



Do institutional logics predict interpretation of contract rules at the dental chair-side?



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ARTICLE INFO

Article history:

Received 21 February 2014

Received in revised form

3 July 2014

Accepted 8 October 2014

Available online 8 October 2014

Keywords:

England

Dental

Institutional theory

Opportunism

Population health

Professionalism

Managerialism

Contracts

ABSTRACT

In quasi-markets, contracts find purchasers influencing health care providers, although problems exist where providers use personal bias and heuristics to respond to written agreements, tending towards the moral hazard of opportunism. Previous research on quasi-market contracts typically understands opportunism as fully rational, individual responses selecting maximally efficient outcomes from a set of possibilities. We take a more emotive and collective view of contracting, exploring the influence of institutional logics in relation to the opportunistic behaviour of dentists. Following earlier qualitative work where we identified four institutional logics in English general dental practice, and six dental contract areas where there was scope for opportunism; in 2013 we surveyed 924 dentists to investigate these logics and whether they had predictive purchase over dentists' chair-side behaviour. Factor analysis involving 300 responses identified four logics entwined in (often technical) behaviour: entrepreneurial commercialism, duty to staff and patients, managerialism, public good.

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1. Introduction

Contracts are the fulcrum of quasi-markets in health care (Allen, 2002): a separation of purchasers and providers can only work if there is agreement over what health care should be provided and at what price. Complete presentiment in contracts, however, is an abstraction of classical economics, not a product of contingent experience. Exchange is neither costless, nor the market 'free' – the prior costs of negotiating and the subsequent costs associated with regulation and monitoring complicate any exchange. Thus contracts are 'neither faceless, nor instantaneous' (Williamson, 1985, pp. 56). Sources of uncertainty and hence the costs of transacting are three fold. First, we cannot know all possibly relevant factors in the process of exchange, and as one contracts these factors and their possible relevance change – human behaviours are uncertain. Second, the less frequent, short and consistent a transaction the more complex the contract and the less secure its terms. Third, the less transferable and flexible the assets being invested in, the more

vulnerable the investment is to wider environmental changes (new markets, technology, geo-politics) that change the value of the assets during the contracting process.

Of these sources 'behavioural uncertainty is of particular importance to an understanding of transaction cost economics issues' (Williamson, 1985, pp. 57). Whilst contracts might be designed to cope with the complexity of possible decision trees, and be flexible enough to allow for changes in investment, they struggle with uncertainties in behaviour that, for Williamson, are a function of adverse selection and moral hazard. Adverse selection is a function of bounded reason – we have no hawk's eye view, rather we occupy perspectives influenced by habit, adopting what Simon (1979) calls administrative behaviour. People strive for rational outcomes from previously established settings of group loyalty (friends, colleagues) and authority (hierarchies, law) and are forced into creating (pragmatic) procedures that work. Rather than being maximally rational, decisions are permeated with personal bias and historical preference, for without closed systems (falling upon habits and heuristics with limited variables and consequences) decisions would never get taken – thus adverse selection is inevitable. What is more, moral hazard emerges from human tendency to behave opportunistically – following stipulations as contributing to perceived interests. Thus contracts become prey to parties

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selectively and/or distortedly releasing information in a calculated manner to avoid, dilute, or re-orient contractual obligations (Williamson, 1985, pp. 45–47), putting onus on contract design to mitigate adverse selection and manage opportunism.

Health systems – notably the UK's National Health Service (NHS) – have witnessed a burgeoning use of contracts. Concomitantly, attending to moral hazard is becoming increasingly important in an environment where activities involve millions of people, where assets are expensive and highly specific, and where demographic changes and budget constraints put increasing strain on provision. Primarily it is the purchasers and government regulators – as commissioners of health services – who are advised to “scrutinize contracts for possible ways in which opportunism may affect all parties” (Roberts, 1993), so channelling the self-interest of contracting parties toward provision of what remains a public good (Ferlie, 1992). The emphasis is on identifying and closing loopholes, and a close monitoring of behaviours, to prevent opportunism from blossoming. Where opportunistic behaviour and transaction costs are extensive, the contract between purchaser and provider is widely seen as having failed.

The contract between purchasers and providers of a specific form of health care – NHS general dental practice, has been repeatedly revised to try to address unintended consequences arising from moral hazard (Harris et al., 2014); most notably seen where a trial of dentists' remuneration based on capitation payments (1984–1987) was associated with an increase in the proportion of untreated decayed teeth, raising concerns about ‘supervised neglect’ (Coventry et al., 1989). Payments for fillings and crowns were subsequently re-introduced. A further experiment with restructuring remuneration in Personal Dental Service (PDS) pilots (1998–2006) also found that clinical procedures declined when not specifically remunerated (Department of Health, 2009). These PDS type contracts were then replaced by a new dental contract in 2006, based on Units of Dental Activity (UDAs). But this UDA system has also failed, on account of a fall in complex treatments and an increase in the number of extractions (House of Commons, 2008). Work re-designing the dental contract is again underway with a new model expected in the next few years.

Most previous studies relating dentists' behavioural responses to incentives have tended to report on natural experiments associated with contract change and debate the relative efficiency of different remuneration systems (Chalkley et al., 2010; Tickle et al., 2011). Throughout the tactical behaviour of the dental practitioner remains unexplored since the research stance still tends toward a neoclassical assumption of hyper-rationality where the dental practitioner is seen as making optimal choices from a sharply defined set of possibilities. A weakness in current research is a narrow focus on dental practices as a production function with technological outputs, without considering behaviours and their influence on contract design and use.

To study behaviour, as is hinted at but little pursued in Williamson's posing moral hazard as a critical determinant of any contractual form, entails a dynamic view of quasi-market contracting where agents (human beings, organisations) are viewed as not emerging fully formed, but undergoing processes of creation and evolution (Ferlie, 1992), with local ‘rules of the game’, learning, and bargaining styles building incrementally over years of operation. Contracting becomes an iterative, learning process, with a series of inevitable unintended consequences, negotiations and amendments, and a means by which social institutions arise and are shaped, rather than planned (Hughes et al., 1997). This brings into question the prevailing rational assumption that institutions (routines, values, social objects like money) are instrumental devices enlisted through the decisions of sovereign agents. Far from

being tools of rational ordering, such institutions carry structure and meaning in their own right. Institutions are instead defined by prevailing habits (e.g. recur to previously successful formulae for acting); scripts (procedures); and heuristics (moral guidance), all of which inform what does and/or should happen in evolving circumstances (Checkland et al., 2012). These understandings have been termed institutional logics: belief systems carried by agents as organising principles that create connections and a common purpose, allowing those within an organisational field a sense of grounding and habituated normalcy (Friedland and Alford, 1991); an organisational field here representing the environment in which institutional forces are structured, say in the form of specific organisations, laws, or symbolic patterns (Scott et al., 2000). They ‘provide the formal and informal rules of action, interaction and interpretation that guide and constrain decision makers in accomplishing the organisation's tasks and in obtaining social status, credits, penalties and rewards in the process’ (Ocasio, 1997).

Using the framing of institutional logics, our study examines the nature of contracting behaviour – with specific reference to the problem of opportunism – with regard for the evolving behaviour of dentists and dental practices. We conceive dentists (who combine the ownership of small businesses with the provision of care defined by professional codes), as acting from within the dental practice, itself structured as an organisation set in a wider organisational field of dental health care provision, across which are woven multiple, evolving and sometimes conflicting institutional logics. For example, dentists experience pressure to produce commercially sound returns, at the same time as conforming to professional norms associated with sustained and beneficial care, and in addition experience forces from other fields, say the legal field through employment laws, and the influence of community values in the field of local politics, all of which might unsettle and skew activity in ways often contractually unacknowledged. All the while these agents work within and contribute to institutionalised processes, they learn and adapt to activities governed by shared meaning and significance. In turn, they influence these processes of provision and value, both through habituation and the bringing of habit into re-alignment in the wake of unsettling or innovative experience – professionalisation and institutionalisation are symbiotic (Scott et al., 2000; Muzio et al., 2013). New technologies, changing political priorities, changing demographics and expectations, the rise of alternative providers and myriad other influences make for a dynamic, evolving environment in which care practice is only ever on the move.

In an earlier paper, we identified four institutional logics being (re)woven into general dental practice: ownership responsibility, professionalism, population health managerialism and entrepreneurial commercialism; that whilst not mutually exclusive, and sometimes in competition, appeared distinct enough as sets of beliefs around which organisation occurred (Harris and Holt, 2013). In this paper we report findings from a subsequent quantitative study of dental practitioners. We confirm the presence of logics associated with entrepreneurial commercialism (dentists exploiting technical and business opportunities for commercial gain) and managerialism (dentists accounting for activity using administrative measurement systems). We further refine and reconfigure the logics of ownership responsibility and professionalism (the study found dentists committed to the sustainability of the dental practice understood as an enterprise, framed around a responsibility and obligation to staff employed by principal dentist/s and to patients). In doing so we add to the literature on public sector motivation and professionalism, where previously these two concepts have been identified as distinct, but also ‘related in ways that have not yet been fully analysed’ (Andersen, 2009). We further show how logics form and reform, rather than being static. In the frame of

our revised logics we then investigated the interpretation and use of payment rules for care governed by the NHS dental contract.

Our paper is structured as follows. We describe the study context, explaining the 'grey areas' of the dental contract that leave scope for opportunism. We then present our study, outlining the measures used and analysis strategy, then describe the factor analysis of institutional logics followed by an analysis of how these guide interpretations of the contract in dentists' everyday work, notably the experience of moral hazard. Since mutual co-operation between principal and agent are recognised as the 'antithesis of opportunism' (Howden-Chapman, 1993), the analysis includes variables concerning providers' relationships with purchasers, so further explaining how providers vary in their response to rules and norms influencing dental care provision.

2. Institutional background

NHS dental practice is mainly based on a professional partnership model with practitioners acting as independent contractors. Dental practice premises and facilities are owned by principal dentist/s who are also responsible for payment of staff and overheads. Practices are permitted to earn income from both NHS and private work and so practices often provide a mixture of NHS and private services to a greater or lesser degree.

The current NHS dental contract details a currency of UDAs, which are courses of treatments weighted by complexity. Each procedure is classified into a band determining the number of UDAs earned. Thus a dentist is remunerated the same amount for doing, say, four fillings on a patient, as he/she would be for doing just one –because treatment bands take account of the *type* of treatment, not the *number* of procedures undertaken. There are thus disincentives to preferentially select patients for care who need relatively low numbers of, say, fillings or extractions, and to avoid taking patients on who need expensive types of care such as crowns and bridges (the practice has to bear the cost for laboratory work) (Department of Health, 2009). A contract between the practice and Primary Care Trust (PCT) commissioners stipulates an annual number of UDAs to be achieved for an agreed value. Since over-achievement of the UDA target at the end of the financial year is not rewarded, and under-achievement comes with a financial penalty, there are incentives for dentists and practices to skew workload toward realising contract targets, no more, no less. A system of patient co-payment also exists, alongside reimbursement from commissioners according to activity; with each band of activity having an associated level of patient charge, which dental practices collect directly from the patient. Thus dentists encounter care under a rubric of patient charges, undertaking or classifying certain care according to a particular band of activity, and so appreciate where gains and losses are made.

To analyse this contractual encounter we began with a factor analysis to test the existence and persistence of the previously qualitatively identified logics and how these were associated with dentists' tactical use of the contract, especially the room for opportunism in contractual 'grey areas'. Our first hypothesis stated that items pertaining to logics would form identifiable factors analogous to the four logics uncovered in our earlier qualitative study (Harris and Holt, 2013). In our second hypothesis we examined the roles of logics in predicting decision-making in relation to six contract 'grey areas'. Since we were unclear as to the directions in which specific logics might influence decision-making, we made two-tailed predictions that logics would be associated with self-reports of intentions to engage in practices within the next two years. We also viewed any influence of logics on behaviour in relational terms: and so in our third hypothesis we assumed the effects of logics on opportunism were more pronounced where

dentists had negative views of their dealings with commissioners. Thus, we investigated whether dentists' negative perceptions of their relationships with commissioners interacted with higher scores on logics to predict intentions to engage in opportunism.

3. Methods

Using interview data from earlier qualitative work (Harris and Holt, 2013) we generated 47 institutional logics items, each phrased as a stem statement relating to various aspects of practitioners' goals, norms and values (e.g. 'having a practice business plan is important to me', was derived from qualitative data relating to entrepreneurial commercialism logic). Participants were asked to rate the importance of each item on a 5-point scale anchored by the terms 'not at all important' (coded 1) and 'essential' (5) (See [Supplementary data](#) online). The qualitative work also allowed us to identify six areas where dentists' interpretation of the contract, when informed by their own self-interest (or when acting as an agent on behalf of patients), led to behaviour which could differ from the self-interested view of commissioners. We generated six items relating to the following six scenarios as possible types of opportunism (See [Supplementary data](#) online):

- 1) whether practitioners were willing to accept an NHS patient because the extent of necessary work meant remuneration was insufficient to cover the costs, meaning low or no profit (*avoiding high cost patients*);
- 2) restriction of certain types of NHS treatment (e.g. root canal treatment) where remuneration was insufficient to cover practice costs (*restricting high cost treatment*);
- 3) undertaking more complex treatments towards the financial year end to meet targets (*over-representing patients' diagnosis*);
- 4) restricting access to NHS routine care towards financial year end where targets had already been met (*inequitable care*);
- 5) allocating payment claims for treatment to a lower Band than appropriate, meaning patient contributes a lower charge (*under-representing need for patients' co-payment*);
- 6) flouting national guidelines on period of recall recommending the period between check-ups for low-risk patients be between 12 months and 2 years; (*over-allocation of treatment resources*).

Participants answered questions relating to: a) past behaviour (how often they had engaged in that behaviour e.g. over the previous two years); b) intended behaviour within the next two years assuming a hypothetical stability of contracts; c) descriptive norms (perceived frequency of the behaviour by other English dentists/practices). Response sets for intended and previous behaviours and descriptive norms used a five category response set labelled 'Never' (0), 'Rarely' (1), 'Occasionally' (2), 'Often' (3) or 'Routinely' (4). Practitioners' perceptions of injunctive norms were measured by asking for views on what proportion of English dentists 'might not approve' of behaviour. This response set consisted of five categories labelled as 'None' (0), 'Less than 10%' (2), 'about 10–50%' (3), '50–75%' (4) and 'almost all' (5).

Relationships with commissioners were assessed using a 18-item scale also derived from our earlier qualitative work and based on the principles of honesty, openness and interactional and distributive justice (See [Supplementary data](#) online). Participants rated their experiences of dealings with commissioners as positive (e.g., 'I have always found the PCT to be dependable') or negative (e.g., 'The PCT have rarely listened to my views') on a 5-point scale anchored by the terms 'strongly disagree' (1) to 'strongly agree' (5). Positive items were reversed and an average item score used. We found all 18 items so highly correlated that we used the items as a single scale (which we named *negative experiences*): a principal

components analysis showed a single factor with an eigenvalue of 8.60 with a minimum loading of .47. The Cronbach alpha of this scale was .93 indicating high internal consistency.

National research ethics approval (Reference number 10/H1011/38) and NHS research governance approvals were obtained for the study. All questionnaire items were piloted with nine practitioners instructed to provide interpretations on item content and response formats and to challenge items containing confusing or unclear meanings. Between January and April 2013 a postal questionnaire was sent to a cluster sample of 924 dentists named as practice owners on a national register of dental practices. The list included dentist-owners ranging from fully-NHS to fully-private practices. Sample size was calculated to enable the prediction of opportunistic behaviour from institutional logics. No precedent exists to show likely effect sizes, but our analysis strategy (see below) was conservative, potentially yielding small effect sizes. Cohen (1988) defines a small effect size in regression analysis as a ΔR^2 of .02, requiring a sample of 387 with alpha of .80 and probability of $p < 0.05$. To achieve this, we used a cluster sample of dentists according to PCT areas for convenience. PCTs have on average 60–70 dentists per area, and so assuming a 40% response rate, 14 PCTs were sampled. Six PCT areas in northern England were selected covering both urban/rural and mixed socio-economic profile areas, and were the areas where the initial case study work had been undertaken. A further eight PCT areas were then chosen randomly from the 152 PCTs nationally. After three mailings, 393 questionnaires were returned (43%); 333 of these from NHS dentists. Of these, 33 questionnaires were discarded because of four or more missing data points on the 47 logics items (those with three or less missing data points were replaced through a process of multiple imputation in SPSS v20).

3.1. Analysis strategy

We made no assumption that the four logics described in our earlier qualitative work would be the same as those identified in our quantitative work, and therefore entered all 47 logics items into an exploratory factor analysis. Scree plots were used to identify the optimal number of factors and factor extraction in further analyses limited to these. To allow factors to be correlated, an oblique rotation was used. Items that did not load onto one or more factors were discarded (Floyd and Widaman (1995), using Tabachnick and Fidell's (2007) criteria of loadings of between $-.32$ and $.32$ on the pattern matrix). Factor scores were retained and used for the analysis. Follow-up confirmatory factor analysis could not be used because the sample size was inadequate for division into exploratory and confirmatory sub-samples.

We used intended behaviour in the six 'grey areas' of the contract over the coming two years as outcome variables. Examining intentions whilst controlling current behaviour alleviates the methodological problem of reverse correlation that arises when past behaviour is used as an outcome variable. This creates a stringent test of the hypotheses because significance tests apply to the extent to which variables predict the criterion independently of each other, since the majority of variance in future intentions is explained by past behaviour leaving limited scope for other predictors (Trafimow, 2004). We also provided a stringent test of hypotheses by statistically controlling broader social norms – descriptive norms and injunctive norms. Hypotheses were tested using two sets of regression analyses. The first set examined unique prediction of behavioural intentions by norms and institutional logics. Significance testing of regression beta weightings was used to assess unique relationships between individual predictor and the outcome variables in each regression analysis.

The second set of analyses involved moderated regressions examining *negative experiences* with commissioners and the logics generated from our factor analysis. This analysis was restricted to data from a sub-sample of dentists who had experience of negotiating with commissioners ($n = 288$); in dental practices with partnership arrangements sometimes only some of the partners take on the role of dealing with commissioners. This second set of analyses followed the same format as the other, but added negative commissioning experiences and the logics factors. Interaction terms were computed from the product of centred relationship scores and each of the saved logics factor scores, and entered into regression equations with main effect variables to predict opportunistic behavioural intentions. Demographic, practice type and practice finance variables were entered into all analyses to serve as control variables. Practice finance variables included likert-type responses to questions asking if the practice financial turnover had changed in the last two years (reduced significantly to increased significantly), the extent of difficulty in sustaining business profits over the previous five years. Significance testing of regression beta weightings was used to assess unique relationships between predictor and outcome variables in each regression analysis.

4. Results

4.1. Description of the sample

Of the respondents used in the first analysis, 225 (79%) were male and 69 (21%) female. This reflects national figures, showing 23% of dentists owning practices are female (Health and Social Care Information Centre, 2012). Dentists had a mean age of 49.31 (SD = 8.80) and a mean time in practice of 26.78 years (SD = 9.18). The median number of dentists working in each practice was 3 (inter-quartile range (IQ) 2–5). The median percentage of NHS/private mix of work in the practice (based on patient numbers) was 75% (IQ range 29–95) and private work 30% (IQ range 5–75). Again, this was roughly comparable to national figures which show that 57% of dentists spend 75% or more of their time on NHS dentistry (Health and Social Care Information Centre, 2012).

4.2. Descriptive analyses

Table 1 shows the distributions of responses relating to dentists' past behaviour and future (over the next two years) intentions to behave opportunistically, and descriptive and injunctive norms. Higher levels of past and intended behaviour were observed where the behaviour related to dentists working as an agent on behalf of patients (behaviours 5 and 6). These two items also showed greater correspondences between prior and intended behaviour. Intentions to engage in the first four behaviours were considerably higher than previous behaviour, but not the final two. This may be an artefact of the methodology, but one interpretation for this is that dentists were intending to change their behaviour to engage in more behaviour against the interests of commissioners than in the past (possibly as a consequence of completing the questionnaire).

4.3. Hypothesis 1 – factor analysis institutional logics

Table 2 shows the final analysis with Eigen values and the percentage of variance accounted for by each factor, loadings of individual items of greater than .30 on the pattern matrix and inter-factorial correlations. Factor 1 closely resembles 'entrepreneurial commercialism'; characterised by higher loadings on an importance of seeking commercial opportunity (Table 2). Factor 2 was characterised by higher loadings of items concerning a 'duty to staff

Table 1

Percentages of dentists reporting frequencies of opportunistic behaviour in the past, intentions of future opportunism, estimates of the frequencies of other dentists' opportunism and percentage of other dentists who would approve of opportunism.

	Avoiding high cost patients			Restricting high cost treatment			Over-representing patients' diagnosis			Inequitable care			Under-representing patients' co-payment			Over-allocation of treatment resources because of patients' demands		
	Past	Intent	Other dentists	Past	Intent	Other dentists	Past	Intent	Other dentists	Past	Intent	Other dentists	Past	Intent	Other dentists	Past	Intent	Other dentists
Never	65.8	45.3	3.4	53.4	41.3	1.3	43.5	35.8	2.2	74.0	63.1	3.2	34.4	34.1	8.2	8.1	8.7	.3
Rarely	16.3	20.1	5.3	21.4	23.4	2.8	23.3	26.1	11.1	11.5	19.4	14.9	13.8	17.4	33.9	23.9	22.7	16.5
Once	11.8	16.8	27.6	14.7	19.7	27.3	22.7	25.2	40.0	8.7	10.7	48.1	23.8	24.4	40.8	32.0	34.3	38.9
Often	3.8	10.4	43.6	7.3	11.0	46.7	8.6	10.6	34.0	4.5	4.9	27.5	17.4	15.1	12.3	27.5	26.2	36.4
Routinely	2.2	7.4	19.7	3.2	4.8	21.6	1.6	3.3	11.7	1.0	1.6	5.7	9.6	8.0	4.1	8.1	7.8	7.6
Approve none		1.3			.9			2.2			4.1			8.3			.6	
Less than 10%		12.9			9.4			23.0			28.0			37.1			18.7	
10–50%		36.0			30.7			37.1			36.0			34.5			40.6	
50–75%		24.6			30.4			24.0			18.8			11.2			28.9	
Almost all		24.9			28.2			12.8			12.4			8.0			10.5	

and patients'. Items most highly correlated within this factor concerned reciprocal relationships with staff within the practice, although also correlated were items related to a responsibility to patients, and the importance of professional reputation. All the

items which fell within Factor 2 were derived from what we had previously pictured separately as 'ownership responsibility' logic and 'professionalism' logics (Harris and Holt, 2013). Factor 2 therefore prompted us to query our previous conceptualisation of

Table 2

Factor analysis on institutional logics.

	Factor 1 Entrepreneurial commercialism	Factor 2 Duty to staff and patients	Factor 3 Managerialism	Factor 4 Public goods
Eigenvalue	8.30	4.39	2.44	1.50
Percent variance	21.84	11.56	6.41	3.96
Pattern matrix Loading				
2 Supporting staff through personal difficulties		.587		
3 Having a practice business plan	.435			
4 Having harmonious relations in the practice		.630		
5 My responsibility for the care provided		.489		
6 Happy atmosphere amongst staff		.655		
7 Opportunities to sell to the patient	.548			
8 Reputation of the practice in the local community		.374		
9 Maintaining business to secure staff employment		.517		
11 Staff should share same work related values		.578		
12 Identifying new business opportunities	.764			
13 Practice endures for longstanding patients		.648		
14 Retaining staff in the practice		.725		
15 Receiving support from staff		.643		
16 Equal care standards whether NHS or Private		.359		.348
18 Discuss treatment options with patients		.408		
19 Dentists professionally responsible for patients		.421		
20 Financial implications of advising patients	.316			
23 Patient satisfaction with care provided		.456		
24 Accountable to commissioners for care			-.379	.384
25 Review of practice policies and procedures			-.726	
27 Care as part of a publicly funded system				.656
28 Expanding the practice as a business	.859			
29 Building goodwill to enhance value of practice	.548			
30 Paper trail of practice procedures			-.655	
31 Payment schedule statistics for performance information				.403
32 Supporting staff through professional difficulties		.640		
33 Using public money in cost-efficient way				.585
34 Feeling part of the NHS				.592
35 Expanding the practice as a business	.863			
36 The branding of the practice	.741			
39 Business aspects of the practice	.667			
40 Positioning the practice in the market place	.772			
42 Reducing population inequalities in oral health				.567
43 Adapting the business in a changing environment	.563			
44 Remuneration in line with years of training/skills	.341			
45 Identifying new business opportunities	.867			
46 Regular review of practice policies and procedures			-.785	
47 Being highly regarded by other local dentists		.404		
Factor intercorrelations				
Factor 1 Entrepreneurial commercialism		.19	-.19	.10
Factor 2 Duty to staff and patients			-.29	.18
Factor 3 Managerialism				-.15

professionalism logic, which described a focus on self governance by the profession accompanied by altruistic motivations to work in the best interests of the patient – as portrayed in the wider literature concerned with professionalism (Hanlon, 1998). Moreover, the traditionally held view of professionalism as involving a concern with 'being a dentist' and having a duty to peers within the dental profession also did not emerge as significant from our analysis. Instead, professionalism was expressed in relational terms, with caring as an extended process emanating from high quality relationships within the dental practice to encompass patients and the community. This conforms with Muzio et al.'s (2013) sense of the entwined evolution of professional logics and contractual institutionalisation, with professional logic here encompassing what we previously conceptualised as 'ownership responsibility', where dentists cultivate practice culture around service values. This does not mean dentists regard more traditional aspects of professional practice as unimportant, merely that these elements were not integrated into a unitary schema of professional practice in our data.

Factor 3 and 4 both contained elements of what we previously described as 'population health managerialism' logic, but allowed further development of the concept. Factor analysis distinguished 'managerialism' (Factor 3) as characterised by an acceptance of external accountability and power connected to state regulation and management principles from the private sector. Factor 4 on the other hand was characterised by high loadings on the importance of publicly-funded healthcare, reducing health inequalities and accountability for public money. We consequently labelled this factor 'public goods' – goods/services from whose benefits no-one is excluded and whose consumption by one does not diminish consumption by another (WHO, 2013). The term denotes one person's contribution conferring a benefit on a group of people, but, given the possibility of private not-for-profit provision, there is no presumption of public sector monopoly (Sugden, 1984).

4.4. Correlations between predictor variables and behaviour in relation to contract rules

Pearson and point-biserial correlations in Table 3 show female dentists less likely to engage in 'grey area' behaviours. Practices having a higher proportion of NHS patients were also found to have fewer intentions to refuse patients who might represent a financial loss to the practice; and more intentions to under-represent

patients' co-payments, for the sake of the patient. Both descriptive and injunctive norms were positively related to all six behaviours. The first four behaviours were generally predicted by the practitioner placing a higher importance on entrepreneurial commercialism (Factor 1); and lower importance on duty to staff and patients (Factor 2) and public goods values (Factor 4). Under-representing patients' co-payment was related to having a lower sense of commercialism logic and a higher score for public goods logic. Overriding NICE guidelines related to recall periods was associated with low managerialism logic scores (Factor 3).

4.5. Hypothesis 2 – regression analyses predicting intentions to behave opportunistically

Regression analyses are presented in Table 4. Past behaviour was used as the only covariate because it subsumed variance explained by demographic and practice variables. In the full sample, higher descriptive or injunctive norms scores were associated with the first three behaviour intentions. Higher entrepreneurial commercialism logic scores were associated with behavioural intentions 2, 4 and 5. Duty to staff and patients logic scores were associated with a lower intention to refuse NHS patients who might represent a financial loss to the practice and override NICE guidelines on the recall period. Neither managerialism logic, nor public goods logics uniquely predicted any behavioural intentions to behave opportunistically (Table 4).

4.6. Hypothesis 3 – facilitation of the role of logics by relationships with commissioners

We also hypothesised that, amongst dentists who had experience in dealing with commissioners over the previous two years, negative experiences would be both directly associated with opportunism and that negative experiences with commissioners would also moderate the effects of logics. Moderated regression analyses presented in Table 4 show that the interaction terms only predicted intention behaviour in one of the 6 opportunistic behaviours: avoiding high cost patients. Following procedures of Aiken and West (1991), we modelled the three interaction terms. These figures (Figs. 1–3) show in three of the four logics (entrepreneurial commercialism, duty to staff and patients, managerialism and public goods logics) orientations were associated with increased intentions to behave opportunistically (high scores

Table 3
Correlations between predictor variables and behavioural intentions relating to six areas of opportunism.

	Avoiding high cost patients	Restricting high cost treatment	Over-representing patients' diagnosis	Inequitable care	Under-representing patients' co-payment	Over-allocation of treatment resources because of patients' demands
Gender	-.23**	-.17**	.02	-.10	-.02	-.05
Years in Practice	.06	.05	-.09	-.01	.02	.03
No. dentists per practice	-.10	.07	.00	.06	.04	-.03
Percent NHS patient mix	-.16**	-.04	-.04	.00	.38**	.01
Past behaviour	.59	.75	.84	.83	.94	.92
UDA Price	-.05	-.07	.05	.18**	.22**	-.03
Profit trend	.18**	.07	.00	.11	.13	-.04
Turnover trend	-.01	.00	.03	.01	.02	.02
Descriptive norms	.36**	.32**	.42**	.23**	.51**	.70**
Injunctive norms	.42**	.41**	.41**	.26**	.37**	.61**
Entrepreneurial commercialism logic	.08	.23**	.06	.12*	-.26**	-.02
Duty to staff and patients logic	-.11*	-.11*	-.12*	-.09	-.09	-.02
Managerialism logic	.04	.14*	.07	.03	.02	.27**
Public goods logic	-.17**	-.12**	-.04	-.05	.24**	-.07

* $p < 0.05$, ** $p < 0.001$.

Table 4
Regression analyses predicting intentions to engage in chair-side opportunism.

	1. Avoiding High cost patients	2. Restricting High cost treatment	3. Over-Representing patients' diagnosis	4. Inequitable Care	5. Under-Representing patients' co-payment	6. Over-Allocation of treatment resources because of patients' demands
Full sample						
R ² (Adj)	.41**	.63**	.73**	.70**	.88**	.84**
Past behaviour	.47**	.76**	.77**	.80**	.87**	.82**
Descriptive norms	.12*	.04	.10*	.04	.04	.08
Injunctive norms	.19**	.13**	.05	.04	.04	.05
Entrepreneurial commercialism logic	.07	.10*	.01	.08*	-.05*	-.03
Duty to staff and patients logic	-.11*	-.06	-.01	-.04	-.03	-.06*
Managerialism logic	-.05	.06	.01	.02	.03	.02
Public goods logic	-.04	.06	.05	.00	.06	-.02
Negotiation sub-sample						
R ² (Adj)	.42**	.61**	.71**	.67**	.86**	.85**
Negative commissioning experience (Neg)	.12*	.04	.05	.05	-.06	-.02
Neg × entrepreneurial commercialism logic	.13*	.05	-.02	.05	.00	-.05
Neg × duty to staff and patients logic	-.06	.01	-.04	-.03	-.01	-.02
Neg × managerialism logic	.14*	.07	.00	.03	.01	.01
Neg × public goods logic	.14*	.02	-.04	.03	-.03	.03

p* < 0.05, *p* < 0.001.

representing an increased likelihood the dentist would refuse to take on patients representing a financial loss to the practice), but only if these dentists reported having had negative experiences in their dealings with commissioners.

5. Discussion

Our study departs from technical perspectives previously used to study this area; where providers and their organisations are viewed as rational actors albeit in a complex environment (Kratz and Zajac, 1996). We take instead an institutional perspective viewing organisations (and their actors) woven into wider institutional environments that sustain, and are sustained by them. In doing this we add to the literature on institutional change and the institutional work associated with it, which remains as suggested by Reay and Hinings (2009) both 'important and under-explained'. This theoretical perspective allows us to look beyond the immediate task environment for explanations of behaviour, to the forces shaping social rules and rituals. But equally, in elaborating institutional logics in general dental practice, we link actions (by dentists) at the micro-level (dental chair-side) to institutional logics, for the study directs us to acknowledge the role of actors within dental practices who have the 'resourcefulness, abilities and energies of

individuals to develop workable solutions in spite of competing logics at the field level' (Reay and Hinings, 2009).

Specifically, our findings suggest dentists experience and work in accord with distinct organised institutional logics associated with decision-making in the 'grey areas' of their contracts. The structure and inter-relationships of these logics are similar to those established through qualitative work (Harris and Holt, 2013) but also showed differences. Askance from previous research finding the norms of professionalism to be organised schemas based upon absolute standards of clinical excellence, altruism and responsibility, our analyses showed, rather, a strong emphasis on the relational, with obligations felt similarly in relation to both patients, staff working in the practice, and the community in which the practice was situated. We tentatively interpret this as a response to specific pressures on dentists to ensure the survival of the practice, since dentists' ownership of assets (premises) means that the financial viability of practices can be fragile (Harris et al., 2014). The altruistic components of professionalism are thus functionally redefined in terms of high quality relationships within and outside the practice that carry survival value. We also found that the professionalism factor was statistically related to a commercialism factor, where clinicians view their practice as an active competitor in an opportunistic marketplace. We speculate

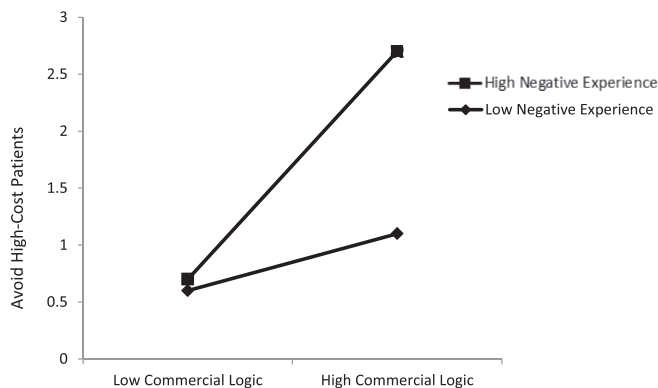


Fig. 1. Interaction between dentists' negative experiences with commissioners and entrepreneurial commercialism predicting avoidance of high cost patients.

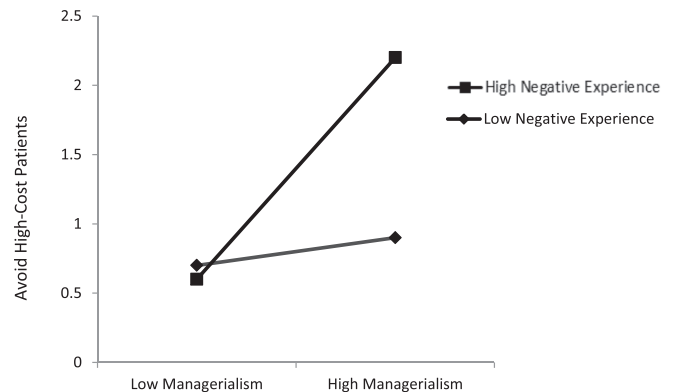


Fig. 2. Interaction between dentists' negative experiences with commissioners and managerialism logic.



Fig. 3. Interaction between dentists' negative experiences with commissioners and public goods logic.

therefore that both logics may be compatible responses to the problems of practice survival.

This tension between professional obligation and financial business concerns has been recognised as a feature of dental practice, not just within the UK system, but also in America (Dharamsi et al., 2007). The juxtaposing narratives of economics within dentistry and the theme of professionalism are familiar. When resources are tight, the casualty appears to be the extent to which dentists express an ethical obligation to wider society. This undermines the traditionally held view that one of the fundamental components of professionalism is an earning of self-governance through a willingness to serve society in the public interest. In the context of dentistry this is seen as carrying a social responsibility to provide a service for the most vulnerable in the population (Dharamsi et al., 2007). The main features of professionalism however shown in our study appear more united around the immediate needs of the local practice community (patients and staff), than in concern for the needs of the wider population. Hanlon (1998), followed by Muzio et al. (2013), recognise professionalism as a shifting not concrete phenomenon, and we find this to be the case, notably with the expansion of commercialism in dentistry – the social contract has become one between the dentist, dental staff, patients and the local community.

That is not to say that dentists do not have public goods concerns – they do (as expressed in Factor 4 which relate to the importance of a public health system in the cost-effective and fair distribution of dental services to the community), and which are distinct from values concerned with external accountability and management practices (Factor 3). Table 3 shows dentists scoring highly on the duty to staff and patients also scored highly on public goods logic; as did dentists scoring highly on entrepreneurial commercialism. The small correlations however also show a statistical independence between logics, meaning that any one dentist's score on any logic provides a poor prediction of that dentist's score on the other logics. This independence of logics is in line with the institutional theory literature which suggests that multiple logics can co-exist (Muzio et al., 2013).

The pluralistic, organic approach to institutional logics is supported by our data, and resonates with a conceptualisation of institutional environments as fragmented and contested, rather than with earlier portrayals of institutions as isomorphic. Loundsbury (2008), suggests that multiple logics create diversity of practice by enabling variety in cognitive orientation and contestation over which practices are appropriate; whilst acknowledging that the challenge remains to 'demonstrate the effect and range of logics and how they inform practice and activity'. In our study we demonstrate how a multiplicity of broader cultural beliefs and rules

structure cognition and guide decision-making of actors in the field. Thus we put the 'problem' of adverse selection and moral hazard within the context of wider institutional change, and debunk the myth that opportunistic behaviour is a 'rationalised impersonal prescription which is approached in a rule-like way as a means to pursue technical purposes rationally' (Loundsbury, 2008). The study lends weight to scholars who challenge the established wisdom that institutional and technical forces are like a two stage model, being separate and distinct, but rather that micro-level technical considerations are somehow institutionally embedded (Loundsbury, 2007).

5.1. Limitations

The current study constitutes a successful attempt to test emerging theory concerning the structure and effects of institutional logics on dentists' opportunistic intentions, but readers will need to consider three limitations of our methodology. First, most instruments were developed from directly from our qualitative work (Harris and Holt, 2013). This has the advantage of improving their relevance to dentists' expressed concerns, but the disadvantage that there is no evidence of instrument reliability or validity, save for face validity of the items, that is independent of the current data set. The second limitation involves the reliance on exploratory, rather than confirmatory, factor analytic techniques. Consequently, the structure of the institutional logics has not been subject to falsification. Thirdly, the study is cross-sectional and reliant on measures of behavioural intention rather than actual chair-side behaviour. Relationships between behavioural intention and behaviour are often moderate, and a more appropriate test of causality would involve prediction of behaviour from institutional logics measures taken at an earlier time. Thus, a more rigorous test of the underlying theory would involve both measurement and structural modelling of hypothesised effects over a fixed time period.

It is worth noting that we found the proportion of dentists who reported engaging in opportunism, relatively low. Whilst a degree of response bias and reporting bias may account for this: fewer dentists reported engaging in opportunism than their reported estimates of descriptive norms among the wider population of dentists and injunctive norms (perceived acceptability of the behaviour among fellow dentists); nevertheless, we should recognise that, as argued by Williamson (1993), most agents are engaged in 'business-as-usual', with little or no thought to opportunism, most of the time. Furthermore, we found those holding a strong duty of care resisted opportunism in 'grey areas' whilst those holding to commercial logics tended to engage only when experiencing negative negotiating relationships with commissioners. The policy implications therefore are clear, that rather than focussing all commissioning efforts on contract design issues and patrolling behaviour around loopholes (with attendant transaction costs); there are benefits in recognising wider forces shaping behaviour as dentists respond to contract rules. This has implications which are wider than just the context of NHS dental contracting. Any situation – be it contractual arrangements between private US dentists and those managing insurance schemes, or other contracting situations outside health care altogether, are beset by the same issue – the struggle to capture behavioural uncertainty within a contractual form. Our study provides evidence that a reductionist economist stance is an insufficient representation of the multi-dimensional nature of contracting. We argue, with Teubner (2000), that contracting should be seen rather as a discursive project with intertextuality qualities. Contracting is not merely an economic exchange between parties, nor even an agreement reconstructed as relational, but a space of 'compatibility between different

discursive projects, different contracting worlds', which study of institutional logics allows us to explore.

Department of health disclaimer

The views and opinions expressed therein are those of the authors and do not necessarily reflect those of the HS&DR Programme, NIHR, NHS or the Department of Health.

Acknowledgement

This project was funded by the National Institute for Health Research Health Services and Delivery Research Programme (project number 09/1801/1055).

Appendix A. Supplementary data

Supplementary data related to this article can be found at <http://dx.doi.org/10.1016/j.socscimed.2014.10.020>.

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