

# Effects of price changes and inflation

**for the Teaching Council of  
Aotearoa New Zealand**

April 2022



**Infometrics**

Economics put simply

## Authorship

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## Key findings

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- The producers price index (inputs) series is a more appropriate series to use than the consumers price index, given the differing baskets of goods and services each index measures.
  - The consumers price index measures household costs, including items such as food, household rent, and fuel.
  - The producers price index measures business costs.
- Infometrics has determined that the Central Government Administration, Defence and Public Safety (CGADPS) group most closely aligns with the functions and activities of the Teaching Council.
- Between the June 2010 and December 2021 quarters, the producers price index (inputs) - CGADPS group measure rose by 21.2%.
- **Based on our calculations, if the teacher registration fees set in July 2010 had increased by the recommended rate of inflation, fees would have increased by \$46.92 to \$267.72.**
- The labour cost index (for the CGADPS group) rose 20.3% over the same period.
- If a weighted average approach (60% wage costs, 40% other costs) is used, the weighted average measure of combined staff and other costs rose 20.7% over the same period.
- **Using this weighted average, inflation in teacher fees is estimated to be \$45.62 since July 2010, with a fee of \$266.42 needed to match the weighted average inflation measure.**

## Overview

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The Teaching Council of Aotearoa New Zealand (Teaching Council) is currently consulting the teaching profession on proposed fees and a levy. The Teaching Council has noted some inflationary changes in its consultation document but is also seeking an expert opinion from Infometrics about how to consider inflation.

Specifically, the Teaching Council has asked Infometrics to consider the following.

1. If the fees set in July 2010 had been subsequently increased every year to match the rate of inflation, what would those fees currently be as at the December 2021 quarter?
2. Provide an expert opinion on the correct inflation measurement tool (or tools) for the Council to use when making decisions on the fees that teachers pay (noting that fees have not increased since July 2010). Please clearly set out the assumptions and methodology used in making the calculations(s) from July 2010 to Q4 2021.

Infometrics has agreed to provide a brief overview of various cost measures available, the inputs used into these cost measures, and the potential relevancy to the Teaching Council. Two key data series will be the consumers price index (CPI) and the producers price index (PPI), and the various components and subindices within the CPI and PPI.

We have then calculated and set out the change in costs between July 2010 and the December 2021 quarter for all relevant measures.

Finally, Infometrics has provided a recommendation on the most suitable inflation measure for the Teaching Council to use, with an explanation and rationale for this recommendation, based on Infometrics' expert economic opinion.

# Price and cost pressure measures

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This section explains the various price and cost measures examined in this report.

## Consumers price index

The consumers price index (CPI) “measures the changing price of a fixed basket of goods and services purchased by New Zealand households”.<sup>1</sup>

Stats NZ, the publisher of the index, notes in its data dictionary that the “CPI is a measure of price change for private New Zealand households only. It should not be used or interpreted as an inflation measure for the economy as a whole”.

As an index measuring household items, the basket of goods reflects the expenditure of private households in New Zealand. The basket of goods includes spending groups such as food (currently 18.7% of the expenditure-weighted basket), housing and household utilities (including rent, insurance, and building costs of a new dwelling), and transport (fuel, car prices, etc) among others.

## Producers price index

The producers price index (PPI) “measures changes in prices for the supply (outputs) and use (inputs) of goods and services by New Zealand’s productive sector”.<sup>2</sup>

As an index measuring business prices, both in terms of the price of the final good or service sold by a business, and the price of producing a good or service by a business, the producers price index measures prices based on the type of business activities that occur, and the inputs needed, and outputs produced, by businesses.

The PPI does not include labour costs.

The “inputs” component of the PPI (PPI-I) is important for this expert review. Effectively, the PPI-I measures the price of purchasing input operating goods and services that a business needs to operate. For the primary sector, these prices might include chemicals, animals, and diesel for machinery. For an accountancy firm, these prices might include office rent, electricity, and paper.

The PPI is weighted by a complex reconciliation of the use of various goods and services across each industry at a detailed level, to reflect the supply and use-weighted price for each grouping.

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<sup>1</sup> Stats NZ. (2022). *Consumers Price Index data dictionary*. Statistics New Zealand. Generated from [https://datainfolplus.stats.govt.nz/Item/nz.govt.stats/8b0860b8-cf63-4f12-a578-8eed8ba69ac3?&\\_ga=2.48324838.1329568025.1648879664-1577458026.1643596902#/nz.govt.stats/24daf577-e941-4a5c-9ba1-f43c5afb5e1e/1#](https://datainfolplus.stats.govt.nz/Item/nz.govt.stats/8b0860b8-cf63-4f12-a578-8eed8ba69ac3?&_ga=2.48324838.1329568025.1648879664-1577458026.1643596902#/nz.govt.stats/24daf577-e941-4a5c-9ba1-f43c5afb5e1e/1#)

<sup>2</sup> Stats NZ. (2015). *Producers price index: concepts, sources, and methods (Second edition)*. Statistics New Zealand. Retrieved from <https://web.archive.org/web/20171123111121/http://www.stats.govt.nz/~media/Statistics/browse-categories/economic-indicators/prices-indexes/producers-price-index/ppi%20sources-methods-concepts/ppi-concepts-sources-methods.pdf>

Within the PPI-I (and PPI generally), industry grouping can be examined at various levels of detail. Two pertinent groupings are at the industrial classification New Zealand Standard Industrial Output Categories (NZSIOC) Level 2. The industry groupings of relevance are:

- Professional, Scientific and Technical Services
- Central Government Administration, Defence and Public Safety.

The **Professional, Scientific and Technical Services** group includes the provision of specialised and high-level expertise such as scientific research, architecture, engineering, computer systems, design, law, accountancy, advertising, market research, management and other consultancy, veterinary science, and professional photography.

Simply put, the above group comprises the broader professional services operations in the private sector, often in an office-based environment.

The **Central Government Administration, Defence and Public Safety** group includes justice, domestic government representation, foreign government representation, defence, police services, investigation and security services, fire protection and other emergency services (excluding ambulance services), correctional and detention services, other public order and safety services, regulatory services.

Simply put, the above group comprises the public sector, including government ministries and departments, and specifically including regulatory services, often in an office-based environment.

## Labour cost index

The labour cost index (LCI) “measures changes in salary and wage rates for a fixed quantity and quality of labour input. Service increments, merit promotions, and increases (or decreases) relating to performance of the individual employee are not shown in the index”.<sup>3</sup>

The LCI provides a good measure of the underlying cost of labour, including by industry, to a business on a common basis. Simply put, the LCI measures the cost of a unit of labour to do an hour of a certain task, over time, without the influences of a worker doing different tasks, getting paid more as they are promoted and now perform different duties, or work more or fewer hours, for example.

The LCI also includes industry groupings, in a very similar way to the PPI. The **Central Government Administration, Defence and Public Safety** group is exactly the same as described above. The professional services sector is slightly broader, with LCI measures only published at a NZSIOC Level 1. Officially, the LCI group is **Professional, Scientific, Technical, Administrative and Support Services**, and differs from the earlier description by the addition of administrative and support services, which includes routine support for businesses including office administration, hiring, and travel services, among others.

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<sup>3</sup> Stats NZ. (2022). *Labour Cost Index (Quarterly) data dictionary*. Statistics New Zealand. Generated from [https://datainfoplus.stats.govt.nz/item/nz.govt.stats/9007195c-8dc3-4dfb-b5da-1b12c32e90ac?\\_ga=2.9178101.1329568025.1648879664-1577458026.1643596902](https://datainfoplus.stats.govt.nz/item/nz.govt.stats/9007195c-8dc3-4dfb-b5da-1b12c32e90ac?_ga=2.9178101.1329568025.1648879664-1577458026.1643596902)

## Calculating recent price changes

This section outlines the calculations for the various price and cost measures.

To calculate the increase in prices for each index, we have examined the percentage change in each index between the June 2010 quarter and the December 2021 quarter. That is, we take the new index value (in December 2021), less the base period index value (June 10) and divide the result by the base period index value. This resulting value is the percentage change in each index since the base period.

The June 2010 quarter has been chosen as the base period as it aligns most closely with the original setting of fees by the Teaching Council in July 2010. The result of this analysis is shown in Table 1.

**Table 1**

### Costs rise across the board

Published quarterly Stats NZ index values, and calculated % change

Index	Component	Jun-10	Dec-21	% Change
Consumers price index	Headline	896	1,122	25.2%
	All industries	984	1,256	27.6%
Producers price index (Inputs)	Professional, Scientific and Technical Services	992	1,214	22.4%
	Central Government Administration, Defence and Public Safety	993	1,204	21.2%
Labour cost index, all salary and wage rates	All industries	1,016	1,262	24.2%
	Professional, Scientific, Technical, Administrative and Support Services	1,016	1,254	23.4%
	Central Government Administration, Defence and Public Safety	1,008	1,213	20.3%

Source: Infometrics, Stats NZ

The analysis in Table 1 above also includes calculations for the change in the Labour Cost Index. Although the LCI is not one of the price indices being examined for inflation adjustment in this report, changes in the labour cost index provide informative background considering the PPI series does not include labour costs. More comments on the LCI are included in the following section.



## Calculating price increase estimates for fees

Infometrics has been asked:

*“If the fees set in July 2010 had been subsequently increased every year to match the rate of inflation, what would those fees currently be in 2021 Q4?”*

Teacher registrations fees were last changed by the New Zealand Teachers Council in July 2010.<sup>4</sup> The current fees were maintained and gazetted in 2015.<sup>5</sup>

With the original fees set in July 2010, we have started out calculations from the June 2010 quarter, as the base period. Table 2 sets out our various outputs.

**Table 2**

### **Inflation-adjusted fees could have increased by \$47-\$61 since 2010**

Teacher registration fee, estimates in Q4 2021 based on various price indexes

Index	Component	Jul-10	Dec-21 Est	% Change	\$ Change
Consumers price index	Headline	\$220.80	\$276.37	25.2%	\$55.57
	All industries	\$220.80	\$281.81	27.6%	\$61.01
Producers price index (Inputs)	Professional, Scientific and Technical Services	\$220.80	\$270.21	22.4%	\$49.41
	Central Government Administration, Defence and Public Safety	\$220.80	\$267.72	21.2%	\$46.92

Source: Infometrics, Stats NZ

Based on the four indices examined, to match these various rates of “inflation”, the fees set in July 2010 would have needed to increase by between \$46.92 (under the PPI-I CGADPS group) and \$61.01 (under the PPI-I all industries measure).

If fees had increased to match the various “inflation” measures, in the December 2021 quarter, the fees would then range from \$267.72 to \$281.81.

Importantly, these fee estimates, adjusted to match the various “inflation” measures, should be seen as the minimum increase in cost to deliver the exact same services as were originally provided in July 2010. These inflation rates do not account for other changes, such as changes in funding streams, the types or numbers of goods and services delivered, etc.

<sup>4</sup> See Point 7: <https://www.education.govt.nz/assets/Uploads/R-Cab-paper-Proposed-draw-down-from-between-Budget-contingency.pdf>

<sup>5</sup> See <https://gazette.govt.nz/notice/id/2015-gs3644>

# Recommended price change metric

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**The Central Government Administration, Defence and Public Safety (CGADPS) group within the producers price index (inputs) is the most appropriate measure of price inflation for the Teaching Council.**

This recommendation is based on the fact that the CGADPS group closely aligns to the functions of the Teaching Council of Aotearoa New Zealand. The Teaching Council is an Independent Statutory Body established by statute, and although the Council provides more than just regulatory services, as the professional body for teachers it also has a core role in the regulation of the teaching profession.

This assessment of the Teaching Council's role, activities, and services provided, sees the Teaching Council align closest with the CGADPS group, which specifically includes regulatory bodies. The nature of the work undertaken by the Teaching Council is more closely aligned to that of another government regulatory body, or government ministry, than a private sector business, or a household.

More generally, the producers price index is the best index to use to examine price changes for the Teaching Council. The Teaching Council is a business entity and uses business inputs to generate business outputs. The Teaching Council is not a household, so the consumers price index is a poor comparator, as the basket of goods and services (food, fuel, rent) for a household is considerably different to the basket of goods and services that the Teaching Council will use.

Therefore, our expert opinion is that the producers price index (inputs) - Central Government Administration, Defence and Public Safety group is the most appropriate price inflation measure for the Teaching Council to use when determining broader price pressures and cost inflation over time.

**Based on our calculations, if the teacher registration fees set in July 2010 had increased by the recommended rate of inflation, fees would have increased by \$46.92 to \$267.72.**

This inflation adjustment only accounts for the delivery of the exact same service in 2021 as in 2010, based on the cost of inputs for the services that the Teaching Council provides. Other changes to the organisation and the services it provides (including different, expanded, or new services), are not accounted for in this inflation assessment.

## Cost of service delivery

The above calculation only applies to the materials and non-labour increase in prices that businesses including the Teaching Council might face. However, the Teaching Council's 2022 *Consultation Document: Proposed fees and levy* provides a 60% weighting for staff costs and a 40% weighting for other costs. The large staff cost component means that "wage inflation" possibly should also be taken into account. For our analysis, we have assumed that the 60-40 weighting between staff costs and other costs put forward by the Teaching Council is appropriate.

For wage inflation, the labour cost index (all salary and wage rates) CGADPS measure is the best value to use. The labour cost index measures the change in “price” for the same quantity and quality of labour. With the CGADPS group already established as the most closely aligned group to the Teaching Council, this measure is the preferred one for wage inflation.

Utilising the labour cost index in conjunction with the PPI-I – CGADPS measure allows for a full understanding of the cost pressures faced by the Teaching Council.

With the LCI CGADPS measure increasing by 20.3%, and the PPI-I – CGADPS measure increasing by 21.2%, the weighted average increase in combined staff and other costs inflation is 20.7%.

**Using this weighted average, inflation in teacher fees is estimated to be \$45.62 since July 2010, with a fee of \$266.42 needed to match the weighted average inflation measure (which considers staff and other inflation).** Given the mix of labour and non-labour input costs faced by the Teaching Council, this figure potentially gives a better indication of the increase in costs faced by the Teaching Council since 2010 than using the PPI-I CGADPS index alone.

Importantly, the LCI staff cost measure assumes the same staff roles are used to deliver the services in 2021 as in 2010. Changes to the mix of roles, including promotions, new/expanded duties, etc, are not covered by the LCI.

In the Teaching Council’s 2022 *Consultation Document: Proposed fees and levy*, page 22 notes that “the Wages Index increased by 40.4 percent.” This statement is based on the use of the Reserve Bank of New Zealand’s “Inflation calculator” which shows a different measure of wages.<sup>6</sup> The RBNZ calculator measure uses “Hourly wage in dollars (private sector, ordinary time) from Quarterly Employment Survey, Statistics New Zealand”. This measure is not strictly an inflation measure, as changes to average hourly earnings are influenced by changes in staff (promotions, new staff, additional/expanded duties) and changes in the composition of workers by occupation, industry, or skill level across the economy. This measure is not a preferred measure for accounting for wage inflation, given it does not adjust for the various changes in the composition of labour quality and quantity.

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<sup>6</sup> <https://www.rbnz.govt.nz/monetary-policy/inflation-calculator>