# **Clause and effect**

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# Joe Martin looks at how index-linked inflation clauses are applied, offering a case study of Crossrail?s procurement strategy

Index-linked inflation adjustment clauses provide a simple and transparent method for calculating and reimbursing fluctuations in the underlying costs on a project. They allow contractors to price and manage a contract knowing that they do not need to price in the risk of inflation.

Such clauses can be used on all types of procurement but will be applied differently depending on the contract.

- On design and build and traditional lump-sum contracts, the agreed tender price will be adjusted for inflation invaluations for stage payments.
- On target cost contracts, the target cost itself is adjusted for inflation.
- On framework and term contracts, it is the value of the individual contracts that is adjusted.

When index-linked contracts were first introduced in the 1970s, lump-sum contracts based on bills of quantities were the norm, and the practice was to allocate all the bill items to an index so that the inflation adjustment in each stage payment reflected the mix of work carried out in that period.

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From the start, however, some clients adopted an alternative method, where a mix of indices were used to calculate a single index based on predetermined weightings. This latter method has since become the standard approach, with the contract identifying the indices to be used and their weighting. These are then applied in each valuation.

Other clients have adopted the unfortunate practice of applying single, non-construction, indices such as the Retail Prices Index (RPI). However, this creates a double risk for the contractor: the risk of retail price inflation and the risk resulting from inflation in their own costs. The introduction of these will lead to either a risk premium being built into the initial price or to pressures on the contractor as a result of insufficient provision for inflation. The practice of using single, non-construction indices usually results from funders or regulators reimbursing contractors based on RPI or something similar, and passing this inflation straight down the supply chain. The perception is that this does not subject funders and regulators to any risk, regardless of the fact that each link in the supply chain also

incorporates an element of risk into their rates.

# **Considerations when implementing indexation**

- 1. Define clearly the work that is subject to review, in line with the index.
- 2. Ensure that the mix of indices represents the work being undertaken. The indices chosen will affect the price changes recorded and should be selected carefully to best represent both the work subject to indexation and the parties? intentions.
- 3. Ensure that the reference to the chosen indices is clear and unambiguous. The indexation clause of a contract should identify the indices selected by their complete titles, index numbers and any identifying codes.
- 4. Check the availability and frequency of the index.
- 5. Declare the base date to be used when updating.
- 6. State the frequency of price adjustment. The indexation clause should specify whether price adjustments are to be made at fixed intervals ? such as monthly, quarterly, half-yearly or annually ? at stages or at the beginning or end of the contract.
- 7. Specify the date on which the price adjustment calculations are to be made and what index is to be used; normally, this will be the latest version of the index available on the date specified.
- 8. Be clear about how to deal with the changing status of the indices e.g. whether they are provisional, firm etc. Some contracts allow for inflation to be recalculated in later periods when provisional indices become firm. For simplicity, others do not.
- 9. State how to implement revisions to the index, changes to the index base date, discontinuation etc. With price adjustment formulae indices (PAFIs), revisions are uncommon and the indices will continue to be calculated on superseded series. When a series is discontinued, BCIS will provide advice on how to proceed until the end of the existing contract.
- 10. Define the method for calculating the inflation adjustment. The normal approach is to calculate the percentage change from the base date for each index and then to multiply it by the weighting in the contract to arrive at an overall percentage change.
- 11. Define the number of decimal places to be used in the calculation.

# **Case study: Crossrail**

<u>BCIS</u> and <u>Crossrail Ltd</u> have produced a case study on the latter?s procurement strategy to award a number of delivery contracts where the employer took on the risk associated with inflation by letting NEC3 contracts, including the Secondary Option X1. These NEC3 contracts use PAFIs to identify the impact of inflation, measured against the contract base date, and to change the contract 'Total of the Prices' periodically by way of price adjustment.

Crossrail?s procurement strategy for contracts of a certain construction duration and commodity mix was to request that contractors did not price for the risk of inflation but instead confirm that the employer would be allocated the risk. This procurement strategy had two effects:

- 1. initial tender returns that excluded contractors? inflation allowances based on broad assumptions over long periods of time
- 2. an agreed, contractual and accurate method to measure the impact of inflation during the contract and amend the 'Total of the Prices' accordingly.

With the widely reported trend for decreasing and flatlining inflation in recent years, it could be argued that this procurement strategy and risk allocation have saved Crossrail in terms of the initial contract award values. The Crossrail project

Costing ?14.8bn, Crossrail is one of the biggest transportation projects in Europe, and will provide high-frequency, convenient and accessible rail services for London and the South East. From 2018, Crossrail trains will travel from Maidenhead and Heathrow in the west to Shenfield and Abbey Wood in the east, via 21km of new tunnels under central London. The service will link Heathrow Airport, the West End, the City of London and Canary Wharf The project will involve the upgrading of 28 surface stations ? 11 of which are major reconstructions ? constructing 21km of new sub-surface twin-bore railway and upgrading 90km of surface network, as well as building nine sub-surface stations.

#### Contracting arrangements

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Crossrail adopted the NEC3 suite of contracts, amended as appropriate, to be the standard form of contract for fulfilling its requirements. The choice was largely determined by the scope of work, the maturity of the design and the nature of the risks. Most contracts were let on either Option A or B (lump sum) or Option C (target price).

For NEC3 Option C contracts, the incentive mechanism provides an equitable share of savings and a real incentive to control costs so that the project can be completed within the target price.

Crossrail?s procurement strategy recognised that the best affordable value would be achieved by a sensible and fair allocation of risks between the parties to the contracts. Requiring contractors to take responsibility for risks that they cannot assess or manage would be likely to result in either high risk premiums or in commercial pressures caused by insufficient provisions.

#### Inflation risk management

The procurement strategy stipulates that the NEC3 contracts with Secondary Option X1 (Price adjustment for inflation) are let on lump-sum Options A and B and target Option C. The calculation of the price adjustment formula varies depending on which form of contract is applied (A, B, C, D or E). The NEC3 contract provides the calculation to be applied using the indices, proportions and base date information set out in the data of each Option X1 contract. With all data and calculations being clearly defined in the contract data and agreed between the parties as part of the contract negotiation process, this leaves limited opportunity for the inflationary measure (price adjustment) to be open to interpretation, and promotes a collaborative commercial arrangement between the project manager and contractor.

The Secondary Option X1 was applied to a number of stations, systems and civil engineering contracts, where the commodity mix and contract duration were deemed to

represent the best opportunities for Crossrail to take on the cost risk associated with inflation.

Crossrail has used the PAFIs published by BCIS. Each contract has a different mix and weightings of indices, modelled according to the works that are to be undertaken. The index series that are used have been selected from:

- PAFI Building Series 3
- PAFI Civil Engineering 1990 Series
- PAFI Specialist Engineering Series 3.

#### Choosing the indices and weightings

Each contract was procured with its own unique set of data used to measure the impact of inflation and ensure that accurate price adjustment is applied. This means the contractor recovers the full entitlement of budget to match the cost of the inflation incurred. The indices to be used in the measurement, the proportions that those indices would represent, any non-adjustable percentage and the base date were allocated according to the type of activities to be carried out in scope of the works, and the proportion of the whole works that these activities represent. The indices were then agreed between the parties as part of the contract negotiation and document execution.

'At Crossrail we have administered NEC3 Contracts with Secondary Option X1 clauses using the BCIS price adjustment formulae indices (PAFIs). By using these, we have been able to procure contracts where inflation is identified as an employer?s risk that could otherwise have been priced by our tier 1 contractors at a potentially high risk premium. The biggest benefit of using the BCIS PAFIs is that they promote a collaborative commercial arrangement between the project manager and contractor by setting out in the contract tender process exactly how the impact of inflation will be measured and how the contractor will recover costs through the administration of a periodic price adjustment.'

Robert Stockwell, Crossrail Ltd

#### Implementation in contract administration

So that each of the 14 contracts that Crossrail procured with Secondary Option X1 were administered consistently across the programme, it specified, designed and developed an online contract management application where all data and calculations are stored and reports generated. The application limited the individual user to entering data and ensured that there was no opportunity for differing interpretations of the contractual requirements. It was also designed to interface directly with the existing cost management system, ensuring accurate and consistent reporting of budgets and performance throughout the business.

The indices are downloaded from the BCIS online service as a csv file and imported into the application directly, although they can also be downloaded as xml files. The software then applies the necessary calculations, taking into consideration the form of contract ? A, B or C ? and provides the relevant inflationary measure, that is, price adjustment formula, for each. This is then applied to the 'Price of the Work Done to Date', taken from the periodic assessment of the contractor?s application, to calculate the periodic price adjustment.

This in turn provides an accurate adjustment of the contractor?s 'Total of the Prices' for the impact of inflation. It is therefore paramount that when 'Implementing a Compensation Event' that it is assessed at base date values. This means that any aspect of the agreed quotation making up the event that is not already priced at the contract base date must be deflated back to the base date set out in the contract data. If compensation events are not implemented at base date values, there is the potential for the contractor to receive an assessment of inflation twice ? once with the compensation event and again when the periodic price adjustment is applied. The application developed by Crossrail provides this calculation for the user in accordance with the details set out in the NEC3 suite.

#### Conclusions

On a project of the size and complexity of Crossrail, a centrally administered application controlling the assessment and processing of any budgetary requirement has proved invaluable.

With thanks to Robert Stockwell, Programme Cost Manager of Crossrail Limited, and Sue White, BCIS Head of Indices, for their help preparing this article.

### Joe Martin is **BCIS** Executive Director

# **Further information**

- A full version of the Crossrail case study is available on the RICS website
- PAFIs are available on subscription from BCIS
- Related competencies include <u>Contract practice</u> and <u>Project financial control and</u> <u>reporting</u>
- This feature is taken from the RICS Construction journal (April/May 2016)