



Quantifying Bracket Creep in New Zealand's Personal Income Tax, 2011–2024

Norman Gemmell and Peer Ebbesen Skov

WORKING PAPER 02/2026
August 2026

Working Papers in Public Finance



Chair in
Public Finance

The Working Papers in Public Finance series is published by the Wellington School of Business and Government to disseminate initial research on public finance topics, from economists, accountants, finance, law and tax specialists, to a wider audience. Any opinions and views expressed in these papers are those of the author(s). They should not be attributed to Victoria University of Wellington or the sponsors of the Chair in Public Finance.

Papers in the series can be downloaded from the [Chair in Public Finance](#) website.

Quantifying Bracket Creep in New Zealand's Personal Income Tax, 2011–2024

Norman Gemmell*, Peer Ebbesen Skov†

Abstract

New Zealand's main personal income tax thresholds were unchanged from October 2010 until July 2024, while consumer prices rose substantially. This note uses annual IRD taxable-income tabulations, calibrated to actual PIT collections, to estimate the revenue effect of this non-indexation. Relative to a CPI-indexed counterfactual, frozen thresholds generated an estimated **nominal** \$5.8 billion in additional PIT revenue in FY2024 and **an undiscounted nominal total of** \$23.5 billion over FY2011–FY2024. As a share of income, the burden peaks for middle earners and declines above the third indexed threshold.

JEL: H24, H20, E31

Keywords: bracket creep, personal income tax, fiscal drag, New Zealand

*Victoria University of Wellington, New Zealand. Email: norman.gemmell@vuw.ac.nz

†Auckland University of Technology, New Zealand. The ROCKWOOL Foundation, Denmark.
Email: pskov@aut.ac.nz

1 Introduction

New Zealand left its main personal income tax thresholds unchanged from October 2010 until July 2024. We estimate how much additional personal income tax (**PIT**) revenue that non-indexation generated. Bracket creep arises when progressive tax thresholds are fixed in nominal terms, so inflation pushes taxpayers into higher rate brackets even when real income is unchanged. Saez (2003) used bracket creep in the US context as a source of marginal tax rate variation for estimating elasticities of taxable income. The question here is fiscal rather than behavioural: how much revenue did non-indexation raise in New Zealand, and where in the income distribution did that burden fall?

By FY2024, bracket creep was raising roughly \$5.8 billion in additional PIT revenue per year, or about one-tenth of total collections. **This is equivalent to about \$1,400 per taxpayer in our estimation sample and around 1.6 times the size of the \$3.7 billion annual personal tax-relief package announced in Budget 2024 (New Zealand Government, 2024).** Cumulative revenue over FY2011–FY2024 reaches \$23.5 billion.¹ The increase is highly non-linear, with much of the total arising during the post-2021 inflation surge. **Bracket creep therefore provides a substantial source of additional revenue without an explicit increase in statutory tax rates, and the effect accumulates while thresholds remain fixed.**

Non-indexation is common internationally: only 11% of 173 economies automatically adjust PIT thresholds (Balasundharam et al., 2023). The fiscal distortions created by non-indexation are well documented (Beer et al., 2023), but their magnitude is country-specific. We estimate this for New Zealand using annual IRD taxable-income tabulations for FY2011–FY2024, calibrated to observed assessed tax and aggregate PIT cash collections year by year. The estimate is a static counterfactual: it measures the revenue difference between the frozen and CPI-indexed schedules applied to observed taxable income, not a full tax reform simulation or welfare analysis. A short sensitivity analysis explores the role of behavioural responses.

2 Institutional Setting

The October 2010 tax changes established a four-bracket PIT schedule with thresholds at \$14,000, \$48,000, and \$70,000 and marginal rates of 10.5%, 17.5%, 30%, and 33% (New Zealand Legislation, 2010).

¹This cumulative figure is an undiscounted nominal sum, adding the revenue raised in each year at face value. Compounding each year’s revenue forward to 2025 at 3 per cent gives a 2025 value of roughly \$26.3 billion.

The 39% rate introduced at \$180,000 in April 2021 is excluded from the bracket creep estimate because it reflects a discretionary rate change rather than threshold non-indexation. It enters only through the calibration step, because it formed part of the schedule actually in force from FY2022 to FY2024. Including it would raise the FY2024 estimate to about \$6.9 billion, but that would conflate threshold non-indexation with a separate discretionary rate increase.

The counterfactual thresholds are obtained by scaling the October 2010 values by cumulative CPI inflation **from Q4 2010 to the Q1 CPI reading in each year**. For FY2024 the indexed thresholds would be approximately \$19,100, \$65,600, and \$95,700, **as shown in Panel A of Figure 1**. The July 2024 legislative adjustment set new thresholds at \$15,600, \$53,500, and \$78,100, closing roughly 30% of the CPI gap relative to CPI indexation (New Zealand Legislation, 2025). **The Inland Revenue tabulations cover individual taxable income assessed under this progressive PIT schedule. New Zealand had no general capital gains tax over our sample window, while income taxed through other entities, including trustee income, lies outside the individual tabulations. This creates scope for taxpayers to shift income out of the personal tax base, particularly after the 39% personal rate introduced in 2021 exceeded the trustee rate. We return to the implications for our estimate in Section 4.**

Table 1: PIT thresholds: October 2010, CPI-indexed counterfactual, and July 2024 adjustment

Rate threshold	Oct 2010	CPI-indexed (FY2024)	July 2024 actual	Gap remaining
17.5% threshold	\$14,000	\$19,100	\$15,600	\$3,500 (69%)
30% threshold	\$48,000	\$65,600	\$53,500	\$12,100 (69%)
33% threshold	\$70,000	\$95,700	\$78,100	\$17,600 (69%)

Notes: CPI-indexed thresholds are the October 2010 values scaled by cumulative CPI inflation from Q4 2010 to Q1 2024 (Stats NZ, CPI All Groups). Gap remaining is the difference between the CPI-indexed counterfactual and the July 2024 actual threshold, expressed as a percentage of the total CPI gap.

3 Data and Method

We estimate the additional PIT revenue generated by frozen thresholds relative to a CPI-indexed counterfactual, year by year and across the income distribution. We do this in three steps. First, we take Inland Revenue’s published taxable-income distribution for each year from FY2011 to FY2024. Second, we use those grouped data to calibrate the tax calculation so that it matches observed assessed tax and aggregate

cash collections under the schedule actually in force in each year. Third, after calibration, we calculate tax under two versions of the original four-bracket schedule: one with frozen thresholds and one with CPI-indexed thresholds. The difference between those two gives the estimated revenue effect of threshold non-indexation. This calibration step is necessary because a simple application of statutory rates to grouped income data does not reproduce observed tax liabilities. The published data reflect tax credits, and assessed tax differs from cash collections because of timing effects such as provisional tax.

Data

The publicly available Inland Revenue taxable-income tabulations report, for each income band and year, the number of taxpayers, total income (\$ million), and total assessed tax (\$ million). **Around the statutory thresholds, the published bands are \$1,000 wide, so the \$14,000, \$48,000, and \$70,000 thresholds fall on band edges rather than inside bands.** We exclude bands below \$1,000, which mainly capture nil returns and PIE-only investors, leaving 220 active bands for FY2011–FY2018 and 234 for FY2019–FY2024. The increase reflects a structural break in the published tabulations: prior to FY2019, all earners above \$300,000 were grouped into a single band (in FY2018: $N = 21,970$, mean income = \$536,149), whereas from FY2019 Inland Revenue split this range into 15 narrower bands. The full dataset contains 3,164 band-year observations. Consumer prices are measured using the Stats NZ CPI All Groups series, and PIT cash revenue is taken from Inland Revenue annual collections.

Calibration

We calibrate the model in two steps. First, for each band-year, we calculate the tax due at the observed mean² income under the schedule actually in force in that year.

²We check the band-mean approximation in two ways. First, across the 3,164 band-year observations, assessed tax minus modelled tax, as a share of assessed tax, has a median of -0.01% , a mean of -0.07% , and a 5th–95th percentile range of -5.35% to 6.99% . The median absolute deviation is 0.03% and the mean absolute deviation is 1.04% . The larger differences occur mainly at low incomes, where tax credits make statutory tax a less complete measure of assessed tax; this is why the main analysis calibrates tax band by band. Second, we isolate the effect of within-band nonlinearity. In FY2024, six income bands contain a frozen or CPI-indexed threshold. Within each, we distribute taxpayers across 200 income points, with a band-specific power parameter chosen so that the resulting distribution reproduces the reported band mean. We then calculate tax under both schedules at every point. In all other closed bands the tax function is linear, so taxing the band mean gives the same average tax as any mean-preserving interpolation. The FY2024 estimate changes from \$5,838.68 million to \$5,838.33 million, a difference of \$0.34 million, or 0.006% . The placement of taxpayers within threshold-

Up to FY2021 this is the original four-bracket schedule; from FY2022 onwards it is the same schedule plus the 39% rate. We then compare that modelled tax with the assessed tax reported by Inland Revenue and define the scale factor as assessed tax divided by model tax. Applying that factor makes the model match assessed tax band by band. In practice, the factor is essentially 1.000 above \$48,000. The main deviation appears in the \$14,000–\$48,000 range, where it is about 0.974, plausibly reflecting the Independent Earner Tax Credit and Working for Families. The 39% rate enters only at this calibration stage. **Because the factor is re-estimated for each band and year, changes in these credits over the period are reflected in that year’s factor rather than assumed constant over time. The counterfactual does assume that the observed factor remains appropriate under indexed thresholds. To assess the importance of this assumption, we repeat the FY2024 calculation without the band-specific calibration factors. The estimate rises from \$5,838.7 million to \$5,851.0 million, a difference of \$12.3 million, or 0.21%. The effect is small because the factor is close to one above \$48,000, where most bracket-creep revenue is generated.**

Second, we convert assessed tax to a cash basis. For each year, we divide actual PIT cash collections by total assessed tax across all bands and use that ratio as a cash-alignment factor. We then multiply the band-level estimates by this factor. For FY2024, the cash-alignment factor is 0.9575. Across the panel, it ranges from 0.944 to 1.036, mainly reflecting provisional tax timing.

Bracket creep computation

After calibration, we compute bracket creep by taking each band-year in turn and calculating tax twice at the observed mean income: once under the original four-bracket schedule with frozen thresholds, and once under a CPI-indexed version of the same four-bracket schedule. We take the difference between those two tax liabilities, multiply by the number of taxpayers in the band, and then apply the cash-alignment factor. The 39% rate introduced from FY2022 is excluded at this stage, so the comparison isolates threshold non-indexation rather than the later discretionary rate increase. Bracket creep for band b in year t is therefore given by

$$\text{Bracket creep}_{b,t} = n_b \times [T(\bar{y}_b, \theta_{\text{frozen}}) - T(\bar{y}_b, \theta_{\text{CPI}(t)})] \times \kappa(t) \quad (1)$$

where n_b is the number of taxpayers in band b , $\bar{y}_b$ is mean income in that band, $T(\cdot)$ is the tax function, and $\kappa(t)$ is the cash-alignment factor. Here $\theta_{\text{frozen}} = (14,000, 48,000, 70,000)$

crossing bands therefore has no material effect on the headline estimate.

and $\theta_{\text{CPI}(t)}$ is the corresponding vector of CPI-indexed thresholds in year t . The baseline analysis is static. Section 5 examines sensitivity to behavioural responses.

4 Results

On the FY2024 income distribution, frozen thresholds raise \$5,839 million in additional PIT revenue (**all figures nominal**), equal to about 10% of **nominal FY2024** collections.³

Mechanics and cumulative revenue

Year-by-year bracket creep rises from \$70 million in FY2011 to \$5,839 million in FY2024. The trajectory is highly non-linear: \$1.6 billion over FY2011–FY2015, \$3.9 billion over FY2016–FY2019, \$3.7 billion over FY2020–FY2021, then \$14.2 billion over FY2022–FY2024 as the post-2021 inflation surge accelerated bracket creep. Cumulative **undiscounted nominal revenue** was \$23.5 billion.⁴

Figure 1 shows how bracket creep operates in the New Zealand PIT system over FY2011–FY2024. Panel A plots the two threshold schedules used in the FY2024 comparison. Under frozen thresholds, taxpayers enter the 30% bracket at \$48,000 rather than roughly \$65,600, and the 33% bracket at \$70,000 rather than roughly \$95,700. Panel B shows the resulting growth in annual bracket-creep revenue on a cash basis.

Distributional incidence

Table 2 reports the additional statutory tax at six points in the FY2024 income distribution under the four-bracket schedule. **For each point it also reports the average tax rate under the frozen and CPI-indexed schedules, alongside the corresponding marginal rates.**

Figure 2 shows the same pattern across the income distribution. Additional tax rises steeply between roughly \$48,000 and **\$95,700**, then flattens out above the third indexed threshold. Above roughly **\$95,700** the additional tax is constant at **\$3,328**. **Income shifting can change the observed personal-income distribution. Its effect on the bracket-creep estimate is limited for taxpayers who remain above the third indexed threshold, because additional tax is fixed at \$3,328**

³The main FY2024 estimate uses a fiscal-year-aligned CPI measure. Using the later Q4 2024 CPI reading instead raises the implied FY2024 bracket-creep estimate to about \$6.1 billion.

⁴**Compounding each year's nominal amount forward to 2025 at 3% per year gives a 2025 value of \$26.3 billion.**

Table 2: Bracket creep at selected income points, FY2024

Income point	Income	Additional tax/yr (frozen — indexed)	ATR: frozen	ATR: in- dexed	MR: frozen	MR: in- dexed
Minimum wage FT	\$47,200	\$357	15.4%	14.7%	17.5%	17.5%
Median (P50)	\$48,484	\$418	15.6%	14.7%	30.0%	17.5%
Mean	\$64,200	\$2,382	19.1%	15.4%	30.0%	17.5%
P75	\$81,507	\$2,902	21.9%	18.3%	33.0%	30.0%
P90	\$125,545	\$3,328	25.8%	23.1%	33.0%	33.0%
P98	\$222,588	\$3,328	28.9%	27.4%	33.0%	33.0%

Notes: Statutory annual amounts under the 2010 four-bracket schedule. “**Additional tax/yr**” is the difference in total annual tax between the frozen and CPI-indexed schedules at that income, and is mostly inframarginal: it accrues on income taxed in higher brackets lower down the schedule, so it can differ across rows even where the marginal rate at that income is the same. ATR and MR denote the average and marginal tax rate under each schedule; the CPI-indexed thresholds are fiscal-year-aligned (Q1 2024), consistent with Table 1 and the headline estimate. Multiply by the cash-alignment factor (0.958 for FY2024) for the cash equivalent. Percentiles computed from the IRD income distribution.

throughout that range. Shifting matters for the estimate if it moves personal taxable income below the threshold. As a share of income, the burden peaks for earners around \$65,000–\$80,000 at roughly 3–4 percentage points, then declines. In short, bracket creep imposes its largest proportional burden on middle earners, because the additional tax flattens out in dollar terms once income is above the third indexed threshold.⁵

5 Sensitivity to Behavioural Responses

Our baseline estimates assume no behavioural response to higher marginal tax rates. That is a useful starting point, but it may overstate the revenue raised by bracket creep. If taxable income falls when net-of-tax rates fall, then the observed taxable-income distribution under frozen thresholds is shifted to the left of the distribution that would have prevailed under CPI indexation. A static comparison applies the frozen and indexed schedules to that same observed distribution. This overstates the revenue effect of threshold non-indexation, because under indexation taxable income would have been somewhat higher, raising revenue under the indexed counterfactual

⁵Measured in revenue rather than as a share of income, bracket creep is concentrated among higher earners. Dividing the FY2024 estimation sample into ten equal-sized taxpayer groups, the bottom half accounts for 9.2% of total bracket-creep revenue, while the top four deciles account for 82.4%. This is consistent with the proportional burden peaking among middle earners, since the fixed dollar amount at the top is small relative to those incomes.

and narrowing the gap between the two schedules.

We assess the size of this bias using the elasticity of taxable income (ETI). Saez et al. (2012) survey the international evidence and place typical ETI estimates around 0.25. The key New Zealand evidence comes from Claus et al. (2012) and Alinaghi et al. (2021). Both papers point to substantial heterogeneity across taxpayers, and the evidence suggests larger responses at higher income levels.

For our purposes, Alinaghi et al. (2021) is informative because it uses New Zealand data and estimates behavioural responses at the \$70,000 threshold, one of the thresholds central to our exercise. It is, however, a local bunching estimate rather than an estimate of the average ETI across the taxpaying population. We therefore use an ETI of 0.2 as an illustrative central case and report sensitivity from 0.1 to 0.5. The available New Zealand evidence does not identify how the ETI varies across the full income distribution. Rather than impose a profile not identified by the evidence, we use a common elasticity across income groups.

To map these values into revenue, we infer taxable income under the indexed counterfactual from the change in the net-of-tax rate. For each band,

$$z_b^{\text{idx}} = \bar{y}_b \left(\frac{1 - \tau_b^{\text{idx}}}{1 - \tau_b^{\text{frz}}} \right)^e \quad (2)$$

where z_b^{idx} is taxable income under the indexed counterfactual, $\bar{y}_b$ is observed mean income under frozen thresholds, and τ_b^{frz} and τ_b^{idx} are the marginal rates under the two schedules at that income. Where the marginal rates are the same, the net-of-tax rate is unchanged and $z_b^{\text{idx}} = \bar{y}_b$, so the implied response is zero. We then compare frozen-schedule tax at observed income with indexed-schedule tax at the counterfactual income. The same band-level and cash-alignment factors used in the static calculation are applied to both.

At an ETI of 0.2, the behavioural adjustment reduces estimated FY2024 bracket-creep revenue from \$5,839 million to \$5,505 million, a reduction of 5.7%. Across the full range, the net estimate falls from \$5,675 million at an ETI of 0.1 to \$4,955 million at an ETI of 0.5, corresponding to reductions of 2.8% and 15.1%. The behavioural adjustment therefore lowers the estimate, but bracket-creep revenue remains close to \$5 billion even at the top of the sensitivity range.

Behavioural responses do more than reduce revenue. If taxpayers adjust income, work, or reporting choices in response to higher marginal rates under frozen thresholds, those adjustments also create an efficiency cost that is not captured by the bracket-

creep revenue estimates themselves. **The relevant quantity is the additional efficiency cost caused by bracket creep. We therefore compare deadweight loss under the frozen and CPI-indexed schedules, rather than measuring the frozen schedule relative to no tax.**

Following Feldstein (1999), we calculate deadweight loss under each schedule and take the difference,

$$\Delta\text{DWL} = \frac{1}{2} e \sum_b \left[\frac{(\tau_b^{\text{frz}})^2}{1 - \tau_b^{\text{frz}}} - \frac{(\tau_b^{\text{idx}})^2}{1 - \tau_b^{\text{idx}}} \right] \bar{y}_b n_b \quad (3)$$

where τ_b^{frz} and τ_b^{idx} are the marginal rates in band b under the frozen and CPI-indexed schedules. At $\text{ETI} = 0.2$, this implies an additional deadweight loss of roughly \$490 million per year, or about 0.11% of GDP. In other words, behavioural responses reduce the revenue raised by bracket creep, but they also destroy economic value that neither taxpayers nor government receive.

6 Discussion

Bracket creep accounts for roughly one dollar in ten of personal income tax revenue in FY2024 and has risen sharply since FY2011. Figure 1 shows why the burden is concentrated between roughly \$48,000 and **\$95,700**: under frozen thresholds, taxpayers enter the 30% and 33% brackets at much lower nominal incomes than under CPI indexation. The additional tax therefore rises sharply through that range, then plateaus in dollar terms and declines as a share of income above roughly **\$95,700**.

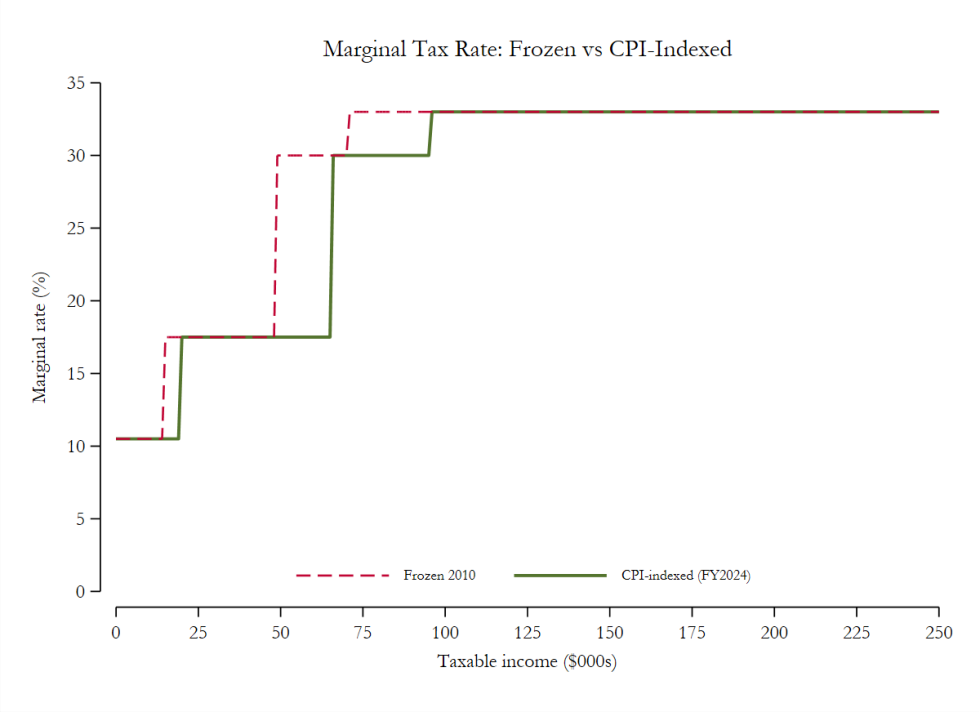
The July 2024 threshold adjustment closed roughly 30% of the gap relative to CPI indexation, but the new thresholds are themselves not indexed. The mechanism that generated bracket creep over 2011–2024 therefore remains in place.

Our estimates build on publicly available taxable-income tabulations and should be read as calibrated counterfactuals rather than exact measures of the underlying tax burden. A fuller analysis would require access to person-level administrative data and a richer behavioural model, but the results here provide a transparent illustration of the scale, distribution, and fiscal importance of bracket creep in New Zealand.

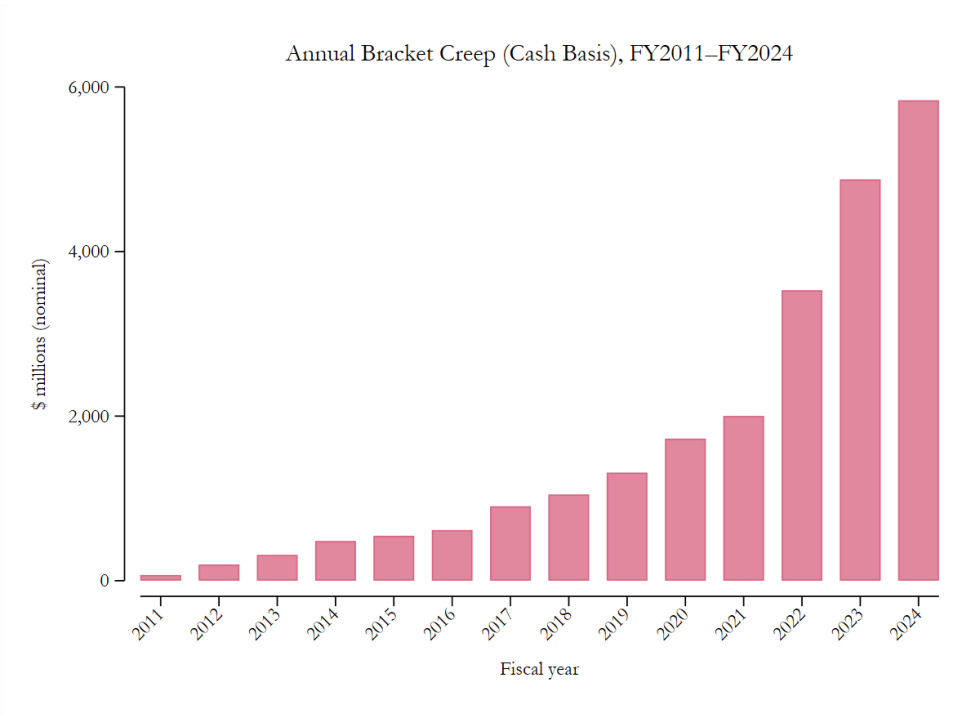
References

- Alinaghi, N., Creedy, J., & Gemmell, N. (2021). Elasticities of taxable income and adjustment costs: Bunching evidence from New Zealand. *Oxford Economic Papers*, 73(3), 1244–1269.
- Balasundharam, V., Kayastha, A., & Poplawski-Ribeiro, M. (2023). *Inflation indexation in public finances: A global dataset on current practices* (Working Paper No. WP/23/264). International Monetary Fund.
- Beer, S., Griffiths, M., & Klemm, A. (2023). Tax distortions from inflation: What are they? how to deal with them? *Public Sector Economics*, 47(3), 353–386.
- Claus, I., Creedy, J., & Teng, J. (2012). The elasticity of taxable income in New Zealand. *Fiscal Studies*, 33(3), 287–303.
- Feldstein, M. (1999). Tax avoidance and the deadweight loss of the income tax. *Review of Economics and Statistics*, 81(4), 674–680.
- New Zealand Government. (2024). Responsible tax relief [Available at budget.govt.nz].
- New Zealand Legislation. (2010). Taxation (budget measures) act 2010 [Accessed 20 March 2026].
- New Zealand Legislation. (2025). Taxation (annual rates for 2024–25, emergency response, and remedial measures) act 2025 [Accessed 20 March 2026].
- Saez, E. (2003). The effect of marginal tax rates on income: A panel study of ‘bracket creep’. *Journal of Public Economics*, 87(5–6), 1231–1258.
- Saez, E., Slemrod, J., & Giertz, S. H. (2012). The elasticity of taxable income with respect to marginal tax rates: A critical review. *Journal of Economic Literature*, 50(1), 3–50.

Figure 1: Bracket creep: mechanics and trajectory



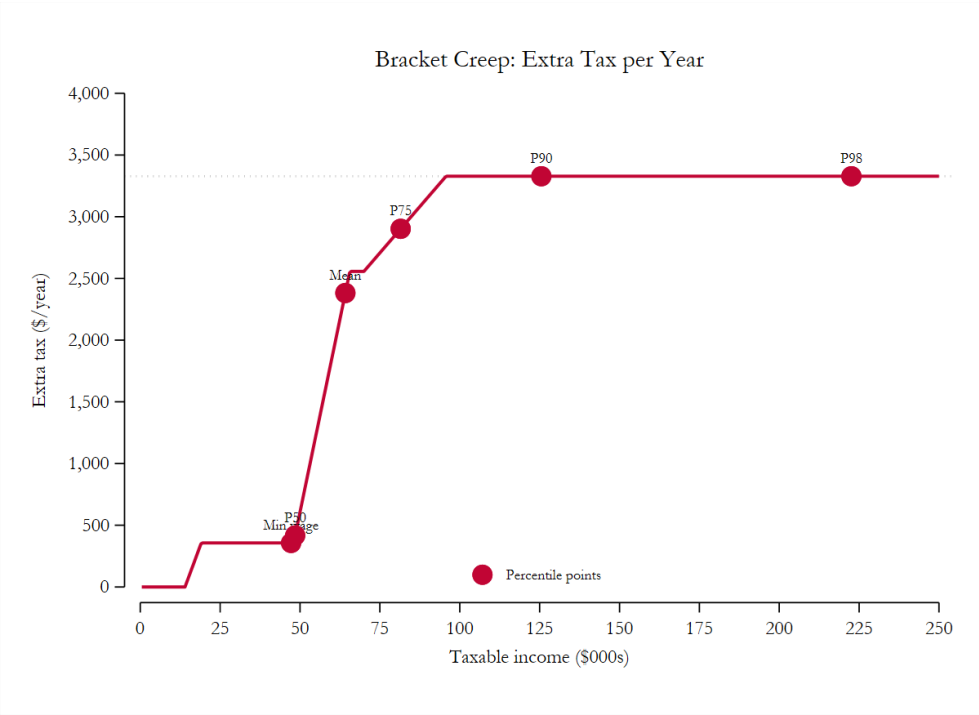
(a) Marginal tax rate: frozen vs CPI-indexed schedule



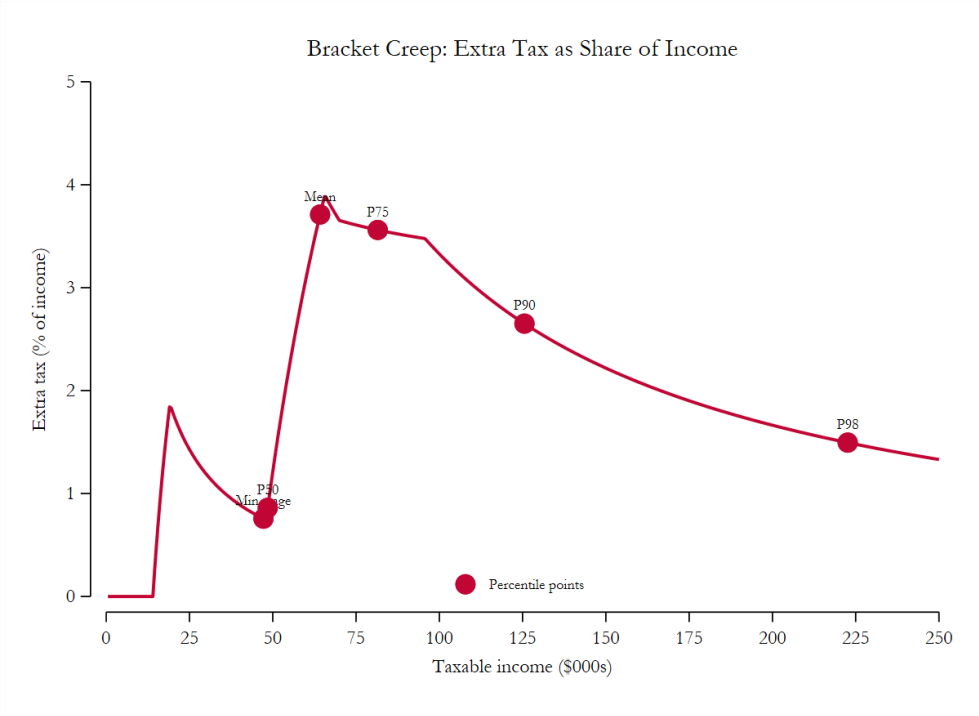
(b) Annual bracket creep (cash basis), FY2011–FY2024

Notes: Panel A plots the marginal PIT schedule against taxable income under the frozen 2010 thresholds and the CPI-indexed counterfactual for FY2024. The frozen schedule reaches the 30% and 33% brackets at substantially lower nominal incomes (\$48,000 and \$70,000) than the CPI-indexed schedule (roughly \$65,600 and \$95,700). Panel B plots annual bracket creep revenue on a cash basis, excluding the 39% rate introduced in 2021.

Figure 2: Distributional incidence of bracket creep



(a) Bracket creep: extra tax per year (\$)



(b) Bracket creep: extra tax as share of income (%)

Notes: The solid line in each panel plots the implied bracket-creep schedule under frozen versus CPI-indexed thresholds for FY2024. Highlighted points mark six locations in the FY2024 income distribution: minimum wage, P50, mean, P75, P90, and P98. **The bends in the solid line occur at the frozen and CPI-indexed tax thresholds, where marginal rates change, rather than at the highlighted points.** Panel A shows additional tax in dollars per year. Panel B expresses the same amount as a share of income. The hump shape reflects the accumulation of threshold gaps through the \$48,000–\$95,700 range and the subsequent decline in the proportional burden as the fixed dollar increase in tax falls relative to income.

About the Authors

Professor Norman Gemmell is the Emeritus Chair in Public Finance at Te Herenga Waka—Victoria University of Wellington, School of Business and Government.

Email: norman.gemmell@vuw.ac.nz

Peer Slov is an Associate Professor of Economic at Auckland University of Technology and a senior researcher at the ROCKWOOL Foundation Research Unit. He is also a Research Fellow at [IZA](#) and a Research Affiliate at The Tax and Transfer Policy Institute at The Australian National University.

Email: peer.slov@aut.ac.nz