Parliamentary Budget Office

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Bracket creep and its fiscal impact

Overview

Bracket creep is a term that describes a situation where income growth causes individuals to pay higher average income tax rates each year. It is one result of a tax system which features a number of tax 'brackets'. The brackets involve tax rates that increase with income and which do not change over time unless the government introduces new policies.

This 'explainer' examines the impact of bracket creep from the perspective of both individuals and government finances.

The first section of this explainer explores why bracket creep occurs and who it affects. It provides context around how personal income is taxed in Australia and explains how bracket creep still affects individuals whose income growth does not push them into a higher tax bracket.

The second section explores why the impact of bracket creep is not the same for individuals earning different levels of income. It also examines how the current structure of tax rates and thresholds compares with those of 60 years ago. This section shows that having many tax rates and a higher top marginal tax rate in the past did not necessarily lead to a more progressive personal income tax system.

The third section looks at bracket creep from the perspective of government finances, and how it can impact the fiscal position over time. Bracket creep has played a key role in fiscal consolidations of the past and it is the most important factor in increasing the tax-to-GDP ratio over the next decade.

Introduction

Bracket creep occurs when rising incomes cause individuals to pay an increasing proportion of their income in tax, even though there may not have been changes to tax rates and thresholds.

There are two reasons why bracket creep occurs in Australia: we have a progressive personal income tax system – where the proportion of income paid in tax gets higher as incomes get higher – and we have an economy where average incomes are usually increasing.

Many may be familiar with the experience of bracket creep as individuals, but few may have considered its significance for how governments manage their finances. Bracket creep causes tax receipts to grow faster than the economy, which is sometimes known as 'fiscal drag'.

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[*] This explainer was authored by Cameron Chisholm, Jordan King, Izaac Phillips and Lynette Yap, with the benefit of comments and contributions from John Clark, Stein Helgeby and Glend Isaraj. The contents of the explainer are the sole responsibility of the Parliamentary Budget Office.

Bracket creep has often played an important role in repairing the budget after a major downturn – bringing the budget back into surplus or reducing government debt.[1] With Australia's net debt expected to peak at 40.9 per cent of GDP ($981 billion) by the end of 2024-25, personal income tax receipts, driven by bracket creep, are likely to be a major driver in reducing the debt-to-GDP ratio over the medium and long term.

Outside periods of budget repair, governments have periodically increased tax thresholds or lowered tax rates, with the effect of reducing or even reversing the impact of bracket creep – this is referred to as 'returning' bracket creep. These regular changes have kept the overall average personal income tax rate varying between 22 and 25 per cent of income for most of the past forty years.

Why does bracket creep occur and who does it affect?

Australia has a 'progressive' personal income tax system. This means that individuals with higher incomes pay not only a higher *amount* of tax, but a higher *proportion* of their income in tax as well.[2] Everybody that pays personal income tax and experiences income growth will be affected by bracket creep. This impact occurs regardless of whether income growth pushes an individual's income into the next tax bracket. To illustrate this, it is important to understand how a progressive tax system works.

In a progressive system, higher-income earners pay a greater proportion of their income in tax

Progressive tax systems are usually implemented through several tax brackets with increasing rates. For example, in Australia, a resident individual does not pay tax on their income up to the 'tax-free threshold', currently $18,200, but only on income that exceeds this amount. As a result, an individual with an income of $40,000 in 2021-22 (just above the current full-time minimum wage) pays no tax on their first $18,200, and 19 per cent tax on their next $21,800, around $4,000 in total, or 10 per cent of their income.[3]

Australia's personal tax system has four tax thresholds for the 2021-22 year. The range of income between two thresholds is called a 'tax bracket', and a higher tax rate applies to individuals as their income moves into the higher tax brackets. Someone with an income of $150,000, for example, will pay no tax on their first $18,200, 19 per cent tax on the next $26,800, 32.5 per cent on the next $75,000, and finally 37 per cent on the last $30,000 (the marginal tax rate). This results in a total tax of just over $40,000, around 27 per cent of their total income (the average tax rate).

There are two important concepts to understand here – marginal tax rates and average tax rates.

As outlined in the example above, an individual's *marginal* tax rate is the amount of tax they would pay on an additional dollar of income they earn – if an individual's marginal tax rate is 37 per cent and they earn one more dollar, they would pay an additional 37 cents of tax. This differs from the *average* tax rate, which is an individual's total tax as a proportion of their total *taxable income*. Taxable income is the measure of income used to calculate how much tax an individual needs to pay, which may be less than an individual's gross income if, for example, deductions can be made.

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[1] Government debt refers to the amount of money that the government owes its lenders at a particular point in time. In broad terms, it measures how much successive governments have spent over the receipts they have collected. For further detail on what is captured by each debt measure see the PBO Online Budget Glossary.

[2] For this explainer, we consider progressivity in relation to the personal tax system only, not in relation to the 'overall' system, which includes other taxes and transfer payments.

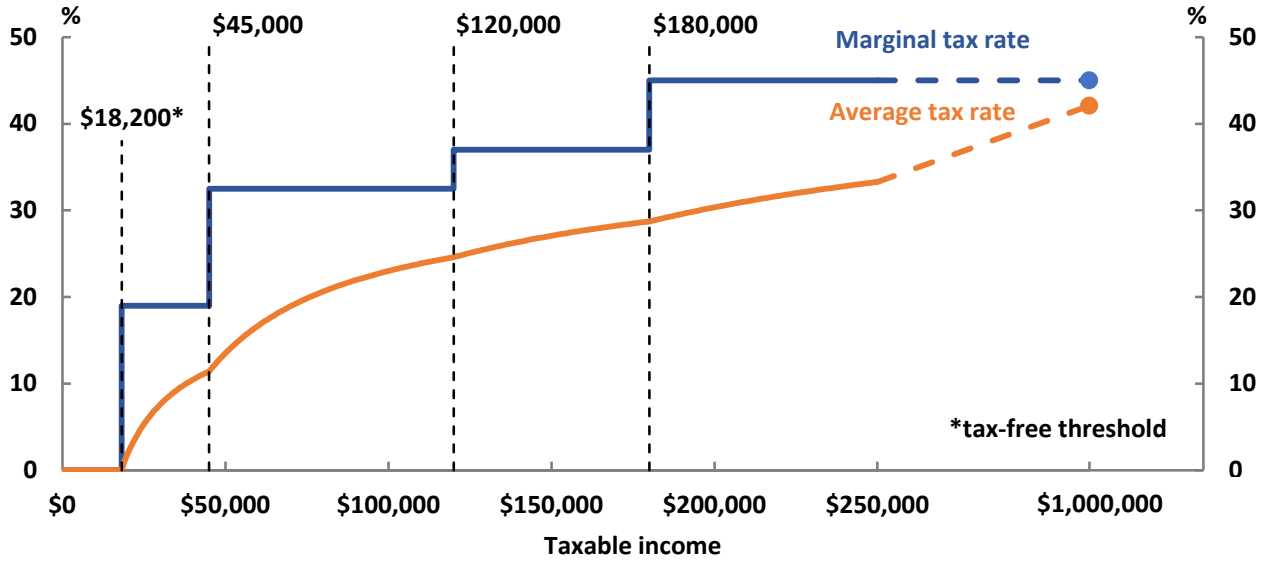
[3] For simplicity, the examples in this section exclude the impact of levies and offsets on an individual's tax liability, such as the Medicare levy, the low income tax offset (LITO), and the low and middle income tax offset (LMITO). For more information on the impact of levies and offsets, see the analysis in Box 2.

The 'bracket structure' of Australia's personal tax system means that two individuals on very different incomes can face the same marginal tax rate yet face very different average tax rates. Box 1 shows such an example.

Figure 1 shows that the marginal tax rate is higher than the average tax rate in 2021-22 at all income levels where tax is greater than zero. Marginal and average tax rates would only be the same in a system that applied a flat rate of tax to all income.[4]

Figure 1: Marginal tax rates exceed average rates in Australia's tax system

Tax rates, 2021-22



Note: Excludes levies and offsets for illustrative purposes.
Source: PBO analysis.

For taxable incomes well beyond the highest tax threshold of $180,000, the average tax rate gradually converges to the highest marginal tax rate of 45 per cent. An individual with $1 million in taxable income, for instance, will pay an average tax rate of 42 per cent, reflecting that more than 80 per cent of their income is taxed at the highest rate of 45 per cent.

Income growth only results in an individual paying a higher *marginal* tax rate if their income is pushed into the next tax bracket. But, as Figure 1 shows, any increase in an individual's taxable income will result in an increase in the *average* tax rate, with the exception being those still earning below the tax-free threshold. This means that everybody who pays tax will be affected by bracket creep if their income increases, regardless of whether they are pushed into the next tax bracket.[5]

[4] While a flat tax rate system would still mean that higher-income earners pay more tax than lower-income earners, it would not be progressive in the sense that the average tax rate would be the same for all taxpayers. It is possible however, for a flat tax rate system to be part of a wider system that is progressive overall – for instance, when transfers are factored in.

[5] In fact, even an individual whose income stays the same across years is affected by bracket creep due to inflation. This is because they pay the same average tax rate in both years, but their *real* purchasing power – the amount of goods and services they can consume – is typically reduced because the prices of goods and services increase over time. A policy to increase each tax threshold with inflation would ensure bracket creep does not lead to a reduction in purchasing power for a given income. It would not, however, eliminate bracket creep for income increases due to productivity gains.

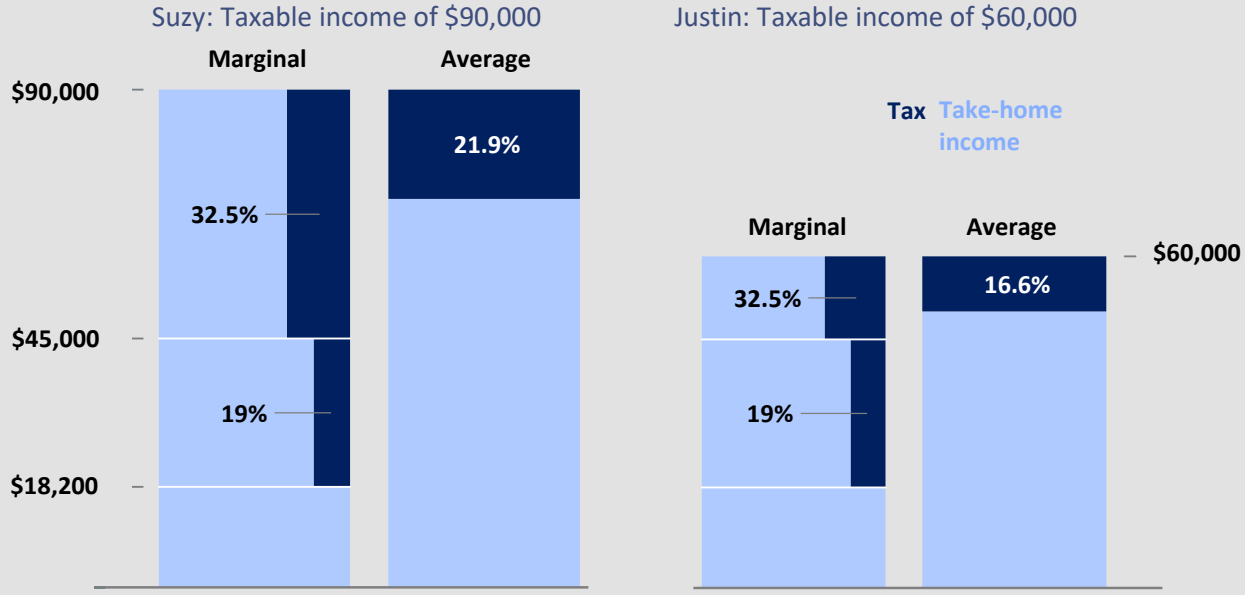
Box 1: Individuals can face the same marginal tax rate but pay very different average tax rates

Figure 2 provides an illustrative example showing that two income earners, Suzy and Justin, face the same marginal tax rate but different average tax rates. Suzy earns $90,000 and Justin earns $60,000, so both face a *marginal* tax rate of 32.5 per cent. Half of Suzy's income is taxed at the higher rate of 32.5 per cent, while only a quarter of Justin's income is taxed at this rate.

While Suzy earns 50 per cent more than Justin, she pays around twice as much tax (around $20,000 compared to around $10,000 for Justin), resulting in a higher *average* tax rate. Suzy's average tax rate is 21.9 per cent, compared to 16.6 per cent for Justin.

If their incomes grow at the same rate, bracket creep will have a larger impact on Justin. This is because there is a larger difference between the marginal tax rate of 32.5 per cent that will apply to the increase in income and Justin's current average tax rate, relative to Suzy's.

Figure 2: Two individuals facing the same marginal rate can pay a very different average tax rate



Note: Calculations exclude levies and offsets. When levies and offsets are included, Justin's average tax rate remains at 16.6 per cent, while Suzy's average tax rate increases to 22.7 per cent.
Source: PBO analysis.

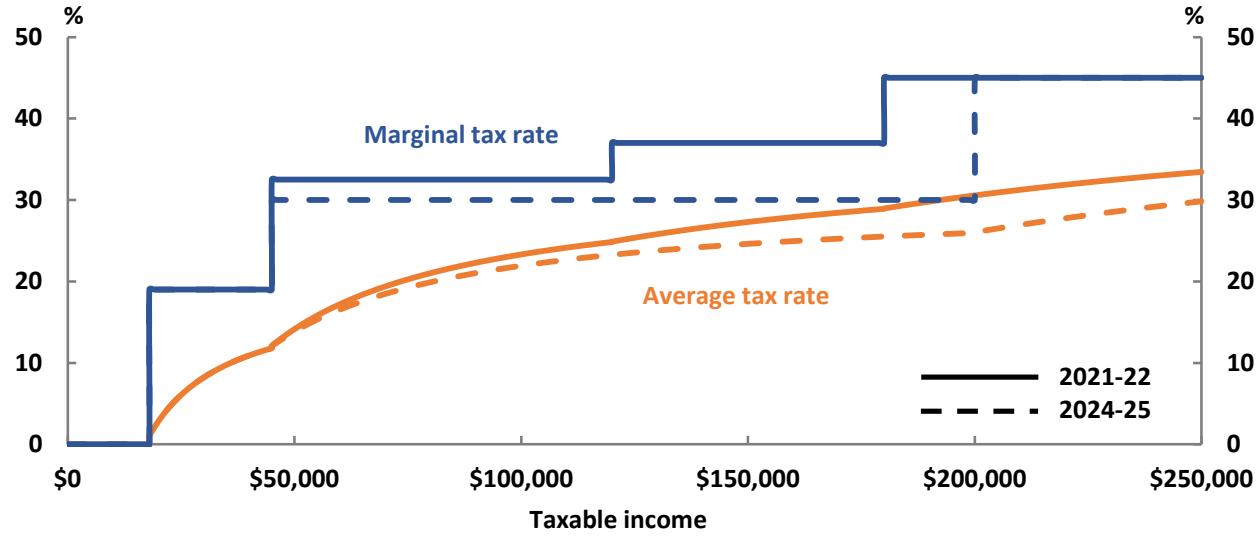
Tax rates and thresholds do not change unless governments introduce new policies

The tax rates and thresholds in Australia's personal income tax system do not automatically adjust over time as incomes grow. Bracket creep occurs by default, provided incomes rise, and so governments regularly introduce policies to cut taxes in order to maintain broadly stable average tax rates over time.[6]

Governments usually cut taxes by reducing tax rates or increasing tax thresholds, but they may also choose to adjust levies and offsets (see Box 2). Successive governments have regularly modified aspects of the system, although tax cuts have not occurred every year.[7]

The Government's current policy to cut taxes, Stage 3 of the *Personal Income Tax Plan*, was announced in the 2018-19 and 2019-20 budgets and is due to come into effect in 2024-25. Figure 3 and Table A1 in the appendix show how both the marginal and average tax rates will change under the Stage 3 tax cuts.[8]

Figure 3: Marginal and average tax rates will reduce in 2024-25 for some taxpayers



Note: Excludes levies and offsets for illustrative purposes.
Source: PBO analysis.

The Government's fiscal strategy includes a commitment to keep total tax receipts below 23.9 per cent of GDP.[9] This figure is sometimes known as the tax-to-GDP 'cap'. The fiscal strategy does not specify the policies which would be implemented to maintain taxes below the 'cap', but such policies would likely include changes to individuals' income tax rates or thresholds. The 2021-22 Budget projects total tax receipts to increase to only 23.1 per cent of GDP by 2031-32, the end of the medium-term projection period.[10]

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[6] If a tax cut was to return bracket creep in aggregate, it would not necessarily return bracket creep across every taxpayer. The distributional effects of a tax cut can be very different to the distributional effects of bracket creep.

[7] Previous PBO analysis has found that the net effect of bracket creep and changes to personal income tax policy between 2000-01 and 2017-18 increased the level of progressivity in the tax system in terms of the tax paid by each quintile – specifically, the highest three income quintiles paid higher average tax rates, while the lowest two quintiles paid lower average rates in 2017-18 than in 2000-01. See Parliamentary Budget Office (2017), *Changes in average personal income tax rates: distributional impacts*, Report no. 03/2017.

[8] For the distributional effects of the personal income tax changes introduced in the 2018-19 and 2019-20 budgets, see Box 5 of the PBO's *Beyond the budget 2021-22: fiscal outlook and scenarios* report.

[9] 2021-22 Budget Paper No. 1, p. 74.

[10] 2021-22 Budget Paper No. 1, p. 97.

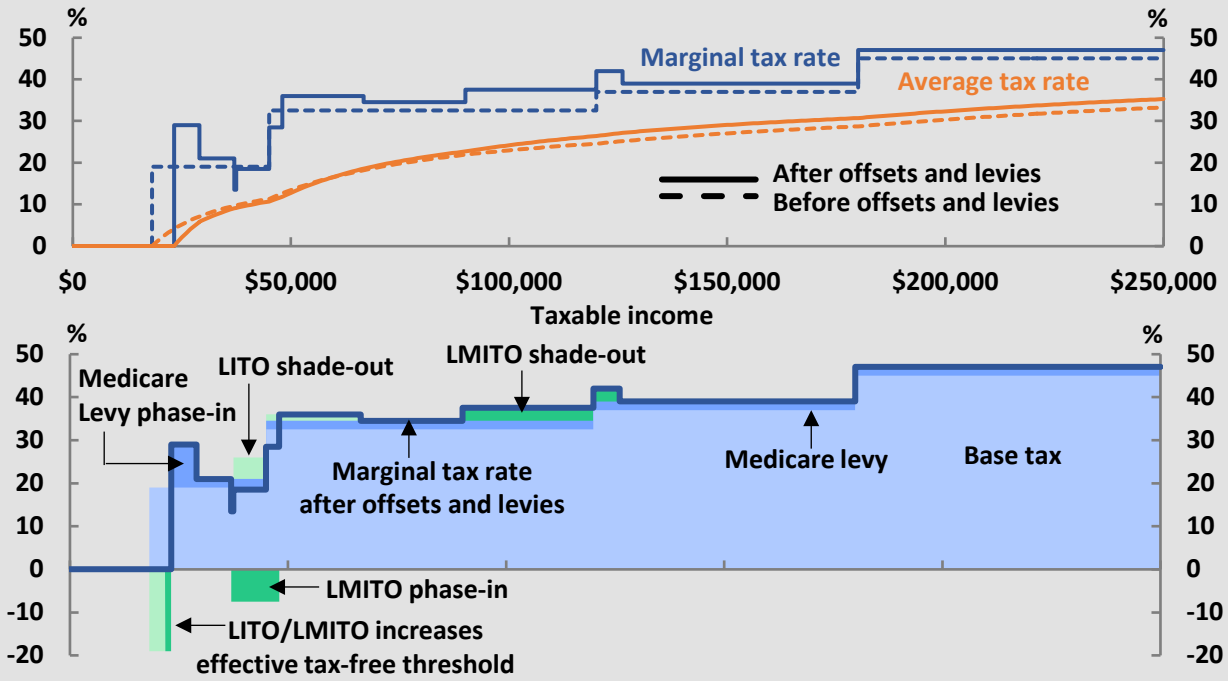
Box 2: How do levies and offsets affect the tax individuals pay?

For simplicity, most of the analysis of individuals in this explainer ignores the impact of levies and offsets.

Levies operate as an additional amount paid on top of tax. The Medicare levy, for example, is equal to 2 per cent of taxable income and it increases both the marginal and average tax rate of most taxpayers. Tax offsets, such as the low income tax offset (LITO) and the temporary low and middle income tax offset (LMITO), reduce average tax rates for lower- to middle-income earners without providing a tax cut to high-income earners. Tax offsets can, however, cause marginal tax rates to be higher or lower over particular income ranges – marginal tax rates decrease when an offset is in the 'phase-in' range (where an offset is increasing with income) and increase in the 'shade-out' range (where an offset reduces to zero).

For example, individuals earning between $48,000 and $66,667 face a marginal tax rate of 36 per cent, even though the base tax rate is 32.5 per cent. This is due to the Medicare levy of 2 per cent and the LITO shade-out rate of 1.5 per cent (the offset reduces by 1.5 cents per dollar earned). The complexity that offsets and levies add to marginal tax rates is illustrated in Figure 4.

Figure 4: Levies and offsets add complexity to the tax system, 2021-22



Note: This chart includes the Medicare levy, the low income tax offset, and the low and middle income tax offset for a single individual of working age. It does not include other levies and offsets that apply to some taxpayers based on their personal circumstances, such as the Medicare levy surcharge and the seniors and pensioners tax offset.
Source: PBO analysis.

While the distribution of *average tax rates* is important for assessing the progressivity of the tax system, *marginal tax rates* affect the incentives for individuals to increase their working hours or to use tax minimisation strategies to reduce their taxable income. Some lower- to middle-income earners face higher marginal tax rates due to the combination of the Medicare levy, the LITO and the LMITO.

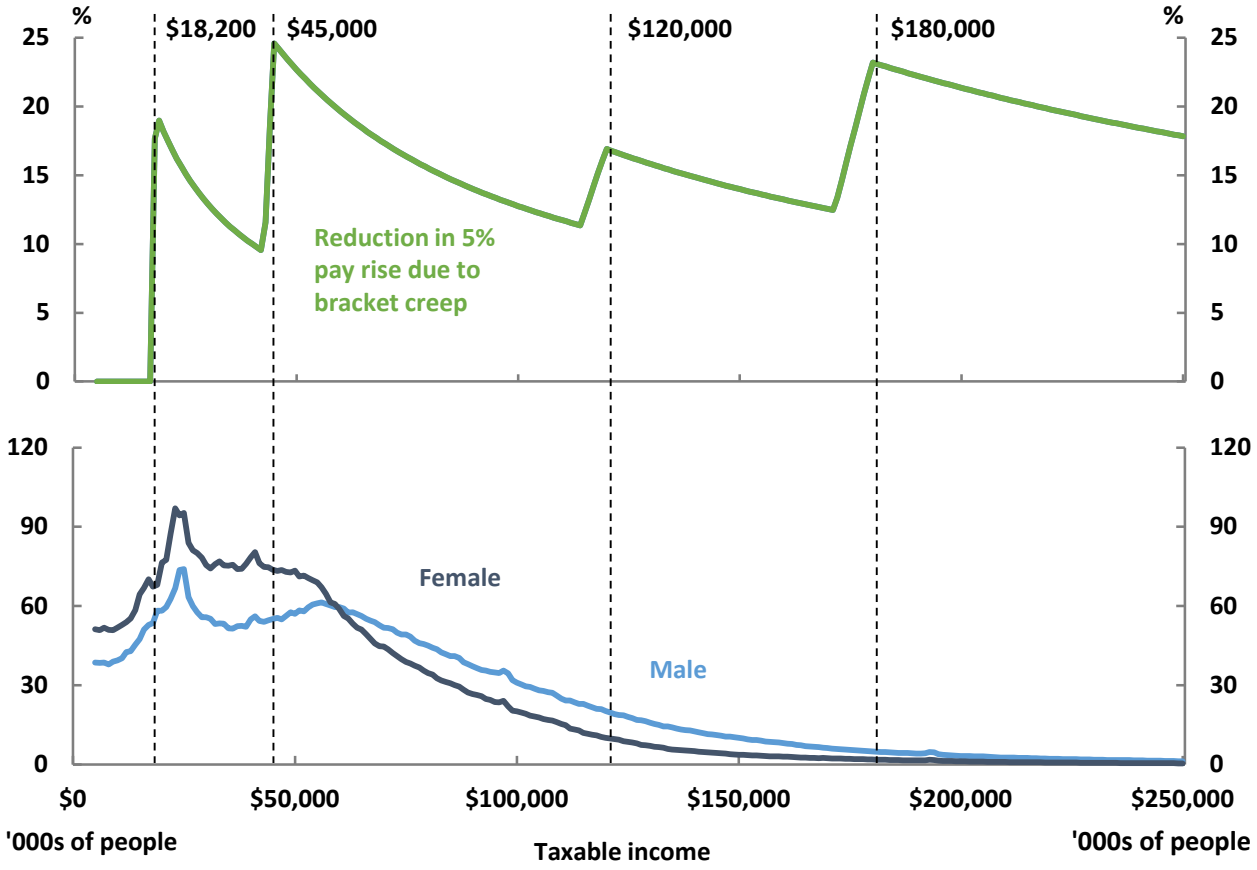
How does bracket creep affect people with different incomes?

Bracket creep does not affect all taxpayers equally, even if their income is growing at the same rate. The effect is largest for individuals earning just above a tax threshold. For example, in Australia bracket creep has the strongest effect for those earning just above the $45,000 tax threshold. Compared to men, women are more likely to earn an income in this range. This in part reflects higher rates of part-time work and, on average, causes women to experience bracket creep to a greater extent.

Bracket creep tends to have the largest impact on individuals with earnings just above a tax threshold

When individuals' incomes increase into the next tax threshold, their marginal tax rate can increase significantly – for instance, from 19 per cent to 32.5 per cent. The higher marginal tax rate causes the average tax rate to increase at a steeper rate. Average tax rates plateau as income increases within a tax bracket, before rising more steeply after the next tax threshold is hit.

Figure 5: Women are more likely to earn an income where bracket creep is highest



Note: Calculations exclude levies and offsets, and the distribution of males and females excludes those with trust income (see Appendix). Individuals earning below $4,000 in 2021-22 have also been excluded. Bracket creep is calculated as the proportion of the 5 per cent increase in taxable income that is paid in additional tax relative to after-tax income.
Source: PBO analysis of a de-identified sample of personal income tax returns from 2017-18 provided by the Australian Taxation Office (ATO).

Consider a scenario where every individual receives a 5 per cent pay rise. Figure 5 illustrates how bracket creep will affect this pay increase in terms of the change in take-home (after tax) income and compares this to the income distribution of males and females. Apart from those earning below the tax-free threshold and those on very high incomes, bracket creep reduces the value of a pay increase on disposable income by

between 10 and 25 per cent.[11] The largest effect is for those earning at the $45,000 threshold (25 per cent), followed by those earning at the $180,000 threshold (23 per cent).[12]

Figure 5 shows there are more women than men earning an income close to the first two tax thresholds where bracket creep is higher, and more men than women earning between $70,000 and $150,000 where bracket creep is lower. However, there are also more women than men earning below the tax-free threshold where bracket creep has no effect. On average, the difference is not large. Bracket creep would reduce the value of a pay increase on take-home pay by an average of 16.4 per cent for women compared to 15.6 per cent for men.[13] For further analysis on the effects of bracket creep by income and gender, along with the impact of the Government's tax cuts, see Box 5 of the PBO's *Beyond the budget 2021-22: fiscal outlook and scenarios* report.

Many people earn an income at the point where average tax rates are rising steepest

Figure 1 shows that, above the tax-free threshold, there is a 'steep' increase in the average tax rate as incomes rise, but this starts to 'flatten' for higher incomes. Most taxpayers earn an income in the 'steep' range, which is a feature of many progressive tax systems. If most taxpayers earn an income in the range where the average tax rate is relatively 'flat', the system would be less progressive.[14]

In Australia in 2021-22, the middle 50 per cent of taxpayers are expected to earn between $24,000 and $81,000.[15] This is a range where the average tax rate is rising at a relatively steep rate. The average tax rate for the middle 50 per cent of taxpayers increases from only 4.6 per cent at the low end to 20.7 per cent at the high end.[16]

The interaction between the tax system and the distribution of taxpayers looks very different today compared to that of the past. For example, Figure 6 compares the taxable income distributions, tax rates, and thresholds between 1959-60 and 2021-22.[17] While there were many more tax brackets in 1959-60, and the top marginal tax rate was much higher at 66.66 per cent, average tax rates increased at a flatter rate across the middle of the distribution.[18] Across the middle 50 per cent of the distribution, the average tax rate increased from 6.6 per cent at the low end to approximately 13.0 per cent at the high end.

Australia's personal tax system is more progressive in 2021-22 in terms of how average tax rates increase across the middle of the distribution. This shows that a progressive tax system can be achieved with a small number of tax brackets – the progressivity depends on how the average tax rate interacts with the distribution of income across taxpayers, not the number of tax brackets.

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[11] For smaller or larger income increases, the results are similar, though the maximum impact of bracket creep is slightly larger for smaller income increases. The impact of bracket creep reduces for very high incomes as the average tax rate approaches the highest marginal tax rate.

[12] The $120,000 threshold has less of an impact, as the increase in the marginal tax rate is relatively small, 32.5 per cent to 37 per cent.

[13] This is based on PBO analysis of a 5 per cent pay increase across all men and women.

[14] Progressive in the sense that higher income earners pay a larger proportion of their taxable income in tax (ie higher incomes face a higher average tax rate).

[15] In this section 'taxpayers' refers to all income earners that file a tax return, even if they earn below the tax-free threshold.

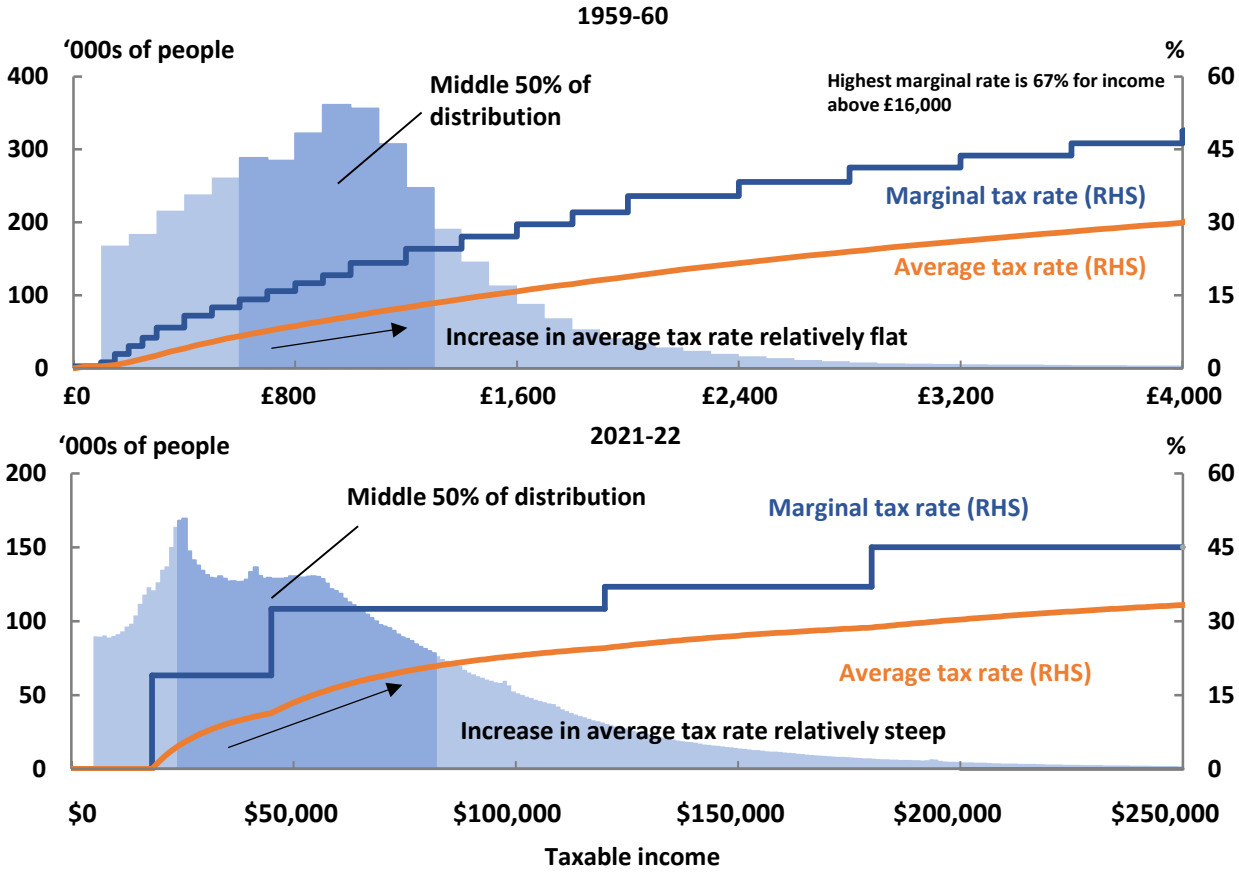
[16] If levies and offsets are included, there is an even larger difference in the tax rates across the middle 50 per cent of taxpayers.

[17] The distribution of yearly taxable income is not equivalent to a distribution of average rates of income, owing to individuals that earn an income for only part of the year. For example, a distribution of taxable income will include an individual who started work on 1 June at a yearly salary of $60,000 but earning wages for only one month of that year. In this case the individual's wage income on their tax return will be $5,000 and the individual will appear below the 10th percentile rather than around the 60th percentile.

[18] This top marginal rate applied to less than 0.04 per cent of taxpayers in 1959-60. In contrast, the top marginal rate of 45 per cent in 2021-22 applies to more than 3 per cent of taxpayers.

The tax system in 2021-22 is also more progressive than in 1959-60 in terms of the proportion of personal tax paid at the top of the distribution, even with the higher top marginal tax rate in 1959-60. For instance, around 49.4 per cent of personal tax receipts are estimated to be collected from the top 10 per cent of taxpayers in 2021-22 compared to only 47.5 per cent in 1959-60.[19] On the other hand, because there is more progressivity in today's system, bracket creep will have more of an effect across the distribution of taxpayers today than in 1959-60, even with fewer tax brackets.

Figure 6: In 1959-60, average tax rates were lower and flatter across the middle of the distribution than they are today

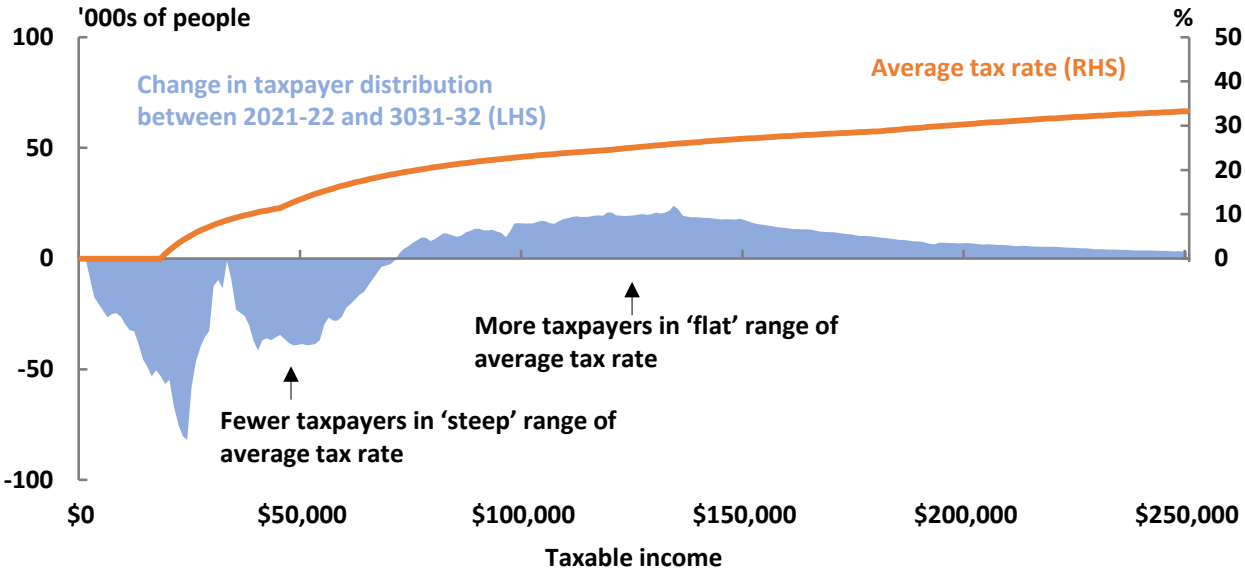


Note: 2021-22 tax rates exclude levies and offsets and the 2021-22 distribution excludes those with trust income (see Appendix). Taxpayers earning below $4,000 in 2021-22 have also been excluded.
Source: PBO analysis of a de-identified sample of personal income tax returns from 2017-18 provided by the Australian Taxation Office (ATO) and *Taxation Statistics 1959-60*.

If tax rates and thresholds are left unchanged for a number of years, bracket creep will reduce the progressivity of the system. Figure 7 shows that if the 2021-22 tax settings were to remain the same over the next decade (that is, if there were no future tax changes, including the Stage 3 tax cuts in 2024-25), there would be fewer taxpayers earning in the range where the increase in average tax rates with income is relatively steep, and more taxpayers earning in the range where it is flatter. Left unchanged for a *very* long time, inflation would eventually drive most taxpayers into the top bracket.

[19] This calculation includes levies and offsets. The top 1 per cent are estimated to pay 18.3 per cent in 2021-22 compared to 17.9 per cent in 1959-60.

Figure 7: Left unchanged, the tax system would become less progressive over time



Note: 2021-22 tax rates exclude levies and offsets, and the change in the distribution excludes those with trust income (see Appendix). Growth in taxable income is consistent with the PBO's *Beyond the budget 2021-22: fiscal outlook and scenarios* report.
Source: PBO analysis of a de-identified sample of personal income tax returns from 2017-18 provided by the Australian Taxation Office (ATO).

How bracket creep affects the government's fiscal position

Previous sections discuss how bracket creep raises the average tax rate of individuals over time. Bracket creep also raises the *aggregate* average tax rate over time – total personal tax divided by total taxable income across *all* individuals.[20] Bracket creep can therefore improve a government's fiscal position without the need for an explicit policy change.

The 2021-22 Budget, for example, notes that:

> *The rapid recovery in the labour market has supported higher personal income tax receipts. Over the latter half of the forward estimates period, an improvement in the outlook for employment is expected to drive higher prices and wages growth, further supporting personal income tax receipts.*[21]

With personal income tax making up around half of government tax revenue, bracket creep plays a key role in revenue growth, such that there is an important trade-off between fiscal management and providing personal income tax cuts.

Personal income tax makes up around half of total tax receipts

Australia collects more from personal income tax than most other developed countries. The Organisation for Economic Co-operation and Development (OECD) estimated that in 2018 personal income taxes in Australia were more than 45 per cent higher than the average for OECD countries relative to the size of their economies.[22] Australia's overall tax from all levels, however (including Federal, State and Local

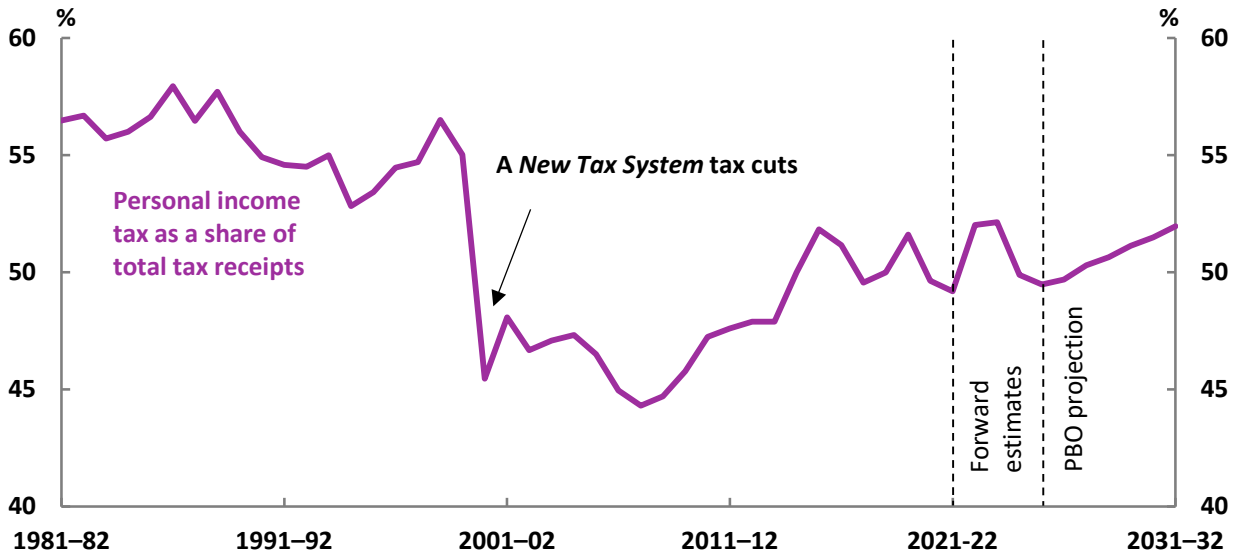
[20] In this section, average tax rate is used to refer to the aggregate average tax rate rather than the average tax rate faced by individuals discussed in previous sections. While bracket creep affects individuals differently depending on their taxable income, this section is only concerned with the aggregate impact of bracket creep.
[21] 2021-22 Budget, Statement 5, p. 125.
[22] See data.oecd.org/tax/tax-on-personal-income.htm.

governments), was 15 per cent lower than the OECD average.[23] This means that Australia is more reliant on personal income tax for raising tax revenue than most other advanced countries.[24]

Figure 8 shows that personal income tax currently makes up nearly half of total tax receipts for the Commonwealth Government. This was historically around 55 per cent but fell to around 45 per cent with the personal tax cut that accompanied the introduction of the Goods and Services Tax (GST) in 2000.

After falling even lower around the time of the Global Financial Crisis, personal income tax receipts have slowly been rising due to bracket creep, with some of this offset with tax cuts over the same period. After the Stage 3 tax cuts in 2024-25, personal tax receipts are estimated to be around 49.9 per cent of total Commonwealth Government tax receipts and are projected to rise to 52.0 per cent by 2031-32. As personal income tax makes up a high proportion of total tax receipts, bracket creep will be a major driver of increases in total tax receipts.

Figure 8: Personal tax will continue to rise as a proportion of total tax receipts over the next decade



Note: See the PBO's *Beyond the budget 2021-22: fiscal outlook and scenarios* report for more information on personal income tax over the medium term.
Source: 2021-22 Budget and PBO analysis.

Bracket creep has been the major driver of increases in the average personal income tax rate

The average tax rate on personal income has increased significantly over the last 60 years, from around 12.5 per cent in 1959-60 to 23.5 per cent in 2021-22, though it has been relatively stable at between 22 and 25 per cent for most of the past forty years.[25] Nearly every personal tax policy change over this period has been to cut taxes – there have been only a few tax increases, and these have typically been quite small. Increases in the average tax rate over history have been almost entirely due to bracket creep.

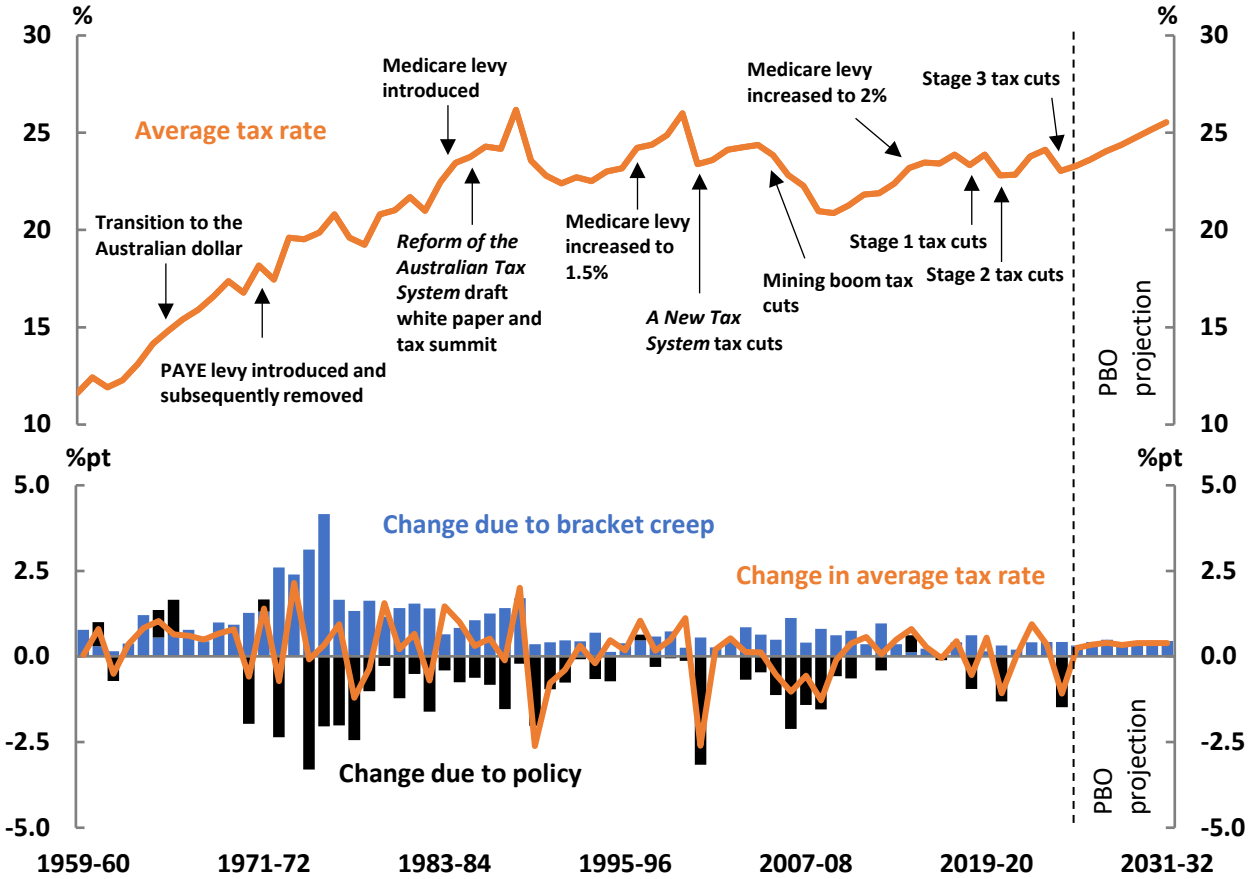
[23] See data.oecd.org/tax/tax-revenue.htm.
[24] It is important to note that there are limitations with cross-country tax comparisons – for instance, the OECD definition of personal income taxes excludes the superannuation guarantee and social security contributions, even though these operate in a similar way to personal income tax.
[25] Not all personal income tax is collected in the same financial year that is it levied – some tax is collected at the same time wages are earned through the *pay as you go* system, and some tax is collected (or returned) when an individual submits their tax return. For the purposes of these calculations, the average tax rate is based on the total tax levied in the same financial year, not the total tax collected in the same financial year.

Figure 9 shows how the average tax rate has changed from 1959-60, and how yearly changes can be explained by bracket creep and personal tax policy changes. The average tax rate increased significantly in the 1960s due to bracket creep and a few small tax increases. Over the following 20 years, the average tax rate continued to increase, but at a steadier rate – the impact of bracket creep was high, driven primarily by inflation leading to high wage increases in dollar terms, but much of this impact was offset by tax cuts.

While there hasn't been a sustained increase in the average tax rate since this period, there have been periods where bracket creep has helped tax receipts recover, often after an economic downturn. For instance, both the average tax rate and total tax receipts as a percentage of GDP were relatively low after the early 1990s recession and the Global Financial Crisis, but governments allowed this to recover through bracket creep over a number of years. Even with relatively slow income growth, personal income tax receipts increased by a full 1.5 percentage points of GDP between 2008-09 and 2017-18.

Stage 1 and Stage 2 of the *Personal Income Tax Plan* introduced in the 2018-19 and 2019-20 budgets are associated with a reduction in the average tax rate between 2017-18 and 2020-21, but the average tax rate is expected to increase to 2017-18 levels by 2023-24. Average tax rates will decline again in 2024-25 with the Stage 3 tax cuts but are projected to rise to 25.5 per cent by 2031-32 if there are no further personal tax policy changes. This would be a level not seen since before the introduction of the GST in 2000.

Figure 9: Periods of growth in the average tax rate have largely been driven by bracket creep



Note: For consistency across time, *net tax* before 2000-01 is calculated before allowance for franking credits. Data for non-taxable individuals is unavailable prior to 1979. The net tax rate prior to 1979 assumes that taxable income for non-taxable individuals has the impact of reducing the average tax rate by around 0.7 percentage points, the median amount from 1979 to 1988. The lower chart shows the year-on-year changes in the average tax rate due to bracket creep and/or policy changes (mainly to rates and thresholds). The change in the average tax rate each year is not completely explained by bracket creep and policy. Changes to the distribution of income and small or temporary tax policies (such as certain tax offsets) are not captured by 'changes due to bracket creep' and 'changes due to policy' – see the Appendix for more detail.
Source: ATO *Taxation Statistics* and PBO analysis.

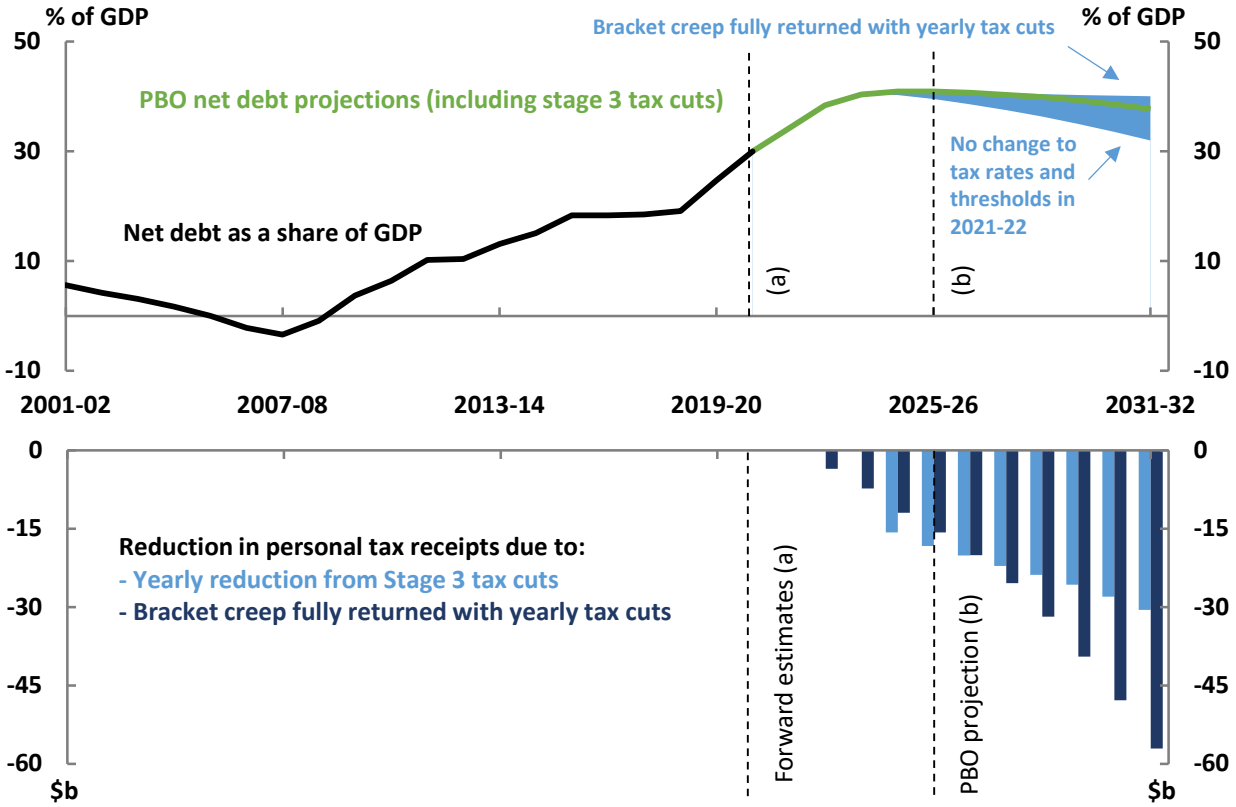
Bracket creep is projected to play a significant role in reducing government debt over the next decade

The COVID-19 pandemic has resulted in a significant increase to Australia's net debt relative to GDP. Net debt is expected to peak at 40.9 per cent of GDP in 2024-25 with the introduction of the Stage 3 tax cuts, before declining by around 3 percentage points over the period to 2031-32. But if governments were to instead introduce yearly tax cuts so that the average tax rate remained at 2021-22 levels – essentially returning all bracket creep to taxpayers – the decline in net debt from 2024-25 would be negligible. Governments face a trade-off between returning bracket creep and allowing bracket creep to reduce debt faster.

In the absence of the Stage 3 tax cuts, bracket creep over the next decade would be projected to reduce net debt in 2031-32 by $276 billion, or 8.1 per cent of GDP. This is the difference in net debt between one scenario where tax rates and thresholds remain at 2021-22 levels and a second scenario in which yearly tax cuts are introduced to keep the average tax rate at 2021-22 levels.[26] Figure 10 shows that the Stage 3 tax cuts are projected to add around $197 billion, or 5.8 per cent of GDP to net debt in 2031-32.

The impact of the Stage 3 tax cuts will be more than offset by bracket creep by 2031-32. In that year, the tax cuts are estimated to cost just over $30 billion, while bracket creep is projected to have added $57 billion in additional revenue.

Figure 10: Bracket creep is a significant driver of reducing government debt



Note: Yearly returns for bracket creep are calculated against a baseline where tax thresholds are grown by wages growth. Interest payments on government debt are calculated using the Public Debt Interest calculator available on the PBO website.

Source: 2021-22 Budget Paper No. 1 Statement 11: Historical Australian Government Data, ATO de-identified tax data, PBO costing: *Distributional analysis of the Stage 3 tax cuts*, PBO analysis.

[26] This calculation excludes the LMITO, which is a temporary stimulus measure to be removed after the 2021-22 fiscal year.

Appendix

How personal tax settings have changed in recent years

The Government's *Personal Income Tax Plan* announced at the 2018-19 Budget included three stages of tax cuts. Further amendments were made at the 2019-20, 2020-21 and 2021-22 budgets. Table A1 summarises the personal tax system in 2017-18 (before the *Personal Income Tax Plan*), 2021-22 (after implementation of the first two stages of the plan, including the extension of the low and middle income tax offset) and 2024-25 (after implementation of all three stages of the plan). This table includes tax rates and thresholds, as well as standard levies and offsets (the Medicare levy, the low income tax offset and the low and middle income tax offset). However, it does not include levies and offsets that apply under certain circumstances, such as the Medicare levy surcharge, nor does it include details on Medicare levy exemptions that may apply to certain individuals or households.[27]

Table A1: Table of tax settings for Australian residents, including standard levies and offsets

Tax component	2017-18	2021-22	2024-25
Threshold 1 (tax-free threshold) ($)	18,200	18,200	18,200
Threshold 2 ($)	37,000	45,000	45,000
Threshold 3 ($)	87,000	120,000	200,000
Threshold 4 ($)	180,000	180,000	-
Marginal tax rate 1 (%)	19.0	19.0	19.0
Marginal tax rate 2 (%)	32.5	32.5	30.0
Marginal tax rate 3 (%)	37.0	37.0	45.0
Marginal tax rate 4 (%)	45.0	45.0	-
Medicare levy rate (%)	2.0	2.0	2.0
Low income tax offset maximum amount ($)	445	700	700
Low income tax offset phase-out point ($)	66,667	66,667	66,667
Low and middle income tax offset minimum amount ($)	-	255	-
Low and middle income tax offset maximum amount ($)	-	1,080	-
Low and middle income tax offset phase-out point ($)	-	126,000	-

[27] More information about personal income tax can be found at https://www.ato.gov.au/Individuals/.

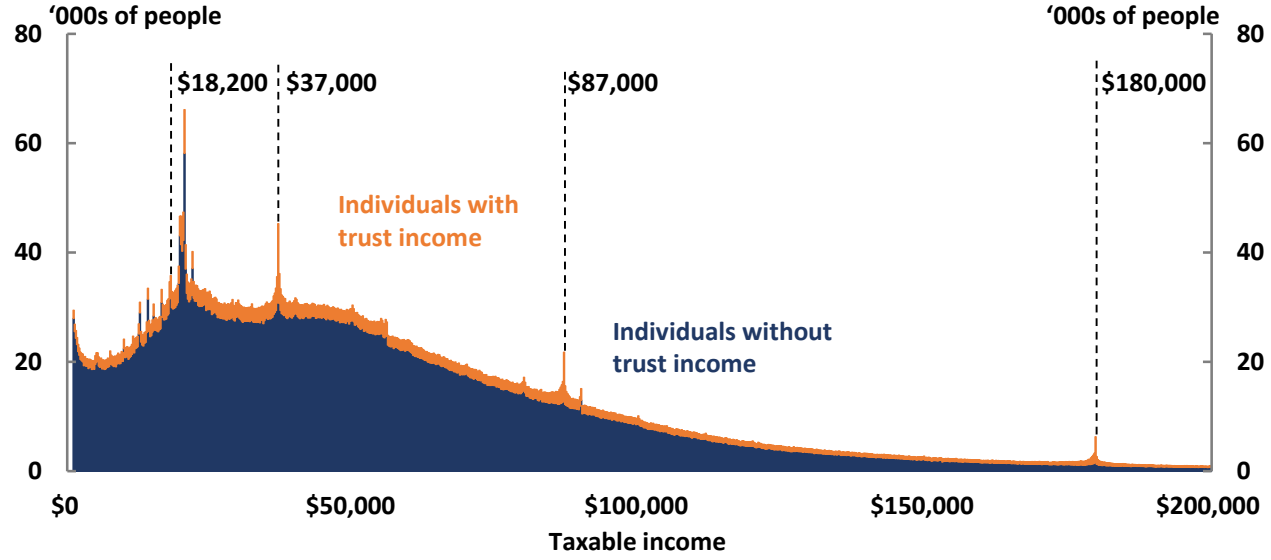
Individuals earning trust income

Figures 5, 6 and 7 display information relating to the distribution of taxable income but excludes those earning income from a trust – around 10 per cent of taxpayers. The reasons for this are explained below.

In the distribution of taxable income shown for 2017-18 in Figure A1, there are 'spikes' in the distribution that appear just below each tax threshold (or just above in the case of the tax-free threshold). This is sometimes referred to as 'bunching'. But the spikes largely disappear when individuals with trust income are removed, except for a spike around the tax-free threshold.[28]

Discretionary trusts with several beneficiaries allow the trustee discretion over the allocation of trust income and capital gains to the beneficiaries. There is an incentive for the trustee to minimise the overall tax paid on trust income by allocating income first to beneficiaries paying lower marginal tax rates – when a beneficiary's income reaches the next tax threshold, any additional trust income allocated to this beneficiary will be taxed at a higher rate.[29] Thus, many trust income allocations see people end up with a taxable income just below a tax threshold, consistent with minimising the overall tax paid on trust income.

Figure A1: Distribution of taxpayers with and without trust income, 2017-18



Source: PBO analysis of a de-identified sample of personal income tax returns for the 2017-18 financial year provided by the Australian Taxation Office (ATO).

Income that falls in these discrete bunches just below a threshold is unlikely to grow in the same way as other income. This makes it difficult to provide an accurate projection of future income distributions, including for 2021-22, which is based on data in 2017-18. As such, the income distributions displayed in Figures 5, 6 and 7 have excluded individuals earning income from a trust.

[28] Other spikes in the income distribution, including those below and around the tax-free threshold, may relate to a particular pension payment or common award wage levels.

[29] See Sainsbury and Breunig (2020), *The Australian Tax Planning Playbook: Volume 1*, TTPI – Working Paper 1/2020, p. 12.

Historical bracket creep and policy change analysis

The analysis presented in Figure 9 estimates how bracket creep and tax policy changes have affected the average tax rate over time. The change in the average tax rate each year is not completely explained by estimates of bracket creep and tax policy changes. There are two reasons for this.

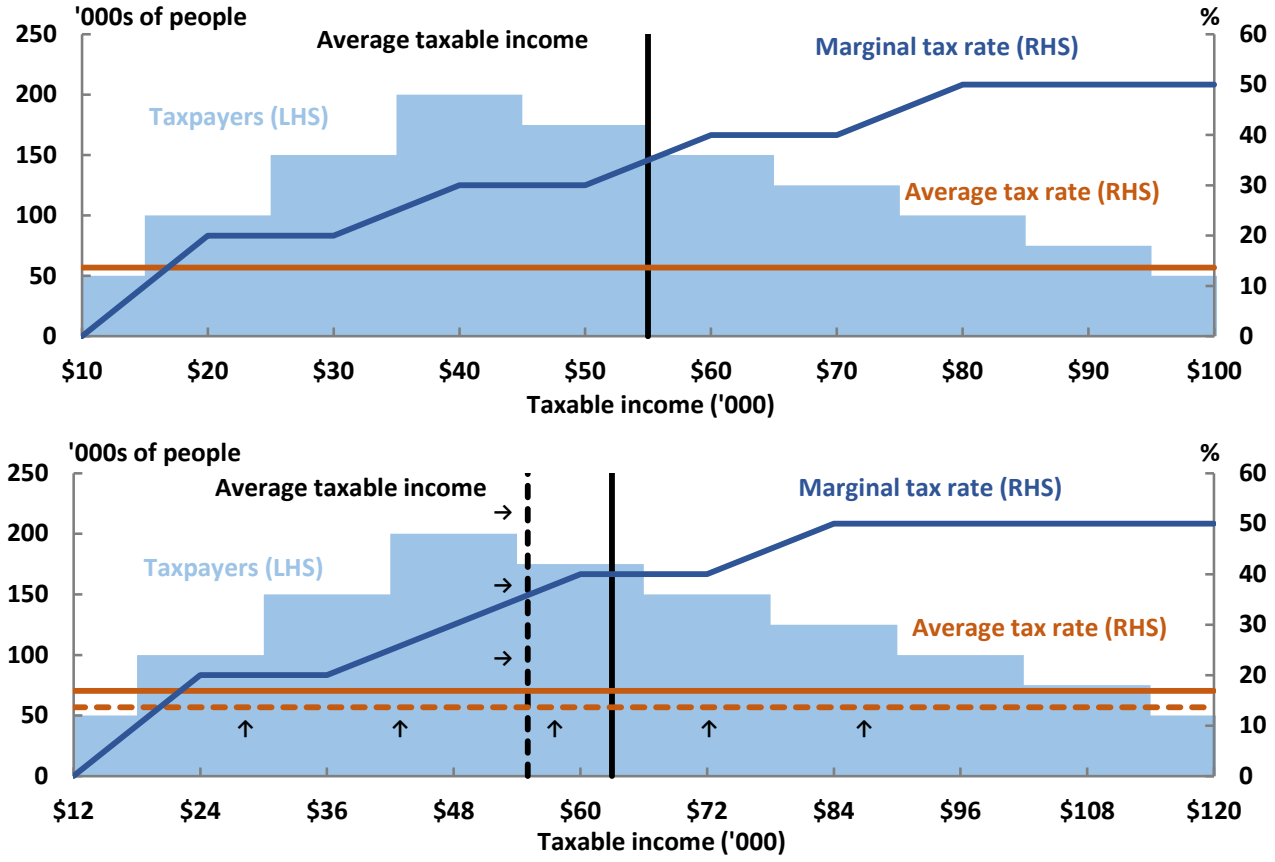
Firstly, the shape of the income distribution changes from year to year. This may reflect economic conditions at a point in time as well as broad changes that occur over time, such as a shift from full-time to part-time work and an increase in female labour force participation.

Secondly, not all tax policies have been included in the calculations of bracket creep and policy changes. The calculations focused on those policies that affected a significant proportion of the population, had a notable effect on revenue, and were permanent in nature. This includes tax rate and threshold changes, major levies, and offsets, but excludes small or temporary levies and offsets.

Historical estimates were produced by a PBO model informed by the ATO's *Taxation Statistics* publications for the period 1958-59 to 2018-19. Projected taxpayer distributions and average tax rates for 2019-20 to 2031-32 are consistent with the PBO's *Beyond the Budget 2021-22: fiscal outlook and scenarios* report.

Figure A2 illustrates how the impact of bracket creep on the average tax rate was estimated for each year. First, the average tax rate is calculated across the distribution of taxable income in a particular year. This distribution is then grown uniformly based on the income growth rate at the time (20 per cent in the example), and the average tax rate is calculated again under the same tax settings. Bracket creep is estimated as the change in the average tax rate.

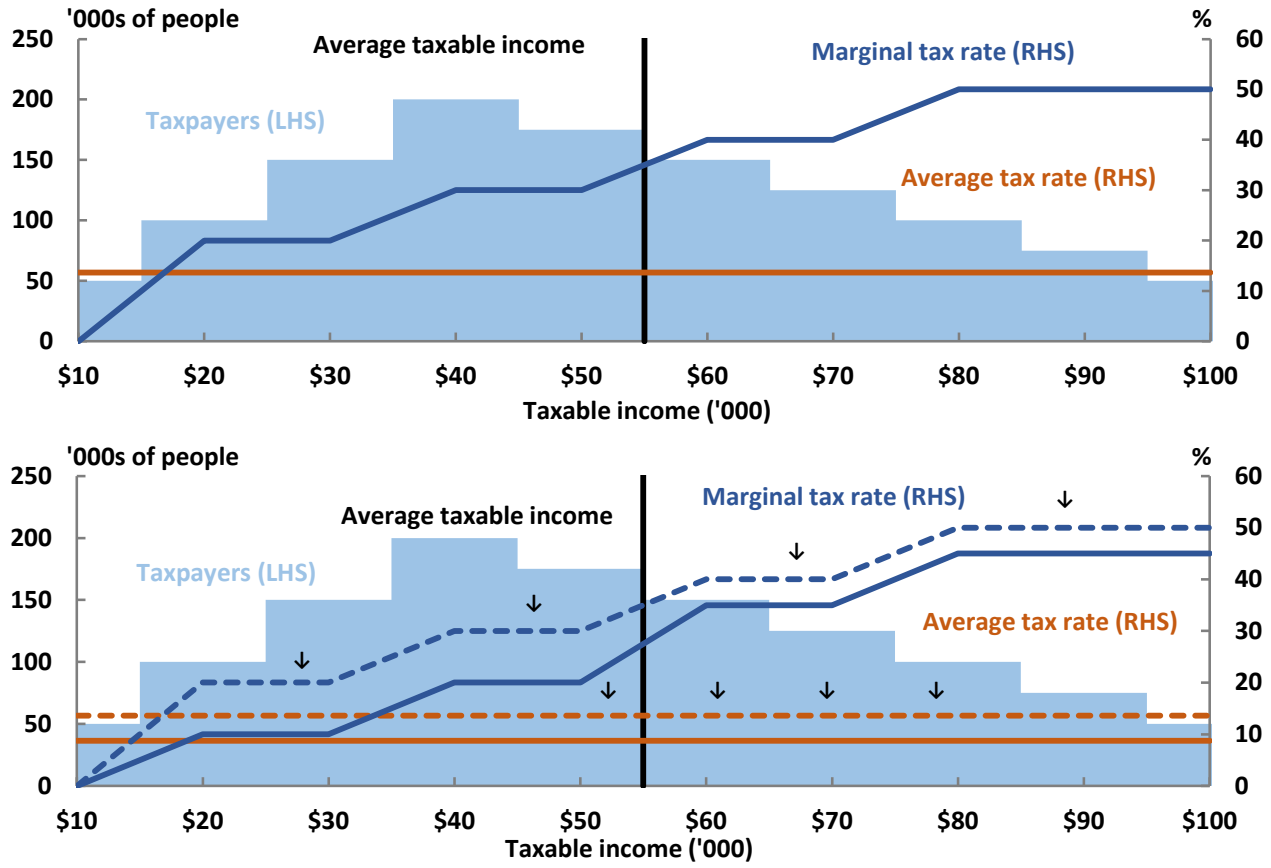
Figure A2: Bracket creep estimation methodology



Note: This chart is a visual example that depicts a 20 per cent increase in income across the distribution of taxpayers.
Source: PBO analysis.

Figure A3 illustrates how the impact of policy changes on the average tax rate was estimated for each year. Again, the average tax rate is first calculated across the distribution of taxable income in a particular year. The average tax rate is calculated again using the same distribution, but the following year's tax settings. The policy change impact is estimated as the change in the average tax rate.

Figure A3: Policy estimation methodology



Note: This chart is a visual example that depicts a cut to marginal tax rates.
Source: PBO analysis.