General Dental Services in Northern Ireland

Cost of Service Review

Commissioned by: The Department of Health

Completed by: Professor Ciaran O'Neill, Queen's University Belfast

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Cost of Dental Service Review in NI

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Executive Summary

Evidence indicates that the financial returns available to general dental practitioners (GDPs) in Northern Ireland have declined in real terms over time. Relative to their counterparts in other parts of the UK, earnings have also deteriorated, with dentists in Northern Ireland now receiving the lowest average income among general dental practitioners across the four nations.

As financial conditions have worsened, there has been a marked shift away from publicly funded dental provision towards private practice. This trend has accelerated in recent years, with a reduction of over 389,132 registered patients between Q4 2022/23 and Q3 2025/26. [1] Concurrently, the proportion of care delivered privately has increased significantly, reaching a level almost double that observed in Scotland. Notably, this decline in registrations has occurred despite an increase in the number of dentists licensed to practice in Northern Ireland (though the whole time equivalent will be less than the actual headcount). Nevertheless, this suggests that the changes observed primarily reflect shifts in provider behaviour rather than licenced workforce supply constraints.

In response to these developments, the Department of Health commissioned a review of dental service costs in Northern Ireland in September 2025. The analysis adopts an opportunity cost framework, defining costs in economic rather than purely financial terms. Put simply, the approach considers not only the direct expenses incurred by dentists, but of the income they could earn privately by re-directing time from public to private work. Within this framework, gross income is used as a proxy for total economic cost.

Recognising that costs vary considerably across practitioners depending on practice structure, contractual mix, and patient profile, the analysis does not rely on a single data source. Instead, it triangulates findings across three analytical approaches:

1. **Earnings-based analysis**, using Dental Earnings and Expenditure Survey (DEES) data and working hours information;
2. **Survey-based fee and time analysis**, comparing private fees with publicly funded remuneration for common treatments; and
3. **Behavioural analysis**, using Business Services Organisation (BSO) data to examine how changes in publicly funded activity affect private income.

Using 2016 as a stable baseline year to mitigate the effects of recent economic shocks, the earnings-based analysis suggests an estimated cost per hour in the range of £125–£135 (2024/25 prices), the higher value being more likely, given recent changes in market conditions. Adjusted for

inflation to 2026, approximates £142 per hour. The fee-and-time analysis produces an estimate of £150–£160 per hour, once more realistic constraints on working time and patient substitution are applied. The behavioural analysis supports the other analyses, indicating that among associates with higher private income and relatively low public commitment, increasing HSC activity was associated with a measurable reduction in private income of around 16% per additional public clinical hour. That is, for some dentists there was a real trade-off between alternative ways of allocating time.

The evidence suggests that a reasonable central estimate of the economic cost of dental care lies around **£145 per hour**, subject to substantial variation. However, there is no single definitive cost associated with delivering dental care in Northern Ireland. Costs can vary markedly practitioner circumstances.

Key messages

- Real incomes for dentists in Northern Ireland have declined over time and now appear to lag behind those in other UK jurisdictions, contributing to a shift away from publicly funded care.
- Publicly funded registrations have fallen sharply — by over 389,000 patients since 2022 — despite no clear corresponding fall in the number of licensed dentists, suggesting a change in participation or behaviour rather than simply a workforce shortage.
- Dentistry operates in a mixed public–private market, so dentists' time has viable alternative uses; time spent on HSC activity therefore carries a real opportunity cost in the form of foregone private income.
- No single dataset can provide a definitive estimate of the economic cost of publicly funded dentistry; triangulation across earnings data, fee-time comparisons and behavioural evidence is therefore required.
- Across these methods, estimates converge on a broadly similar economic cost range, approximately £145–£150 per clinical hour, with behavioural evidence indicating that increased public activity can reduce private earnings.

Background

Concerns have been raised by the British Dental Association for some time([2]BDA, regarding the adequacy of funding for publicly funded dentistry in Northern Ireland. The BDA has characterised the current position as posing an "existential threat" to the service. This assessment is reflected in several key indicators: a sustained decline in the number of patients registered for publicly funded dental care (Figure 1), a reduction in the volume of services delivered (Figure 2), and a fall in treatment fees claimed for publicly funded activity (Figure 3).

Excluding the period affected by the COVID-19 pandemic, these trends appear to have commenced prior to 2020 but have accelerated markedly since the fourth quarter of 2022. The loss of over 389,000 registered patients between Q4 2022 and Q3 2025/26 is particularly significant in the context of a population of approximately 2 million. Fewer than half of the population is now registered with a general dental practitioner for publicly funded care. Importantly, this decline has occurred alongside an increase in the overall number of dentists licensed in Northern Ireland (Figure 4), where the number of licensed practitioners has increased from 1,053 to 1,195 between 2014 and 2024 [1]. This suggests that the observed reductions in registrations, activity, and expenditure are likely to reflect a shift in provider behaviour away from publicly funded work towards private provision.

The BDA briefing[2] also draws on evidence from the Dental Earnings and Expenditure Surveys (DEES) ([3] NHS Digital) , which are conducted annually across the UK. These data indicate a decline in dentists' taxable income in real terms over time [4]. Between 2016/17 and 2023/24, for example, principals' taxable income fell from £125,000 to £121,200, while associates' income declined more sharply from £74,500 to £65,500 (2023/24 prices). The same dataset highlights a persistent income gap between Northern Ireland and other UK jurisdictions. In 2023/24, average earnings for principal dentists in Northern Ireland were £14,300 lower than in Scotland (£121,200 compared to £135,500), while associates earned £15,200 less (£65,500 compared to £80,700). Across all dentists, Northern Ireland recorded the lowest average pre-tax income in the UK (£77,000), compared to £78,200 in England, £79,900 in Wales, and £90,600 in Scotland.

Trend analysis (Figure 5), using real-terms comparisons adjusted by the GDP deflator, shows that while dentists in Northern Ireland earned at or above parity with their Scottish counterparts in 2009, their relative position has deteriorated over time. By the end of the period, principal dentists in Northern Ireland were earning approximately 90% of the income of their Scottish counterparts, and associates approximately 80%. Although this decline has been gradual, a more pronounced relative

reduction is evident from 2022 onwards, particularly among principals. Overall, the downward trajectory in both real and relative income is clear.

Three additional factors are also relevant. First, there has been a notable shift in workforce composition, with increasing feminisation of the dental workforce. The proportion of registered dentists who are female rose from 47% in 2010 to 60% in 2025. This is not unique to Northern Ireland but does have implications for working patterns, as average weekly hours have declined albeit modestly over time—from 37.4 hours in 2019 to 35.6 hours in 2022/23—with female dentists, on average, working fewer hours than their male counterparts [5] NHS Digital). Data on how many weeks dentists work per year is not available.

Second, total expenditure on publicly funded dentistry has declined, even in nominal terms, following the withdrawal of COVID-19-related financial supports. Expenditure in 2023/24 (£121.6 million) [6] (General Dental Statistics) was broadly equivalent to that recorded in 2016/17 and lower than in the two preceding years, indicating a contraction in real-terms investment.

Third, the relative attractiveness of private practice compared to publicly funded provision appears to have increased over time. Analysis of DEES data (Figure 6), rebased to 2024/25 prices, shows that while real taxable income has declined overall, trends differ according to the level of commitment to publicly funded care. Among principal dentists with low levels of Health and Social Care (HSC) commitment (less than 25%), real incomes declined for much of the period but began to recover after 2019. In contrast, those with higher levels of HSC commitment experienced continued declines. This divergence is consistent with a growing financial incentive to reduce publicly funded activity in favour of private provision.

Methods

In principle, the cost of delivering dental care can be estimated using two broad approaches. The first is a technological or micro-costing approach, which builds up the cost of care from detailed estimates of the inputs required to deliver a defined unit of service, including clinical time, dental nursing time, materials, laboratory costs, equipment, premises and overheads. This is similar in principle to the approach adopted in the Crowe Report (2025)[7], although the precision of such estimates depends heavily on the representativeness of the practices observed and the completeness of the cost categories included.

The second approach, adopted in this analysis, is an opportunity cost approach based on observed earnings. Rather than estimating the physical inputs required to deliver an hour of dental care and assigning unit costs to each input, this approach values dentists' time according to what they could

reasonably earn by allocating that time to alternative activity, most notably private practice. This is intended to capture the economic value of scarce professional time, rather than simply its accounting or contractual cost.

The distinction is important. A micro-costing approach may value dentists' labour using salaries, associate payments or other observed wage rates. While appropriate for some purposes, this can understate the economic cost of publicly funded dental care if those rates do not reflect the income foregone when dentists provide publicly funded treatment instead of private treatment. Conversely, an opportunity cost approach may generate a higher estimate where private earnings are substantially above public-sector remuneration, because it reflects the return dentists could obtain in their next-best use of time.

In theory, the two approaches may produce similar estimates if labour is valued consistently and if observed earnings accurately reflect the underlying cost of delivering care. In practice, however, the estimates can diverge because they answer subtly different questions. Micro-costing estimates the resource cost of producing dental care, whereas the opportunity cost approach estimates the value of the resources, particularly dentists' time, in their next-best alternative use. For assessing whether publicly funded fees are sufficient to attract and retain providers, the opportunity cost approach is therefore particularly relevant.

To derive robust estimates, the analysis triangulated across multiple data sources, including earnings data, working patterns, treatment times, and fee structures.

Earnings-Based (Opportunity Cost) Approach

Data on gross earnings and taxable income were drawn from the Dental Earnings and Expenditure Surveys ([3] DEES). Gross earnings include all practice-related income, covering both expenses and pre-tax income, that includes —where relevant—a return on capital investment for dentists as well as their risk bearing function as contract holders. As with all survey data, these estimates should be interpreted with caution due to inherent time lags relative to current market conditions.

All financial data were expressed in real terms (2024/25 = 100) to enable meaningful comparison over time. Estimates of hourly cost were derived by dividing real gross earnings by total annual hours worked.

Data on working hours were sourced from the Dental Working Patterns dataset for Northern Ireland for a range of years (reported by NHS Digital [5]). In 2016/17, principal dentists worked an average of 42.1 hours per week, and associates 34.2 hours, with no material variation observed over time.

Dentists were assumed to work 48 weeks per year. Sensitivity analysis explored alternative assumptions, including a reduced working year for associates (42 weeks) to reflect potentially higher leave uptake. Sensitivity analyses examine how results change when key assumptions are varied. It is important because it shows whether findings are robust or whether they shift materially when plausible alternative assumptions, such as shorter working year for associates, are applied.

To capture heterogeneity, that is, the wide variation in dentists' working patterns, earnings and practice structures, hourly cost estimates were also stratified by practitioner characteristics. These included age, sex, and level of commitment to publicly funded care. Time trends were analysed accordingly. It should be noted that the DEES does not include information on practice capacity (e.g. number of chairs or surgeries), which limits the ability to assess scale efficiencies or organisational variation.

Survey-Based Fee and Time Analysis

A second approach involved a targeted survey of dentists, conducted in March 2026 and distributed via the British Dental Association. This was specifically designed to compare fees and time involved in the delivery of common procedures delivered by dentists. Respondents were asked to report private fees charged and time taken to deliver two illustrative care scenarios, comprising common treatment bundles:

Scenario 1	Private Fee
Recall patient examination	
2x Radiographs	
Scale and Polish	
Filling – anterior tooth	
Filling – posterior tooth 2surfaces	
Total time taken	= (minutes)

Scenario 2	Private Fee
New patient examination	
3 x small x-rays	
1 x extraction	
1 x visit fee	
S and P	
Total time taken	= (minutes)

Additional treatment bundles could have been included but mindful of the potential effects on response rates these two were chosen as exemplars. For each scenario, total time (in minutes) and associated private fee income were reported. These were compared with publicly funded remuneration levels (as set out in the Statement of Dental Remuneration) and estimates of treatment time for Health and Social Care (HSC) patients informed by published sources [8].

The purpose of this exercise was to assess differences in income generation and time allocation between private and publicly funded care, thereby providing further insight into the opportunity cost of dentists' time.

Several caveats apply. First, it cannot be assumed that dentists can fully substitute public patients with private patients; demand constraints may limit this. To address this, a probability parameter was introduced to reflect the likelihood that a public patient could be replaced with a private one. In the central scenario, this probability was assumed to be 0.6, with sensitivity analysis exploring alternative values. As less than 50% of the population are registered for public funded care 0.6 was not thought to be unrealistic

Second, publicly funded dental remuneration in Northern Ireland is not limited to item-of-service fees. The Statement of Dental Remuneration includes a range of payments and allowances, including continuing care and capitation payments, seniority payments, vocational trainer grants, CPD and clinical audit allowances, maternity, paternity and adoption leave payments, sickness payments and peer review payments. In 2021/22, ordinary dental service payments, measured as the net cost of dental services plus patient contributions, amounted to approximately £100.1 million, compared with a total gross expenditure on dental services of £143.8 million. On this basis, ordinary service payments accounted for around 70% of total gross dental service expenditures, with the remainder largely reflecting Covid-19 support payments. Fee comparisons alone therefore do not fully capture

total publicly funded remuneration, and estimates of opportunity cost should be interpreted as indicative rather than definitive.[9,10]

Third, fee income reflects clinical activity only. Based on findings from the Dentists' Working Patterns, Motivation and Morale Survey, it was assumed that approximately 77% of total working time is devoted to clinical (fee-generating) activity, with the remainder allocated to administration and other non-clinical duties. [5].

Supporting Analysis: Market Dynamics (BSO Data)

To complement the approaches set out above, analysis was undertaken using administrative data from the Business Services Organisation (BSO). This element of the work was not designed to produce a further estimate of costs. Instead, its purpose was to better understand how dentists respond in practice to financial incentives—specifically, whether increasing time spent on publicly funded care is associated with a reduction in income from private patients. At face value, it appears self-evident that increasing publicly funded work would reduce private and overall income, given the large fee differential between public and private dentistry in the UK. However, this cannot simply be assumed. Dentists may respond in different ways, for example, by increasing efficiency, extending hours, or shifting the mix of treatments, and principals and associates may behave differently. The analysis therefore tests the relationship empirically, using observed behaviour rather than relying on the intuitive assumption alone.

Under an opportunity cost framework, dentists face trade-offs in how they allocate their time. In simple terms, time spent treating publicly funded patients is time that cannot be spent treating private patients. Dentists may therefore respond to changing financial conditions by:

- leaving publicly funded dentistry altogether;
- reducing the amount of publicly funded work they undertake (and increasing private work); or
- changing the type of publicly funded treatments they provide.

The analysis focused on associate dentists, as their day-to-day activity decisions are more directly linked to income than those of practice owners (principals), whose decisions may also reflect wider business considerations.

Using BSO data, a dataset was constructed tracking individual dentists over time. Statistical analysis (regression modelling) was then used to examine how changes in the amount of publicly funded work undertaken by a given dentist were associated with changes in their private income.

In practical terms, the analysis asked: when an associate dentist does more publicly funded work, what tends to happen to their private earnings?

To do this:

- Public activity was measured using the number and type of treatments delivered, adjusted to reflect the time required for different procedures (for example, extractions take longer than examinations).
- Private income was estimated using tax data, by subtracting publicly funded income from total earnings.

The statistical approach used a "fixed-effects" model that compares each dentist to themselves over time, rather than comparing different dentists to one another. This is important because it controls for underlying differences between dentists—such as experience, productivity, or location—and focuses only on how changes in their own working patterns affect their income.

The analysis was carried out in two stages:

1. Testing the relationship – to determine whether there is evidence that increasing publicly funded work is associated with a reduction in private income.
2. Scenario modelling – to illustrate what this relationship means in practice, for example, how much income a dentist might gain or lose by changing their mix of public and private patients.

Finally, the analysis also allowed for the possibility that these effects are not constant. In other words, doing some amount of publicly funded work may have little impact on private income, but beyond a certain point, increasing public activity further may begin to significantly reduce private earnings due to time constraints and administrative burden.

Overall, this component of the analysis provides evidence based on observed behaviour—that is, what dentists actually do in response to incentives—rather than relying solely on theoretical assumptions.

Results

This section presents estimates of dentists' economic costs per hour and examines how these vary over time, across types of dentists, and by the balance between public and private work. All monetary figures are expressed in real terms (2024/25 = 100), allowing comparisons across years to reflect changes in purchasing power, unless stated otherwise.

The results are reported across a series of tables:

- Table 1 shows estimated cost per hour based on gross earnings for principals, associates, and all dentists over time.
- Table 2 presents analogous estimates by level of commitment to public patients (less than 25%, 25–<75%, and 75% or more).
- Tables 3 and 4 disaggregate costs per hour by sex and age group respectively.
- Table 5 reports trends in taxable income and expenses.
- Tables 6a–6c compare public and private fees for common procedures and derive implied hourly incomes under different assumptions.

Unless otherwise stated, hours worked are taken from the Dental Working Hours data [3], and it is assumed that dentists work 48 weeks per year. The assumption of 48 hours per week was relaxed in sensitivity analysis.

Taken together, the tables illustrate two central features of the data. First, there is substantial variation in dentists' costs per hour between individuals and groups. Second, these costs have changed materially over time, reflecting wider economic and policy pressures rather than simple technological trends.

Interpreting trends over time

The figures should be interpreted in context, given the assumptions underpinning the analysis. What dentists do, and how they organise their work, evolves in response to the economic and institutional context. For example, declining recorded expenses (Table 5) cannot be interpreted mechanically as evidence that the cost of materials, energy or equipment has fallen. They may instead reflect changes in behaviour, such as more efficient use of inputs, altered practice organisation, or constraints on activity.

Crucially, dentists' income trends need to be understood alongside broader economic developments. Since the financial crisis of 2009/10, households across society have experienced several major shocks: the period of fiscal austerity, the COVID-19 pandemic, and more recently the "cost-of-living crisis". While real median disposable household income has increased modestly since 2009/10, analysis by the Institute for Fiscal Studies shows that this improvement has not been evenly shared. In the case of dentists, real income growth has lagged behind wider household income trends, implying a deterioration in their relative economic position over time.

Figure 6 illustrates how this pressure has played out differently depending on the mix of public and private work. Principal dentists with a stronger private orientation have, in recent years, been able to increase their taxable income in real terms. By contrast, those with a higher commitment to public patients have not increased to the same extent. The ability to switch towards private provision therefore acts as a partial hedge against stagnation or decline in public remuneration.

Benchmark estimates of economic costs per hour of providing an hour of dental care (2016)

To ground the analysis, 2016 is used as a benchmark year. That is, a year sufficiently distant from the immediate aftermath of the financial crisis, and that preceded the disruption associated with COVID-19 to make it a relatively stable reference point; one reasonably representative of what "normal times" might look like.

Based on observed weekly hours (42.1 for principals and 34.2 for associates), using gross income and assuming 48 working weeks per year, estimated hourly costs in 2016 are:

- £204.68 per hour for principals
- £83.91 per hour for associates

This associate estimate is likely to be conservative, as associates may work fewer weeks per year on average. If associates are assumed to take an additional six weeks of leave (i.e. working 42 rather than 48 weeks), their estimated cost per hour rises to £95.89, while the principal figure remains unchanged. While not modelled here, it is conceivable that principals also work fewer weeks per year. If this is the case income/costs would rise above the figures quoted.

From individual dentists to practice-level costs

Dentists typically work as part of practices rather than in isolation. Translating individual figures into practice-level estimates is therefore essential for understanding service delivery costs.

Under a representative practice structure of one principal and three associates, and using the adjusted associate figure (£95.89), the combined hourly cost is approximately £492, implying an average of £123 per dentist-hour. Varying assumptions about associate working weeks (for example, 40 rather than 42 weeks) changes this estimate only marginally, to around £127 per hour.

Similar stability is observed under alternative staffing assumptions. For example:

- One principal and two associates yields an average hourly cost of around £132–£135, depending on weeks worked.

Bearing in mind changing market conditions that are not reflected in the survey regarding the rise in private practice in costs, the figure of £135 seems more plausible in 2024/25 prices.

This relative insensitivity to assumptions provides some reassurance that the resulting estimates are robust to reasonable variations in working patterns.

Public and private fees: magnitude and implications

Tables 6a and 6b compare survey-based private fees with estimated public fees respectively for a range of treatment scenarios and the times associated with their delivery. Two points stand out.

First, private fees are substantially higher than public fees, even though the total treatment time required for the respective scenarios is broadly similar. When total fees are divided by total treatment time:

- Private care implies hourly revenues in excess of £320–£340 per clinical hour.
- Public fees imply hourly revenues of around £90–£93 per clinical hour.

Second, these figures are not directly comparable in accounting terms. Private fees reflect the full payment received for care, whereas public fees constitute only one component of total remuneration from the Health and Social Care system. As noted below, fee income represents around 70% of total departmental expenditure. Nonetheless, the scale of the differential is large.

At face value, the fee data indicate a strong financial incentive to prioritise private patients where demand and capacity allow. While not the focus of this report, analysis of fee distributions also suggests a segmented market: while some clusters of dentists charge similar private fees (perhaps reflecting membership of a corporate body), there is marked variation across the profession, which may reflect differences in local demand, reputation, or patient mix.

Translating fees into expected hourly income

Table 6c bridges fee data and working-time constraints to estimate expected income/cost per working hour. This adjustment is necessary because dentists do not spend all their paid time delivering clinical care.

Survey evidence from 2016/17 (The Morale Survey) suggests that:

- Approximately 77.6% of working time is spent on fee-generating clinical activity for principal dentists.
- Only percentage of public activity slots could realistically be replaced by private patients, it is assumed here to be 60%.

Applying these constraints, expected private income per working hour can be approximated as:

Private fee × 0.776 × 0.60

Doing so yields expected incomes of approximately £149-£158 per working hour across the two scenarios examined. These figures align broadly with the £135 per hour derived independently using the DEES methodology, when the latter is adjusted for inflation to 2026 prices (roughly £143). This convergence supports interpreting £145 per hour as a reasonable central estimate of the opportunity cost of dentists' time in a mixed public–private setting. In essence a dentist it is argued could earn approximately £145 per hour from private fees allowing for the non-clinical time and availability of private patients. Applying the 0.776 clinical time adjustment to public fees and assuming there is sufficient public demand to fill all available dentist slots, the public fee income per hour would be £90-£93 (times 0.776) approximately £70-£72. It again must be stressed though that approximately 30% of Departmental expenditure on dental care comes from sources other than fees (items of service). The estimate of £90 remains a lower bound estimate.

Evidence from observed behaviour: regression analysis

Appendix 1 presents results from fixed-effects regression analysis that examines what actually happens to dentists' private income when they increase their public activity. Unlike the hypothetical fee comparisons above, this analysis is grounded in observed behaviour over time.

The dependent variable logs annual private income (in real terms). The key explanatory variable is weighted public claims per public day, with weights reflecting relative treatment time. The estimated coefficient, stable across specifications, is approximately –0.18.

In practical terms, this implies that a one-unit increase in public activity intensity—equivalent to around 100 additional minutes of public clinical work per public day over a year—is associated with a 16.5% reduction in annual private income for the same dentist.

The figure should be interpreted carefully. It reflects observed income trade-offs within dentists over time, not private market prices. It should be remembered, for example, that :

- Not all public work displaces private work; some dentists may have unused capacity.
- It averages across dentists with very different private demand and fee structures.
- It is based on dentists who remain in public provision, excluding those who have exited altogether.
- Private income is measured imperfectly and includes non-activity-based components.
- Treatment-time weights and public activity choices may be measured with error.

Further work—such as re-estimating private income using fee-based measures, applying instrumental variable approaches, or testing alternative time weights—would strengthen the evidence base. Nonetheless, taken alongside the fee and cost analyses above, the findings consistently point to a material financial disincentive to increased public dental activity for some dentists.

Discussion

The approach adopted in this report—estimating costs using an opportunity cost framework—may be subject to challenge. An alternative view is that a traditional cost-function (or micro-costing) such as that used in the Crowe Report [7] approach would better distinguish between the cost of delivering care and the price charged for that care. From this perspective, observed fees—particularly in the private sector—may reflect elements of market power as well as underlying costs. The extent to which the findings of the Crowe Report regarding the cost of dental care in Ireland can be extrapolated to Northern Ireland is open to debate. Adjusting for purchasing power parity, their figure of €163 translates to about £146 [11], though they report higher figures based on assumptions about higher future earnings. Differences in terms of the market and the methods used though must be born in mind.

However, this interpretation risks overlooking a central economic reality: what ultimately determines whether services are delivered is the value that key resources—most notably dentists'

time—can command in alternative uses. Dentists are not passive inputs; they are highly skilled professionals operating in a mixed public–private market. Where private opportunities offer higher returns, these will influence behaviour. An approach that ignores these alternatives is therefore unlikely to provide a reliable basis for policy.

The opportunity cost framework used here is consistent with established economic theory and explicitly recognises that dentists can reallocate their time between public and private activity. As these opportunities differ between practitioners—and as individual preferences and constraints vary—it follows that there is no single, uniform cost of care. Dentists with a strong commitment to publicly funded provision may, for a period, accept lower returns. However, as financial pressures increase, or as market conditions evolve, the implicit cost of delivering public care (in terms of private income foregone) may rise, with consequences for participation in the system.

This is not to suggest that publicly funded dentistry should seek to match private sector fees. Fee structures differ for valid reasons, including differences in treatment time, case mix, and potentially aspects of quality. It is also important to recognise that dentists receive income from sources beyond treatment fees, including various Department of Health payments. Nonetheless, the existence of viable private alternatives is a key feature of the system and must be considered in any assessment of how to sustain publicly funded provision.

Strengths and Limitations of the Evidence

A central finding of this study is the absence of a single, definitive dataset from which the cost of dental care can be derived. The use of multiple data sources—and the generation of new evidence where necessary—was therefore appropriate. However, each component of the analysis has limitations, and results should be interpreted with appropriate caution.

- DEES data provide robust, large-scale evidence on earnings but are subject to time lags. The most recent data (2023/24) do not fully capture the behavioural changes associated with the sharp decline in registrations observed in 2024/25. While useful for identifying trends, they require some degree of extrapolation. In addition, the substantial variation within the data complicates interpretation. Differences observed between groups (e.g. by sex, age and commitment to public provision) should not be taken to imply that reimbursement should vary accordingly without further analysis.
- Survey data on private fees offer insight into the potential earnings available in the private sector but have important limitations. They do not capture patient volumes and therefore

reflect potential rather than realised income. They also exclude non-fee income and may overstate the true earning differential between public and private work. Items of service comprise an estimated 70% of Departmental expenditures on general dental practice for example.

- BSO analysis provides valuable evidence on observed behaviour but is limited to dentists who remain within the publicly funded system. Those who have exited entirely—potentially those facing the highest opportunity costs—are not captured. While the analysis suggests that some dentists may experience a reduction in private income when increasing public activity, this effect is not universal and varies across practitioners.
- The costs experienced by corporates could not be examined separately within this exercise. Three large corporates were approached for data but only two were able to furnish such data within the time available. It would be impossible to incorporate the data of these two without the data for each becoming disclosive to the other. This was not therefore pursued and should be examined in future work.

Taken together, these limitations do not invalidate the findings but underline the need for careful interpretation and, where possible, further analytical work.

Interpreting the Evidence

Across all three strands of analysis, a consistent picture emerges: there is significant variation in earnings and, by implication, in the opportunity cost of delivering dental care in Northern Ireland.

The DEES data clearly demonstrate a deterioration in real incomes over time, both in absolute terms and relative to other parts of the UK. If one traces back along the trajectory of declining registrations (Figure 1) to around 2016–2017—prior to the most marked deterioration—this period may provide a benchmark for remuneration levels that were more aligned with the costs faced by dentists. On this basis, a figure in the region of £135 per hour (in 2024/25 prices) or £142 adjusted for inflation to 2026 may better reflect the economic costs faced by a typical associate dentist and could, in principle, support a recovery in registrations and activity. It is noted that Wales recently adopted a figure of £150 per hour with respect to dental care there (Welsh government) an increase from the £135 that had previously operated. It is unclear what methodology was used to generate the estimate, but the figure used is not implausible. In Northern Ireland, lower available incomes may have required dentists to become more efficient as may a degree of resignation on the part of dentists. These circumstances, as evidenced by registration rates and the growth of the private market, no longer pertain. If the private market continues to grow one would anticipate a degree of convergence toward Welsh figures.

The survey of private fees reinforces this interpretation. It highlights the potential for significantly higher earnings in the private sector, particularly for dentists with lower levels of commitment to publicly funded care. Here a figure of £149-£159 in current prices was estimated. This involved some assumptions though that may be open to question.

The BSO analysis provides further, albeit more nuanced, support. The estimated loss of 16% in private income per additional hour of public work may appear low, and likely reflects the experience of a subset of dentists rather than the profession as a whole. For many dentists, public and private work may coexist without direct substitution, particularly where spare capacity exists. However, the analysis does indicate that, on average, increasing public activity can reduce private income—particularly as dentists approach capacity constraints. This is consistent with the presence of opportunity costs, even if their magnitude varies.

Implications for Cost Estimates

Bringing these strands together, the evidence suggests that costs may be materially higher than current reimbursement levels. A cost approximately in the area of £145 may, on average, better reflect the economic cost of care, though with substantial variation around this figure.

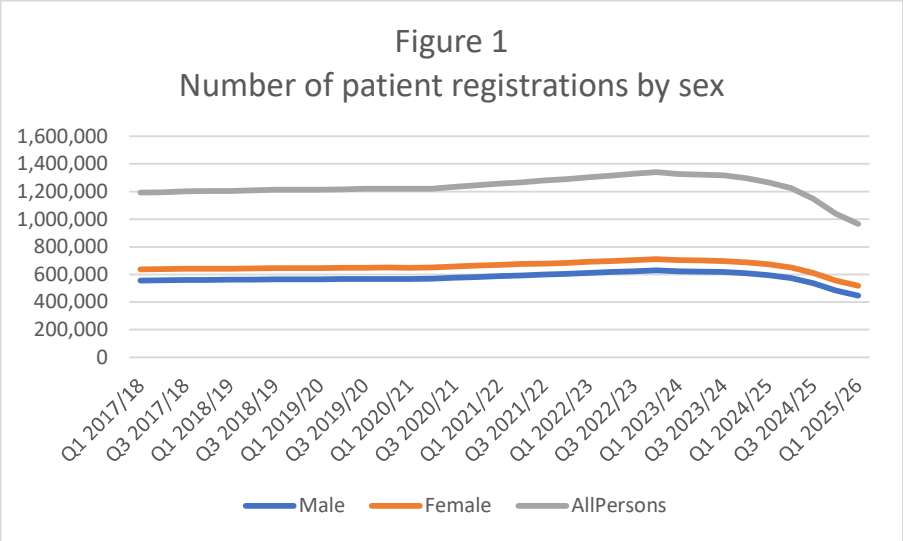
Conclusions

Estimating the cost of delivering dental care is inherently complex. While multiple data sources can inform the analysis, each has limitations, and the resulting estimates should be viewed as indicative rather than definitive. A key finding is the significant variation in costs across dentists, reflecting differences in practice structure, patient mix, and individual behaviour that reflects the reality of dentists . That the cost of care is an evolving situation must also be born in mind. Changes in case complexity, in staff expectations of working conditions, in technology, among other factors combine to create an uncertain environment for dentistry.

The wider UK evidence base and that specific to Northern Ireland [12,13,14] indicates that dentists are highly responsive to financial incentives, reflecting their status as independent practitioners who bear the financial risks associated with service delivery. In Northern Ireland, the sustained decline in real incomes appears to have accelerated a shift toward private provision, more so than in comparator regions such as Scotland.

The sharp decline in patient registrations in recent years lends weight to concerns—articulated by the British Dental Association—that publicly funded dentistry may be approaching a tipping point. Given the level of skill and investment required to enter the profession, it is unlikely that current levels of public sector remuneration will remain sufficient to attract and retain practitioners over the longer term.

Tables and Figures



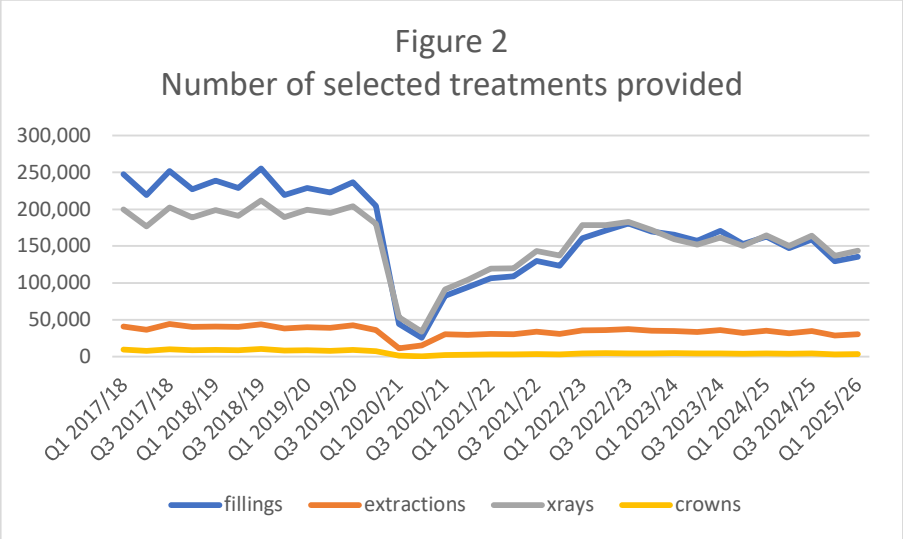


Figure 3
Monthly treatment claims and IOS fees paid

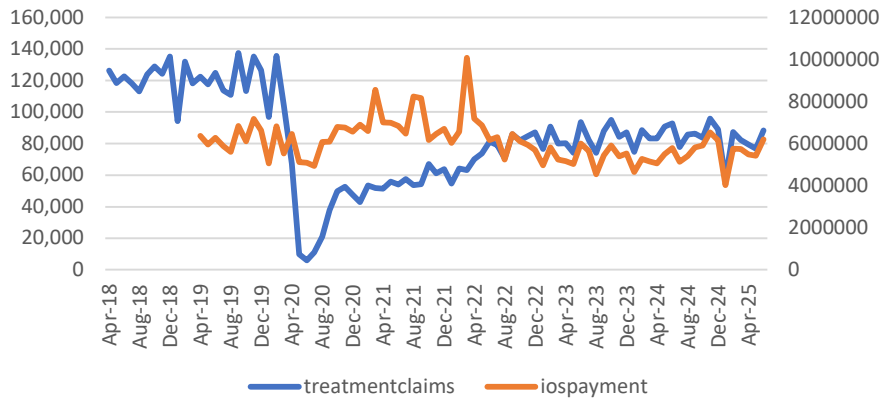


Figure 4
Headcount of dentists in Northern Ireland by finanacial quarter

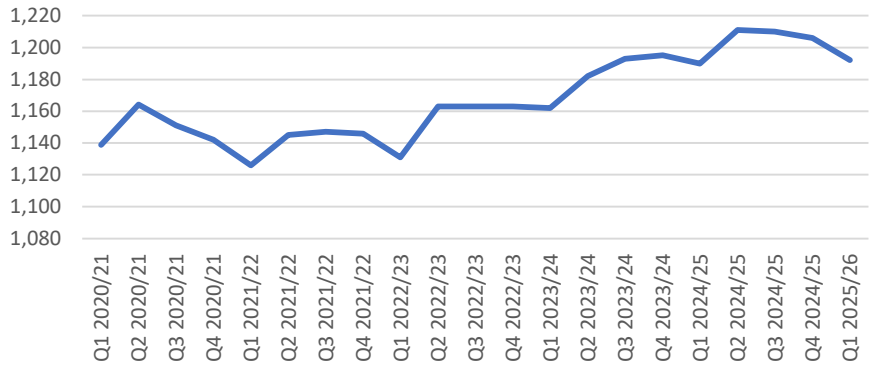


Figure 5
Taxable income by dentist type as a percentage of Scotland over time

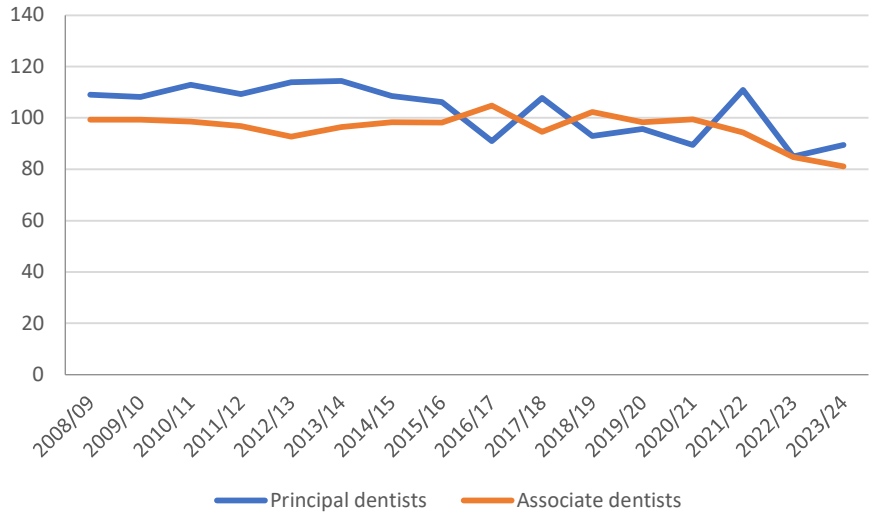
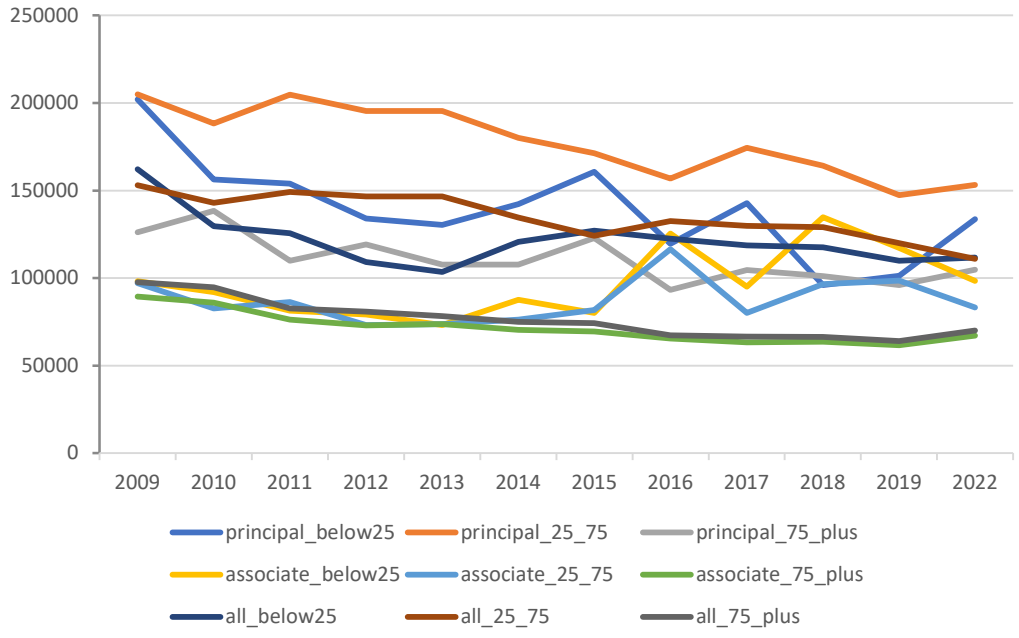
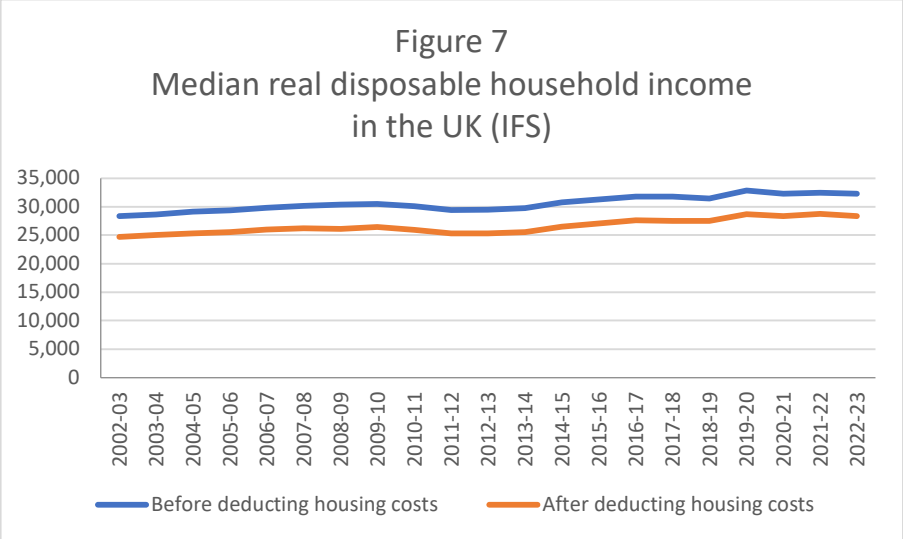


Figure 6
Taxable income in real terms (2024/25=100)





Source: [Real median household disposable income, 2002–03 to 2022–23 | Institute for Fiscal Studies]

Dental Costs Per Hour – Summary Tables

Table 1. Real Gross Income Per Hour by Dentist Type Over Time

year	principal	Associate	all
2009	253.04	88.85	158.13
2010	237.29	85.10	143.00
2011	219.46	77.08	131.65
2012	213.47	75.35	123.88
2013	223.12	75.69	122.94
2014	213.99	76.41	119.53
2015	219.78	82.46	117.37
2016	204.68	83.91	105.69
2017	222.40	69.33	106.45
2018	210.36	77.19	104.46
2019	189.19	73.09	94.28
2022	203.74	67.98	96.81

Table 2. Real Cost Per Hour by Dentist Type and Level of Commitment

Year	principal			Associate			all		
	Below 25%	25% to <75%	75% and above	Below 25%	25% to <75%	75% and above	Below 25%	25% to <75%	75% and above
2009	288.22	309.73	142.75	104.74	102.83	80.78	231.89	221.45	91.57
2010	250.62	279.15	147.82	109.95	99.43	76.96	203.43	214.94	84.80
2011	243.23	282.22	118.89	98.12	93.99	69.34	199.61	206.65	76.23
2012	228.60	266.36	134.50	101.95	93.08	68.75	183.88	215.86	76.53
2013	226.71	284.42	124.73	98.14	82.19	71.81	177.87	223.18	74.90
2014	247.26	250.71	121.29	114.70	94.96	69.55	213.58	200.73	71.75
2015	252.49	240.06	138.28	117.89	144.16	66.53	214.19	199.28	68.89
2016	209.69	247.48	124.03	161.33	164.29	60.93	191.23	202.96	62.14
2017	211.52	274.37	124.43	126.32	91.37	60.86	179.87	207.20	62.97
2018	193.05	261.22	122.81	165.86	112.36	61.69	181.13	195.13	62.16
2019	171.29	236.05	111.07	149.45	112.37	58.73	162.81	175.07	58.13
2022	259.33	209.57	101.81	109.30	85.48	52.43	172.58	133.97	52.65

Table 3. REAL gross income per hour (annual hours basis) by sex and dentist type

Year	Principal Male	Principal Female	Principal Gap (M−F)	Associate Male	Associate Female	Associate Gap (M−F)	All Male	All Female	All Gap (M−F)
2015 /16	224.25	208.0	16.25	98.58	68.44	30.13	143.52	88.48	55.04
2016 /17	201.91	206.31	-4.39	101.7	69.65	32.05	131.02	80.09	50.93
2017 /18	226.78	208.96	17.81	78.36	62.85	15.51	133.31	81.15	52.16
2018 /19	208.39	212.39	-4.00	91.32	54.85	36.47	128.02	89.47	38.55
2019 /20	191.36	181.38	9.98	83.04	53.43	29.61	113.78	82.98	30.80

Table 4. REAL gross income per hour (annual hours basis) by age and dentist type

Associate Year	<35	35–<45	45+
2015/16	67.75	80.47	127.46
2016/17	57.08	86.48	116.14
2017/18	58.87	78.21	70.17
2018/19	58.18	76.37	114.87
2019/20	54.63	70.70	106.91
Principal Year	<35	35–<45	45+
2015/16	120.20	243.48	242.23
2016/17	177.41	236.41	207.91
2017/18	155.56	220.94	245.26
2018/19	118.10	222.75	226.34
2019/20	130.08	189.23	208.04

Table 5. Real gross earnings, expenses and taxable income by practice size

Year	Real gross income Not Single-handed	Real expenses Not Single-handed	Real taxable income Not Single-handed	Real gross income Single-handed	Real expenses Single-handed	Real taxable income Single-handed
2015/16	499537	328601	170937	219067	124013	95054
2016/17	471709	324243	147467	196228	130118	66110
2017/18	493588	332131	161458	267625	163275	104221
2018/19	467489	328283	139333	237424	134130	103421
2019/20	427649	299318	128208	229464	128456	101009
2020/21	403356	251671	151684	209609	116906	92702
2021/22	489838	316712	173242	228450	124950	103617
2022/23	428974	286603	142261	255719	163836	91884
2023/24	422345	291480	130864	236451	138666	97784

Table 6a

Scenario 1	**Private Fee Mean (Standard deviation)**
Recall patient examination	£69.66 (31.05)
2x Radiographs	£38.13 (19.39)
Scale and Polish	£62.29 (17.03)
Filling – anterior tooth	£171.92 (84.49)
Filling – posterior tooth 2surfaces	£174.41 (62.45)
	519.41 per hour = £346.27
Total time taken	90 (20.61) (**minutes)**

N= 53

Scenario 2	**Private Fee**
New patient examination	£79.51 (29.0)
3 x small x-rays	£57.14 (29.37)
1 x extraction	£136.64 (46.74)
1 x visit fee	£16.79 (37.30)
S and P	£62.50 (16.70)
	352.58 per hour = £320.53
Total time taken	66 (11.81) (**minutes)**

N=53

Table 6b

Scenario 1	**Public Fee**
Recall patient examination	10.95
2x Radiographs	15.24
Scale and Polish	17.37
Filling – anterior tooth	27.47
Filling – posterior tooth 2surfaces	21.53
	£92.56
	£92.56 per hour
Total time taken	60 (**minutes)**

Scenario 2	**Public Fee**
New patient examination	16.44
3 x small x-rays	9.29
1 x extraction	13.37
1 x visit fee	10.95
S and P	17.37
	£67.42
	£89.89 per hour
Total time taken	45 **(minutes)**

Note The Bannister et al. timings are reported for individual procedures and include, by design, time for the patient to enter and leave the surgery. When several procedures are delivered within a single appointment, simply summing the individual timings may therefore overstate total chair time, because appointment-level components such as patient entry, departure, explanation, set-up, note-

writing and transitions are shared across procedures. To allow for this a 20% downward adjustment (rounded) was applied to both scenarios for multi-item courses of treatment.

Table 6c

Expected private income per working hour is calculated as:

Private fee per clinical hour × probability of filling the slot × 0.776

(where 0.776 reflects the proportion of dentists' working time spent on fee-generating clinical activity).

Probability	Scenario 1 (£)	Diff vs public (£)	Scenario 2 (£)	Diff vs public (£)
0.1	26.87	-65.69	24.87	-65.02
0.2	53.74	-38.82	49.75	-40.15
0.3	80.61	-11.95	74.62	-15.27
0.4	107.48	14.92	99.49	9.60
0.5	134.35	41.79	124.37	34.47
0.6	161.22	68.66	149.24	59.35
0.7	188.09	95.53	174.11	84.22
0.8	214.96	122.40	198.99	109.09
0.9	241.83	149.27	223.86	133.96
1.0	268.71	176.15	248.73	158.84

Notes on the calculation

The private fee figures in the underlying scenarios represent income per clinical hour under full utilisation. To derive expected income per working hour, these values are adjusted to reflect that 77.6% of dentists' working time is spent on fee-generating clinical activity, and that not all public activity can necessarily be replaced by private patients.

The revised calculations use £346.27 per clinical hour for Scenario 1 and £320.53 per clinical hour for Scenario 2. The public comparator is £92.56 per hour for Scenario 1. For Scenario 2, the public payment of £67.42 relates to a 45-minute appointment; this has therefore been converted to an hourly comparator of £89.89 (£67.42 × 60/45).

Assuming that 60% of public slots could be replaced by private patients, expected private income per working hour can be approximated as private fee per clinical hour × 0.776 × 0.60. Applying this to Scenario 1 yields approximately £161.22 per working hour, while applying it to Scenario 2 yields approximately £149.24 per working hour.

The base-case estimates therefore lie in the range of approximately £149–£161 per working hour, depending on whether the lower Scenario 2 fee estimate or the higher Scenario 1 fee estimate is used. Both are above the hourly public comparators used in the table, although the difference is sensitive to the assumed probability of replacing public activity with private work. At low replacement probabilities, expected private income remains below the public comparator; at higher probabilities it exceeds it. The results should therefore be interpreted as indicative estimates of opportunity cost rather than definitive measures of the cost of providing publicly funded care.

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Appendix 1 Fixed Effects Regressions for Associates.

The results relate to fixed effects regressions for Associate dentists.

The dependent variable is the log of private income – imputed by me.

The independent variables are spline knots for total number of claims submitted at boundaries. The relevant boundaries are defined at 1500 in regression 1 the number of associate dentists above this was 18 of a sample of roughly 6,500;567 is the threshold in 567 in regression 2 and 770 in regression 3 (variable name claims_below claims_above). These relate to the 75th centile and 90th centiles of the distribution on "standard claims". Standard claims is a variable defined by me as the sum of claims related to restorations, examinations, extractions, preventive treatments and endodontics. Weights were applied in the construction of this variable of 0.3, 0.2, 0.3, 0.1 and 0.6 respectively to reflect the different amounts of time a procedure might take. Other independent variables are year (fy), number of standard claims submitted per public day (stdclaimsperday), deprivation decile (deprivation) and the number of surgeries the dentist worked at (NumberofSurgeries). As noted standard claims were defined as Restorationclaims*0.3 + Preventionclaims*0.1 + Extractionclaims*0.3 + Endoclaims*0.6 + Examinationclaims*0.2, the weights being intended to reflect the relative weight in terms of minutes activity related to the claims in question would consume – a root canal taking twice as long as a "normal", preventive care taking about 1/3rd of the time a restoration would take and examinations about 2/3rd the time of a restoration.

```
xtset Dentist_Number_Study_ID fy

Regression 1

Panel variable: Dentist_Number_Study_ID (unbalanced)

 Time variable: fy, 2010 to 2024, but with gaps

         Delta: 1 unit


. xtreg lnrealnewprivincomenew claims_below claims_above i.fy i.Deprivation c.st
> dclaimsperday NumberOfSurgeries if GDS==1&principal==0, fe vce(cluster Dentist
> _Number_Study_ID)

Fixed-effects (within) regression               Number of obs     =      6,474
Group variable: Dentist_Nu~D                    Number of groups  =      1,796

R-squared:                                      F(27, 1795)       =      15.98
corr(u_i, Xb) = -0.6222                         Prob > F          =     0.0000

             (Std. err. adjusted for 1,796 clusters in Dentist_Number_Study_ID)
------------------------------------------------------------------------------
             |               Robust
lnrealnewpr~w | Coefficient  std. err.      t    P>|t|     [95% conf. interval]
--------------+---------------------------------------------------------------
 claims_below |   .0030991   .0002313    13.40   0.000     .0026454    .0035528
```

```
 claims_above |  -.0058527   .0029732    -1.97   0.049     -.011684   -.0000215
              |
           fy |
         2011 |  -.2437198    .093756    -2.60   0.009    -.4276022   -.0598374
         2012 |   .0071665   .0942821     0.08   0.939    -.1777477    .1920808
         2013 |   -.212431   .0970226    -2.19   0.029    -.4027202   -.0221418
         2014 |   .0180006   .1015254     0.18   0.859    -.1811198    .2171209
         2015 |    .240205   .0971318     2.47   0.013     .0497017    .4307083
         2016 |   .2816026   .0991572     2.84   0.005      .087127    .4760783
         2017 |   .2933563   .1015263     2.89   0.004     .0942341    .4924784
         2018 |   .2314908   .1314682     1.76   0.078    -.0263559    .4893375
         2019 |   .3411369   .1290491     2.64   0.008     .0880347    .5942391
         2020 |   .3925704   .1420297     2.76   0.006     .1140094    .6711314
         2021 |   .7435899   .1536914     4.84   0.000     .4421571    1.045023
         2022 |   .8516516   .1419596     6.00   0.000     .5732281    1.130075
         2023 |   1.221039   .1463987     8.34   0.000     .9339088    1.508168
         2024 |   1.579823   .2090287     7.56   0.000     1.169858    1.989788
              |
Deprivation~e |
            2 |  -3.752998   2.805701    -1.34   0.181    -9.255781    1.749785
            3 |   .8531714   1.305368     0.65   0.513    -1.707029    3.413372
            4 |   .7321816   .8448683     0.87   0.386    -.9248471     2.38921
            5 |  -.3742882   2.012732    -0.19   0.852    -4.321832    3.573255
            6 |  -.5789887   1.045247    -0.55   0.580    -2.629017    1.471039
            7 |   3.919963   2.708024     1.45   0.148    -1.391247    9.231173
            8 |  -.8829089    2.07553    -0.43   0.671    -4.953617    3.187799
            9 |   3.272753   1.882797     1.74   0.082    -.4199512    6.965458
           10 |   .0185505   1.079066     0.02   0.986    -2.097808    2.134909
              |
stdclaimspe~y |  -.1834131   .0639745    -2.87   0.004    -.3088854   -.0579409
NumberOfSur~s |  -.2122793   .0826706    -2.57   0.010    -.3744201   -.0501386
        _cons |   8.523306   .9665413     8.82   0.000     6.627642    10.41897
--------------+----------------------------------------------------------------
      sigma_u |  3.4019987
      sigma_e |  1.4784607
          rho |  .84113846   (fraction of variance due to u_i)
------------------------------------------------------------------------------

.
```

```
. **varying the spline at 75
. preserve

. duplicates drop Dentist_Number_Study_ID fy, force

Duplicates in terms of Dentist_Number_Study_ID fy

(0 observations are duplicates)

. xtset Dentist_Number_Study_ID fy

Panel variable: Dentist_Number_Study_ID (unbalanced)
 Time variable: fy, 2010 to 2024, but with gaps
         Delta: 1 unit

. xtreg lnrealnewprivincomenew claims_below claims_above i.fy i.Deprivation c.st
> dclaimsperday NumberOfSurgeries if GDS==1&principal==0, fe vce(cluster Dentist
> _Number_Study_ID)

Fixed-effects (within) regression               Number of obs     =      6,474
Group variable: Dentist_Nu~D                    Number of groups  =      1,796

                                                F(27, 1795)       =      19.90
corr(u_i, Xb) = -0.5894                         Prob > F          =     0.0000

             (Std. err. adjusted for 1,796 clusters in Dentist_Number_Study_ID)
------------------------------------------------------------------------------
             |               Robust
lnrealnewpr~w | Coefficient  std. err.      t    P>|t|     [95% conf. interval]
--------------+---------------------------------------------------------------
 claims_below |   .0049809   .0003228    15.43   0.000     .0043477    .0056141
 claims_above |  -.0001323   .0003692    -0.36   0.720    -.0008564    .0005918
              |
           fy |
         2011  |  -.2550045   .0927421    -2.75   0.006    -.4368982   -.0731108
         2012  |  -.0081381    .093323    -0.09   0.931    -.1911711     .174895
         2013  |    -.19128   .0953971    -2.01   0.045    -.3783811    -.004179
         2014  |   .0102764   .1002449     0.10   0.918    -.1863325    .2068853
```

```
        2015  |   .2352754     .09623     2.44   0.015     .0465408    .4240101
        2016  |    .282117   .0980072     2.88   0.004     .0898967    .4743372
        2017  |   .2868809   .1006235     2.85   0.004     .0895294    .4842325
        2018  |   .2110656   .1304292     1.62   0.106    -.0447434    .4668746
        2019  |   .3244092   .1277429     2.54   0.011     .0738687    .5749497
        2020  |   .6285335    .143018     4.39   0.000     .3480341    .9090328
        2021  |   .8464908   .1493609     5.67   0.000     .5535514     1.13943
        2022  |     .79179    .137845     5.74   0.000     .5214364    1.062144
        2023  |   1.128255   .1421096     7.94   0.000     .8495371    1.406972
        2024  |   1.415986   .2135592     6.63   0.000     .9971349    1.834837
              |
Deprivation~e |
           2  |   -3.59081   2.831551    -1.27   0.205    -9.144293    1.962672
           3  |   .8485574   1.347127     0.63   0.529    -1.793544    3.490659
           4  |    1.13069   .8430528     1.34   0.180     -.522778    2.784158
           5  |  -.7655449   1.970505    -0.39   0.698     -4.63027     3.09918
           6  |  -.6634048   .9567691    -0.69   0.488    -2.539903    1.213093
           7  |   3.397734   2.745517     1.24   0.216    -1.987011    8.782479
           8  |  -1.080579    2.08319    -0.52   0.604    -5.166311    3.005154
           9  |   2.944737   1.904321     1.55   0.122    -.7901815    6.679656
          10  |  -.0894497   .9845234    -0.09   0.928    -2.020382    1.841483
              |
stdclaimspe~y |  -.1805815   .0645472    -2.80   0.005    -.3071771   -.0539859
NumberOfSur~s |  -.1944614   .0767316    -2.53   0.011     -.344954   -.0439687
        _cons |   8.125442    .969125     8.38   0.000      6.22471    10.02617
--------------+------------------------------------------------------------------
      sigma_u |  3.3073241
      sigma_e |  1.4562391
          rho |  .83761175   (fraction of variance due to u_i)
------------------------------------------------------------------------------
obs=6,474)

             | stdcla~y stdcla~s
-------------+------------------
stdclaimsp~y |   1.0000
   stdclaims |   0.6756   1.0000


. restore
```

```
. **varying the spline at 90

. xtset Dentist_Number_Study_ID fy

Panel variable: Dentist_Number_Study_ID (unbalanced)
 Time variable: fy, 2010 to 2024, but with gaps
         Delta: 1 unit

. xtreg lnrealnewprivincomenew claims_below claims_above i.fy i.Deprivation c.st
> dclaimsperday NumberOfSurgeries if GDS==1&principal==0, fe vce(cluster Dentist
> _Number_Study_ID)

Fixed-effects (within) regression               Number of obs     =      6,474
Group variable: Dentist_Nu~D                    Number of groups  =      1,796

                                                F(27, 1795)       =      18.82
corr(u_i, Xb) = -0.6041                         Prob > F          =     0.0000

             (Std. err. adjusted for 1,796 clusters in Dentist_Number_Study_ID)
------------------------------------------------------------------------------
             |               Robust
lnrealnewpr~w | Coefficient  std. err.      t    P>|t|     [95% conf. interval]
--------------+---------------------------------------------------------------
 claims_below |    .003848   .0002533    15.19   0.000     .0033512    .0043447
 claims_above |   -.001346   .0007274    -1.85   0.064    -.0027726    .0000806
              |
           fy |
         2011 |  -.2446192   .0928406    -2.63   0.008    -.4267062   -.0625323
         2012 |  -.0048136   .0940852    -0.05   0.959    -.1893417    .1797145
         2013 |  -.1900369    .096555    -1.97   0.049    -.3794089   -.0006649
         2014 |   .0252236   .1007372     0.25   0.802    -.1723509    .2227981
         2015 |    .244117   .0964756     2.53   0.011     .0549008    .4333333
         2016 |   .2864009   .0982965     2.91   0.004     .0936133    .4791885
         2017 |   .3028371   .1005169     3.01   0.003     .1056946    .4999795
         2018 |   .2276205   .1300986     1.75   0.080    -.0275402    .4827812
         2019 |   .3361237   .1272529     2.64   0.008     .0865443     .585703
         2020 |   .5140439   .1426364     3.60   0.000      .234293    .7937947
         2021 |   .8143006   .1517021     5.37   0.000     .5167692    1.111832
         2022 |   .8450163   .1381738     6.12   0.000     .5740179    1.116015
```

```
        2023  |   1.192465   .1419582     8.40   0.000     .9140441    1.470885
        2024  |   1.507533   .2082297     7.24   0.000     1.099135    1.915931
              |
Deprivation~e |
           2  |  -3.592587   2.863456    -1.25   0.210    -9.208645     2.02347
           3  |   .8502941   1.328237     0.64   0.522     -1.75476    3.455348
           4  |   1.049863   .8474689     1.24   0.216    -.6122665    2.711992
           5  |  -.4980203   2.004356    -0.25   0.804    -4.429137    3.433096
           6  |  -.8721952   1.045388    -0.83   0.404      -2.9225    1.178109
           7  |    3.69689   2.708106     1.37   0.172    -1.614481    9.008262
           8  |   -.989124   2.099335    -0.47   0.638    -5.106521    3.128273
           9  |   3.125881     1.9219     1.63   0.104    -.6435156    6.895277
          10  |   .0352082   1.074522     0.03   0.974    -2.072237    2.142653
              |
stdclaimspe~y |  -.1799211    .063931    -2.81   0.005    -.3053081   -.0545341
NumberOfSur~s |  -.2024428   .0802507    -2.52   0.012    -.3598374   -.0450482
        _cons |   8.314083   .9825329     8.46   0.000     6.387055    10.24111
--------------+------------------------------------------------------------------
      sigma_u |  3.3507638
      sigma_e |  1.4658101
          rho |  .83937169   (fraction of variance due to u_i)
------------------------------------------------------------------------------

             | stdcla~y stdcla~s
-------------+------------------
stdclaimsp~y |   1.0000
   stdclaims |   0.6756   1.0000
```