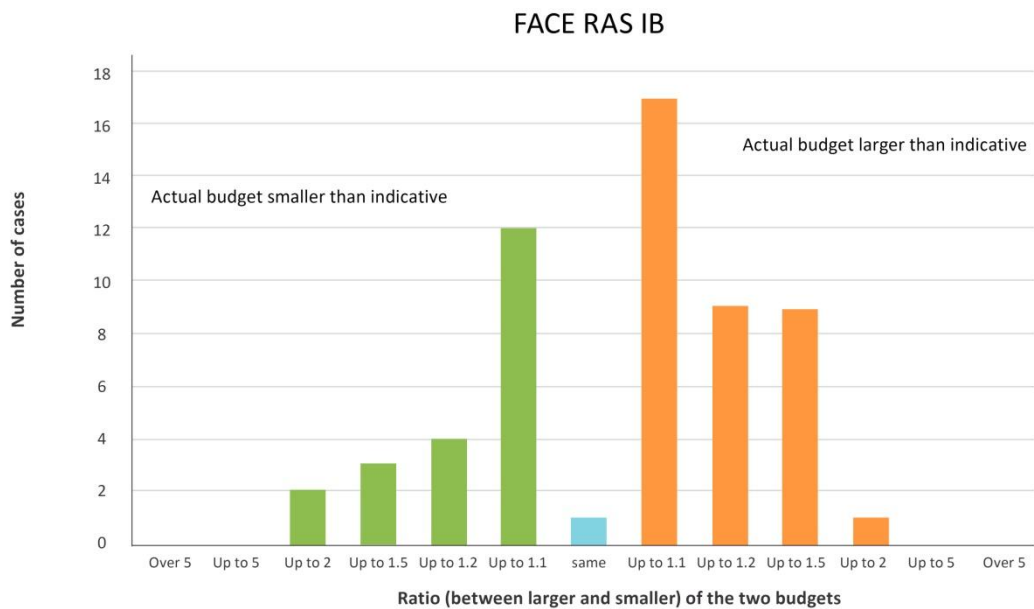


Figure 3:



Study 2

A second study was conducted with the same council using a full calibration sample (cases collected which reflect local practice and are used to build the initial algorithm).

Method and sample

A sample of 281 cases of older people receiving social care was selected by the council for calibration purposes on the basis that:

- They had been assessed by experienced practitioners with good assessment skills
- The assessments had been validated and signed-off by senior managers
- They covered a range of need
- Care packages were judged to be proportionate to need

The purpose of the latter criterion was to exclude cases where the care package was clearly disproportionate to need, e.g. for historic contractual reasons, since this would result in a model that was inappropriate for the desired approach to ongoing allocation.

Results

The results are shown in figure 4.

The nine calibration cases (out of 281) where the IB differed from the PB by a factor of greater than two are shown in table 1.

In six of the cases, both IB and PB were very small, meaning that although the ratio implies a large difference, the absolute difference between IB and PB in all six cases is less than £20 per week. Upon investigation, the council reported that the highest case was the result of an over-generous care package rather than an under-allocation on the part of the IB. The other two cases were not investigated.

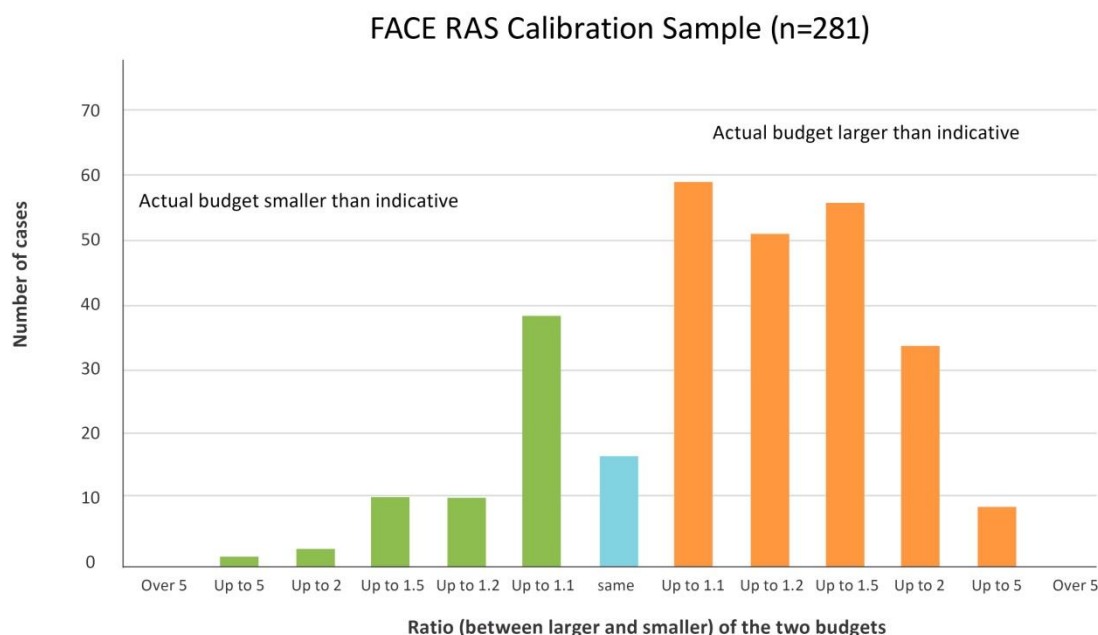


Table 1:

IB	PB
9	22
11	22
14	33
14	33
14	30
35	16
44	100
48	121
137	278

Study 3

A rural council supplied data on service users who had been through the full self-directed support process, from assessment to support planning, after implementation of the FACE RAS.

Sample

Data was initially supplied on 267 cases of service users who:

- Had been assessed using the FACE Overview Assessment
- Had received an IB based upon the FACE RAS
- Had subsequently been allocated a care package

Of the assessments identified for review, 57 could not be used in the study as sufficient resource was not available within the council to retrieve all of the required information relating to these cases. These were therefore omitted from the final analysis, leaving a final sample of 210 cases. There were no systematic differences between the excluded and the included cases as measured by a t-test comparing average discrepancies between IB and PB (t-test, $p=0.25$).

Method

The study proceeded in two stages: initial analysis followed by individual case review.

In stage one the initial data was collated. Cases for which the IB was within 10% of the final budget were deemed 'accurate'. The remaining cases were subject to case review by researchers in order to ascertain the reasons for differences between the IB and the PB. In order to ascertain this, the following details were requested from the council:

- Standardised costs of services included in the care package

- Checks upon accuracy of the scoring of the assessment (e.g. where there appeared to be internal inconsistency between different scores in the assessment)
- Other questions suggested by individual cases (e.g. 'why is the care package extremely high when needs scores are uniformly low?')

Based upon the council's responses the following steps were taken:

- Stage two: cases that were inaccurate due to 'exceptional' circumstances were removed from the analysis, e.g. cases where the discrepancy between PB and IB was unrelated to need, such as where there were historic reasons for unrepresentative care packages
- Stage three: care package costs were standardised to remove variances between hourly rates of local service providers
- Stage four: IBs and PBs were recalculated based upon the council's corrected data (e.g. some assessment scores or care package details were corrected)

The Slasberg ratio graphs were produced and the Pearson correlation coefficient between the RAS IB and the PB calculated at each stage. The format of the ratio graphs was also amended so that the central 'same' section of the graph referred to a range of 'up to 1.05' difference in ratio between IB and PB rather than literally identical amounts, since no RAS will produce a budget that is correct to the exact pound and a central point of 'identical' visually understates central tendency.

Results

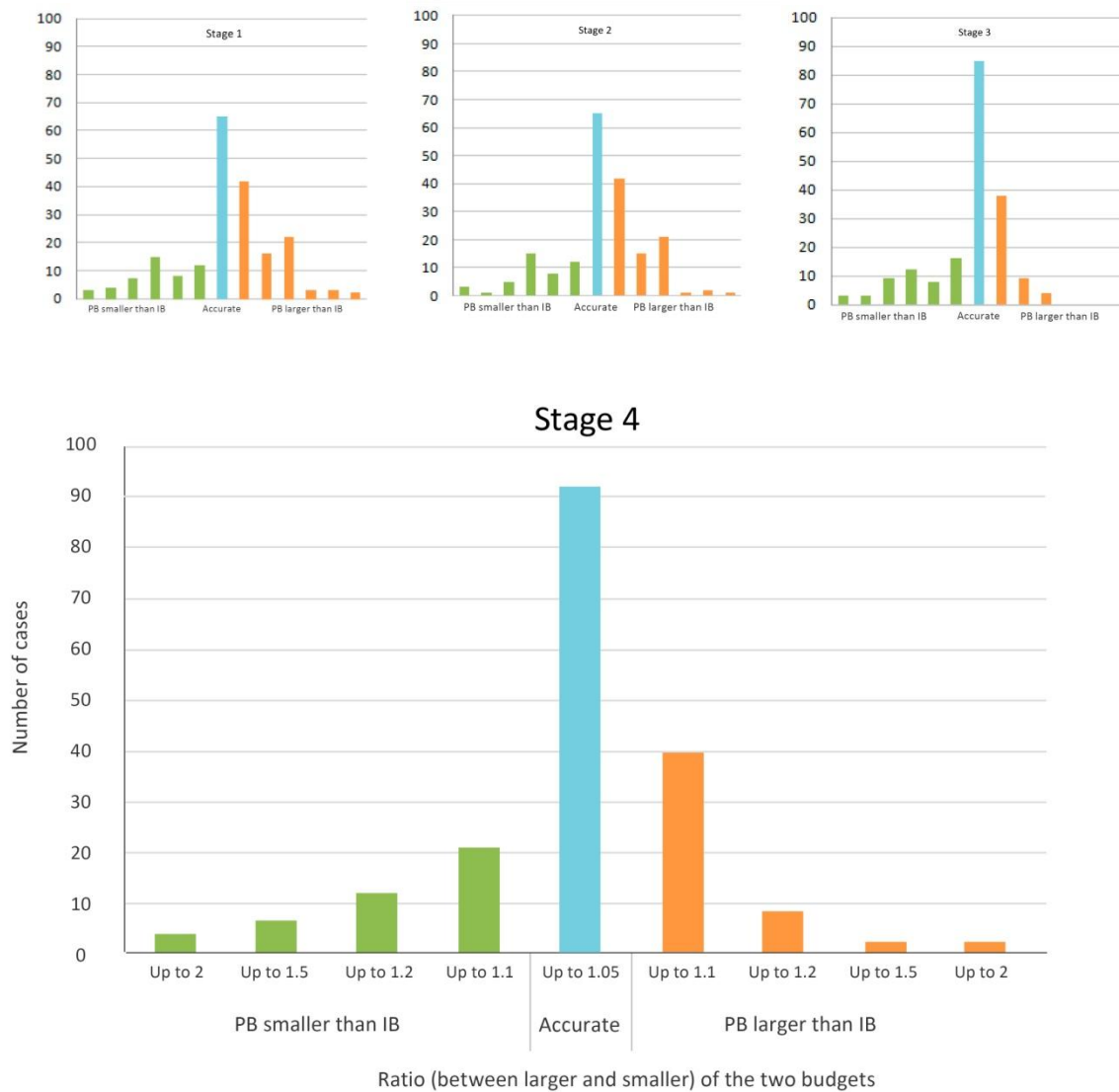
Of the 210 cases, 119 cases had 'the same' IB as PB, with the average difference between IB and PB for these cases being £6.99 (with the IB lower than the PB). Of the remaining 91 cases included in the analysis:

- Stage one: 43 cases resulted in queries sent to the council
- Stage two: 15 were excluded as 'exceptional'
- Stage three: 57 cases had their costs standardised
- Stage four: Of the 43 cases reviewed by the council:
 - 14 cases were excluded by the council either because the assessment data received was for a different case from the care package submitted, or needs had significantly changed between the assessment and support planning so the PB did not reflect the assessment used to generate the IB
 - 4 cases were excluded because they received substantial additional services for needs which were identified by the assessment, but which were paid for by non-social care providers (e.g. continuing healthcare)
 - 2 cases were excluded because the IB was capped at a pre-determined rate requested by the council, and therefore the RAS being accurate at costs above the cap was technically impossible

- 23 cases had their assessments or care packages updated following the council’s review of case notes, and where assessment data were updated the IBs were re-generated using the RAS model

The central tendency charts for each stage of the analysis are shown in figure 5.

Figure 5:



At stage four, 74% of personal budgets fell within 10% of the IB, with only 3% having a ratio greater than 1.5. The correlations between the RAS IB and the PB at each stage are shown in table 2. It is noteworthy that prior to standardisation (stage three) the correlation was over 0.9, and that prior to incorrect assessment scores being rectified (stage four) the correlation was 0.965, indicating that obtaining a close match between IB and PB is not dependent on going through these stages of data analysis.

Table 2:

Correlation Between Indicative Budget and Personal Budget	Correlation
Stage 1. IB vs. PB (all cases)	0.727
Stage 2. Exceptional cases removed	0.914
Stage 3. Costs standardised	0.965
Stage 4. Scores and care package details corrected	0.990

Discussion

The studies reported upon used operational data collected in routine settings. This constrained how many cases could be reviewed and meant that more data were lost from the original sample than would be ideal. Another weakness arising from this was the failure to review the cases from Study 3 which initially presented as accurate. This sub-sample may have included cases whose budget was 'right for the wrong reasons', i.e. which would have been less accurate following review than at first appeared. This may have artificially inflated the correlation between IB and PB found in Study 3. Additionally, the studies are drawn from data provided by two councils only, which could be argued to limit their generalisability.³

Despite these methodological limitations, the studies provide strong and consistent evidence. Study 1 involved a direct comparison of the '£ per point' and 'modelling' approaches to resource allocation, with each service user being independently assessed twice in order to produce two IBs. The ratios of IBs generated by the '£ per point' RAS to PBs showed minimal central tendency, in comparison with those generated by the FACE RAS. Study 2 further demonstrated the precision with which the modelling approach can be applied during calibration, whilst Study 3 demonstrated that the level of accuracy arrived at during the recalibration phase can be maintained in everyday practice. The findings are clear: the relationship between need and cost can be modelled and standardised with sufficient accuracy to support the allocation of budgets at the individual level.

Two factors explain the difference between these findings and those of Slasberg et al. (2012). First, their paper confines itself exclusively to an evaluation of what the evidence now suggests is a weak resource allocation methodology; and secondly, they do not consider the reasons **why** personal budgets and IBs may differ. ADASS specifically recommend that councils collect 'the indicative budget, the final personal budget and reasons for any difference' (ADASS, 2010; p.21). Unfortunately, most councils do not do this. Consequently, previous studies have been based solely on the IB and care package costs, with no investigation into the reasons for variation between

³ However, at time of writing, the most recent 25 calibrations of the FACE RAS produced average correlations between predicted and actual costs of 0.96, suggesting a reasonable level of generalisability.

the two. However, as is clear from Study 3, there are good reasons why an IB and PB may differ, other than inaccuracy of the RAS itself. These may include:

- Transport costs (which are not included in most RASs as they are not directly relatable to need)
- Local charging policies (which result in a service user not taking up support to which they are eligible)
- Service user refusing certain types of support (e.g. day care)
- Variability in costs of the same type of support between different local providers
- Pre-existing block contracts, e.g. for specialist housing
- Changes in need of service user or carer between assessment and support planning
- Inaccurate recording of needs or care package costs

Once such factors are controlled for in the analysis, the picture may look very different.

A broader lesson is the importance of standardisation. The data items included in the FACE assessment were identified through statistical analysis rather than subjective opinion, and the use of standardised unit costs substantially increased the accuracy of the allocation model. However, whilst it improves the accuracy of the model, in practice standardisation does not necessarily make life easy: in order to use such a model operationally practitioners need to be consistent in their scoring, and finance officers and service managers have to apply a level of rigour to which they are not necessarily accustomed. In this regard, the correlations of over 0.9 between IB and PB even before standardisation or correction of scoring suggest both that a reasonable level of accuracy is achievable routinely, and that long-term use and appropriate user training would be expected to lead to a higher level of accuracy as users become familiar with the scoring methods.

Personalisation, complexity and resource allocation

A key element of the initial approach to personalisation proposed by In Control and echoed by subsequent policy documents, was to avoid what were seen as the unnecessary complexities of traditional 'professional' needs assessment processes. It was proposed that these could be replaced by a simple 'sheet of A4' self-assessment that, in the view of its proponents, was more than adequate to fulfil the requirements of assessment and was also sufficient to provide a reasonable upfront indication of the amount of money to be made available to the person.

As Slasberg et al. (2012) point out, no evidence was provided to support these claims. Paradoxically, the findings above suggest that it may be the abandonment of holistic, person-centred assessment in favour of over-simplified self-assessment questionnaires that has contributed to the difficulties in developing a workable RAS.

Both proponents of the '£ per points' approach, such as Duffy (Poll & Duffy, 2008) and critics such as Slasberg et al., make much of the 'bureaucracy' associated with

personalisation. However, it is not surprising that many councils using the '£ per point' approach to resource allocation have experienced an increased bureaucracy since:

- The approach introduced an additional parallel assessment process on top of the pre-existing needs assessment process
- It required councils to undertake a lengthy development process through which to arrive at a weak resource allocation method
- It required councils to introduce alternative measures to manage allocations effectively once it became clear that the weak method was not viable

In sum, the '£ per point' approach does not meet the criterion proposed by Think Local Act Personal (2011; p.8): *'The indicative allocation amount should be as close as possible to the final approved budget – if it is not then there is a high risk of wasted process (as well as frustrated staff and customers)'*. Wasted process, frustrated staff and customers is exactly what would be expected and is what is reported by Slasberg et al. (2012). In contrast, a RAS based upon a standard person-centred needs assessment process does not increase bureaucracy because councils are already required to assess needs by statute. The IB is thus a by-product of the natural assessment process and does not introduce any new process.

Is a RAS necessary?

The results presented here suggest that a RAS which uses the 'modelling' approach offers a viable method of supporting personal budgets, but is it a necessary element of personalisation? There are some good reasons for thinking it is. In most walks of life personalisation increases complexity of the decision-making process and lowers predictability of costs. Whether choosing a meal, a car, a holiday, a home or home improvements, the greater the range of choice the higher the complexity of the choices to be made and thus the lower the predictability of the ultimate price. It is for these reasons that sales representatives typically ask customers whether they 'have a budget in mind'. Without a 'budget in mind' the decision-making process can easily become excessively lengthy and costs can spiral. Furthermore, the customer may well end up being dissatisfied if costs turn out to be unaffordable once they have expressed their personal preferences.

It is hard to see why social care should differ from these everyday scenarios, as if there is only one standard option available then the decision-making process is simple: take it or leave it. If there is a range of choices then the pros and cons of different options have to be weighed up. Similarly, if personal care is provided by a single agency through a block contract, the annual costs will be highly predictable; but if home care is provided via a multiplicity of routes that are negotiated on an individual basis, the total cost across a large group of individuals is going to be far less predictable. There is also a clear risk of inequity and loss of financial control: if everyone with similar needs is receiving the same service it is easy – or easier – to see whether there is consistency of approach; but if everyone is getting something different, equity and spend compared with budget are far more difficult to evaluate.

In the current financial climate these raised risks need to be mitigated, since councils cannot afford to spend more than they have available. An effective system for managing resource allocation is therefore critical to any personalised system; without a 'budget in mind' it is hard to see how allocation can be managed sustainably and equitably across thousands of individualised support packages.

Is a national RAS model possible?

Recent policy consultations have considered the desirability of a national RAS (see 'Caring for our future: reforming care and support'; Department of Health, 2012). The results presented here suggest that the practical question is not whether a national model is possible (it clearly is) but whether it is desirable or desired. Councils vary considerably in their local policies. For example, some have opted for a single RAS for all care groups whilst others use different allocation models for different care groups; some councils include respite and social support within their RAS, others do not; some councils cap expenditure in certain areas whilst others do not, etc. So whilst all councils which use a FACE RAS use a single standard underlying approach to assessment, scoring and modelling, there are still local variations in implementation. Until such time as councils agree – or are forced – to harmonise their local policies, there will remain barriers to a single 'national' model.

Legal implications of using a RAS

A further area of contention raised by Slasberg et al. (2012) surrounds the legal position of RASs. They point to the requirement that once the indicative sum has been identified '*the requisite services in the particular case should be costed in a reasonable degree of detail so that a judgement can be made whether the indicative sum is too high, too low or about right*' (Supreme Court, 2012, paragraph 28). From this they infer that:

'...if a council is allowing the indicative allocation to be the basis of the actual budget, one of two scenarios applies. The first is that they are finding their indicative allocation is matching the requirements above. If this is the case, it is reasonable to ask what function the upfront allocation is fulfilling. The second is that they are flying in the face of their legal obligations, either by not knowing what needs are to be met, or the cost of doing so, or by not paying attention to them if the cost would vary from the indicative allocation more than they are willing to allow.' (Slasberg et al., 2012, p.167).

On this basis they suggest that because councils need to know the actual, assessed needs and the cost of meeting them, the upfront allocation is 'virtually meaningless'.

It is hard to see the logic of this argument. The quotation from the Supreme Court is little more than a restatement of the well-established principle that a council has to check that the support package offered is meeting the eligible needs of the individual. This in no way diminishes the value of a RAS in providing a reasonable upfront indication, in guiding support planning or in ensuring overall spend is within budget. Nor does it take into account the process benefits of an accurate RAS. For example, where a package of more than £200 per week is required it is very unlikely that a well-developed RAS will over-estimate by as much as £50. This knowledge is helpful for both the support planner, who may come under pressure to offer more, and for the manager who

has to sign off the package. If a proposed package does cost £50 more than the IB, a more detailed review may be necessary to establish whether the extra spend is justified. Without the benefit of knowing that the IB is usually accurate, the same manager would instead have to review every case in detail in order to contain costs, rather than just those where a major discrepancy between IB and proposed PB arises. This is a good example of how an accurate RAS reduces bureaucracy and speeds-up decision-making.

More generally, an accurate RAS resembles any other decision support tool: it provides a prediction which is in general more accurate than individual human judgement – but each individual case still needs to be considered on its own merits. In the same way that an employer will not rely solely on an aptitude test to determine whether they employ a job candidate, or a forensic psychiatrist will not rely solely on a risk prediction algorithm in determining whether to let an offender out on parole, a council or support planner will not use the indicative allocation as the sole guide to package costs. The needs and circumstances of the individual will always require consideration. However, this does not detract from the value of an accurate indicative allocation, nor is there any reason to believe that use of a RAS means that *'the law will have to change'* as Slasberg et al. suggest (2012; p.167). Decision support tools are not illegal if used sensibly and a RAS is no exception.

Policy implications

An accurate RAS has considerably broader application than generation of an IB. First, a standard needs assessment makes for easy 'portability' as recommended by the Dilnot Commission (Commission on Funding of Care and Support, 2011) and required by the Care Bill (HM Government, 2013), and also for transparency of differences in allocation for similar needs across councils.

More broadly, Glendinning et al. (2008) emphasise 'the need for properly evaluated innovations in social care' (p.112), in particular the need for studies of cost-effectiveness. A RAS provides a straightforward method with which to evaluate the cost-effectiveness of local practice: if needs are assessed before and after an intervention and the scores put through the RAS on each occasion, a measure is thereby derivable of the difference in prospective cost of the care package before and after the intervention and thus of the 'saving' achieved or achievable by that intervention. This approach has been used to assess the potential cost-benefits of telecare (Clifford et al., 2012) and could similarly be used to evaluate the impact of reablement or the provision of additional support to carers.

Finally, at both local and national levels, a model of the relationship between need and cost may be used to predict the impact of changes in demographics, eligibility criteria or other policy decisions on both populations and costs. It therefore supports an evidence-based approach to policy and practice in social care.

Conclusions

A RAS has two key objectives, both of which are critical to the success of personalisation:

- Ensuring financial sustainability, i.e. managing aggregate costs so that they remain within budget
- Supporting individual allocations by providing a useful guide to the overall sum required to meet the service user's needs

Both of these require a model of the relationship between need and cost that can be used in everyday practice. This paper provides strong evidence that the 'modelling approach', based upon person-centred needs assessment, can provide this. It standardises and measures needs; it successfully attaches a monetary value to them; and it delivers an accurate indicative allocation in practice based upon them. Most importantly, to paraphrase Slasberg et al. (2012; p.172), it enables councils to **spend within their budget by being able to adjust the monetary value allocated proportional to need, so that the sum of personal budgets can match the overall budget.**

Finally, at the policy level, an accurate model of the relationship between need and cost embedded within a RAS has the potential to help policymakers evaluate the cost-effectiveness of innovations, and model the future costs and impact of changes in social care.

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