



Australian Government
Australian Taxation Office



2nd International TAX Forum
Adapting Tax Policies in a Dynamic World

Tax Gap – The 2nd ITF 2024

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Tax gap – definition

Various definitions of the tax gap all with similarities and some differences:

- The International Monetary Fund (IMF) defines the tax gap as the difference between the potential revenue from the underlying economic tax base and the actual revenue collected. This gap can be broken down into two main components: Compliance Gap and Policy Gap. (IMF 2017, 2021).
- The World Bank defines the tax gap as the difference between the revenue potential (legal) and the actual revenue collected. The revenue potential (legal) refers to the amount of revenue that a country can collect based on its legal framework, while the actual revenue collected is the amount that is actually collected by the tax authorities. (World Bank, 2014).
- The OECD defines the tax gap as the difference between the amount of tax that should, in theory, be collected and what is actually collected. (OECD 2017).
- The IRS defines the (gross) tax gap as the amount of true tax that is not paid on time and the net tax gap is the difference between the gross tax gap less enforced and other late payments. (IRS 2023)
- HMRC defines the tax gap as the difference between the amount of tax that should, in theory, be paid to HMRC (referred to as the "theoretical tax liability") and the amount that is actually paid (HMRC 2024)
- The Australian Taxation Office (ATO) defines the tax gap as the difference between the amount of tax it expects to collect and the amount that would have been collected if every taxpayer was fully compliant with the law (ATO, 2023)

Tax gap – definition – significance

What do the different definitions of tax gap mean and why does it matter?

- It matters due to the importance of being very specific about what is measured and the basis for measuring it.
- All definitions include the concept of revenue loss. The IMF explicitly refers to the policy gap which is the revenue foregone due to government deciding not to tax or to tax differently part of the tax base. This gap is largely discretionary on the part of government and can be considered to be similar in nature to tax expenditures.
- For the most part the definitions refer to the compliance gap. This is the revenue loss from the tax system due to non-compliance by the taxpayer. This can be unintentional or intentional. The term compliance gap is not used in the literature frequently and tax gap is typically used to describe the compliance gap.
- The IRS definition includes a concept of a gross and net gap which we will expand upon as we work through the calculations later in the presentation. This is important as it gives a view of the gap after the effects of the post lodgment compliance efforts of the tax administration.
- Definitions include a concept of revenue recognition which is based on cash. Derivation of the gap can however can sometimes start on an accruals basis depending on the treatment of debt which we will expand upon.

Tax gap – who is undertaking tax gap analysis

- According to ISORA 2018 published in November 2021, around 28% of all surveyed jurisdictions undertake PIT gap analysis, 26% undertake CIT gap analysis and 38% VAT gap analysis.
- ISORA 2018 surveyed 159 national or federal tax administrations
- Prevalence of tax gap analysis in higher income jurisdictions
- VAT most commonly undertaken due to data availability

Tax gap – key approaches

- Can be summarised broadly as top down, bottom up or hybrid
- Top down approaches use broad macroeconomic data sources. This is tends to be aggregated and available from National Statistical Agencies. It is important that the data collection process undertaken for these data sources is independent of the tax authority.
- Bottom up approaches – uses audit data as a sample from which estimates of the gap for the population are inferred. This audit data can be either randomly selected or based on existing risk based operational data.
- For random audits, each taxpayer within a tax gap population has an equal probability of being selected. This results in a sample that is representative of the broader tax gap population.
- For risk based audits, the sample is generated from a non-random selection process. For tax administrations this is typically focused on addressing higher risk, higher consequence taxpayers. If this approach is used, the non-random sample cannot be considered representative of the broader population. As such to make use of this data it is necessary to de-bias the data. Usual approaches to do this include Heckman Correction or Propensity Score Matching. These approaches rely upon modelling the risk based selection process and generating a bias reduction factor (inverse Mills ratio) or matching taxpayers who have similar probabilities of being selected for audit. Once debiased using these processes, inference can be made for the broader population.

Tax gap – estimating personal income tax gaps

- PIT is imposed on earned and unearned income of individuals. Income is subject to withholding in some instances, particularly wage income.
- The PIT gap can be estimated with a number of approaches outlined earlier. Random audits are commonly regarded as the preferred approach.
- Other approaches can be used including applying statistical techniques to risk based audit data however there are issues in terms of the consistency of the audit product used.
- Top down approaches are also feasible but more limited insights and less frequently used.
- For random audit based estimate, the IMF published an approach to estimation as follows:

$$\begin{aligned} \text{Total PIT gap} &= \text{Average audit adjustment} \times \text{Taxpayer population} \\ &= \text{Total audit adjustments} \times (\text{Taxpayer population} / \text{Sample population}) \end{aligned}$$

Where,

$$\text{Average audit adjustment} = \text{PIT liability} - \text{PIT paid}$$

From: International Monetary Fund. Fiscal Affairs Dept.. The Revenue Administration Gap Analysis Program: An Analytical Framework for Personal Income Tax Gap Estimation. Technical Notes and Manuals. 2021;2021(009):A001. doi:10.5089/9781513577173.005.A001

Tax gap – advantages of bottom up models using random audits

- Unbiased estimates of non-compliance
- Typically use comprehensive audits which can detect emerging risks
- The policy gap is accounted for. The benchmark for the audits is compliance with the tax system in operation.
- Random samples facilitate analysis of drivers of the gap, behaviours and stratification by variables of interest.
- As sample size increase, the confidence interval or error bounds around the estimate decline.
- Random samples can be used to benchmark risk models if the samples are large enough. The size of the required sample depends on the number of variables used in the risk models.
- Can be used for Detection Controlled Estimation techniques to estimates non-detection error

Tax gap – disadvantages of bottom up models using random audits

- Can be resource intensive – comprehensive audits can be costly and a different approach for auditors
- Audit yield foregone compared to risk based audit programs
- Greater proportion of compliant taxpayers subject to audit than under risk based audits
- Risk managers want to target high risk – institutional tensions

Tax gap – bottom up PIT models using risk based audits

- Population can be stratified by variable of interest correlated with risk. Sample from strata is audited and weights applied to get back to quasi random. This approach is used in some countries e.g Denmark. It provides some advantages of randomness but obtaining some benefits of higher audit yield and interesting work for auditors
- Heckman 2 stage correction – a model that corrects for selection bias. First stage models the case selection process i.e. probability of selection. Second stage models case outcome conditional upon selection.
- Propensity score matching – similar to above – non-parametric approach. Treated and non-treated taxpayers are matched based on probability of selection.
- Extreme value theory – most non compliance detected from risk based audits. Gap calculated as area under the curve based on assumptions about its distribution – Pareto or power curve.
- Indirect approaches – Pissarides-Weber, MIMIC

Tax gap – advantages of risk based bottom up gaps

- Data is usually already available whereas new random audit programs take some time to provide data for modelling
- Makes use of existing data – less expensive

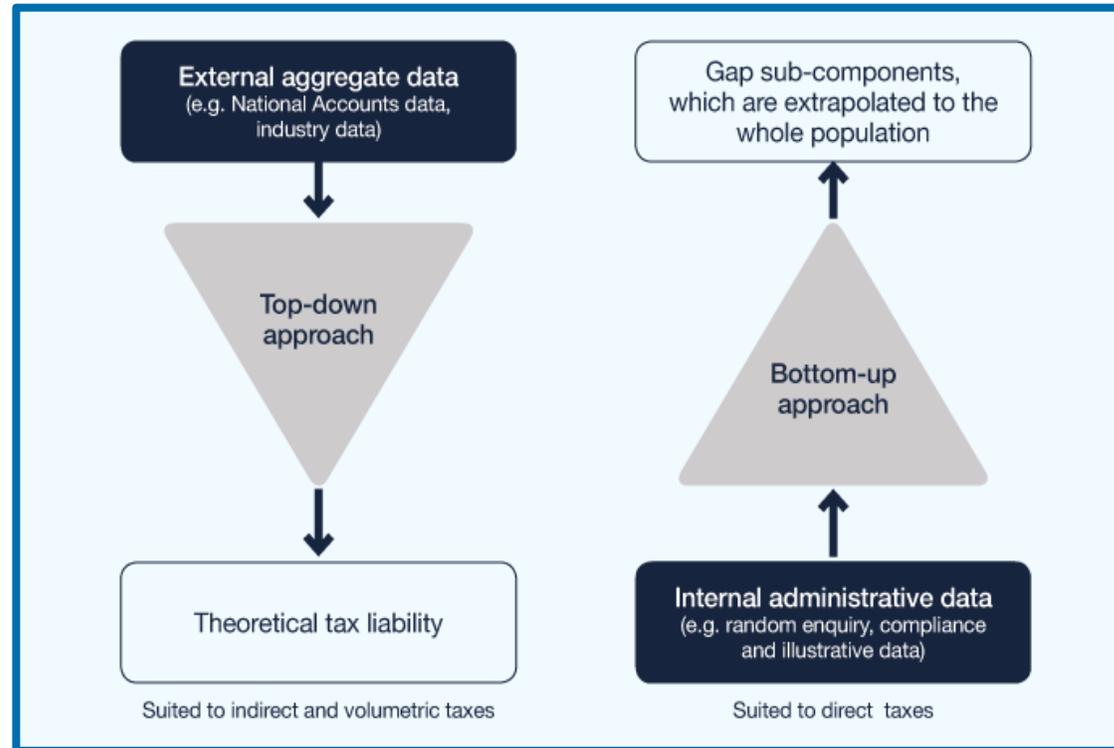
Tax gap – bottom up PIT analysis – other considerations

- Need to be clear about the population which samples are drawn
- Need to estimate the impact of the part of the population who should be in the population who aren't - e.g. non or late lodgers
- Clear about time period
- Audits aligned with year of income or pooled
- Non detection adjustments
- Pilot studies can help scope future sample size requirements

Overview of top-down versus bottom-up

Top down:

- Use external (generally ABS), macro data; so highly aggregated & averaged
- Enable industry specific factors; depending on data available
- But generally no finer than industry
- Do not enable detailed narrative around drivers
- Do not identify specific taxpayers
- Largely independent of ATO



Bottom up:

- Use internal-ATO, micro data at the individual taxpayer or employer level; so highly disaggregated/de-averaged; eg tax returns
- Non-compliance results found in random or risk-based operational samples are aggregated across all relevant taxpayers applying appropriate weights
- Enable detailed narrative built up from outcomes for individual taxpayers
- Provides operationally useful information to prioritise compliance effort

Top down & bottom up estimates are both substitutes and complements for each other!!

Tax Gap Framework

How we estimate the gap

Policy gap
(not estimated)

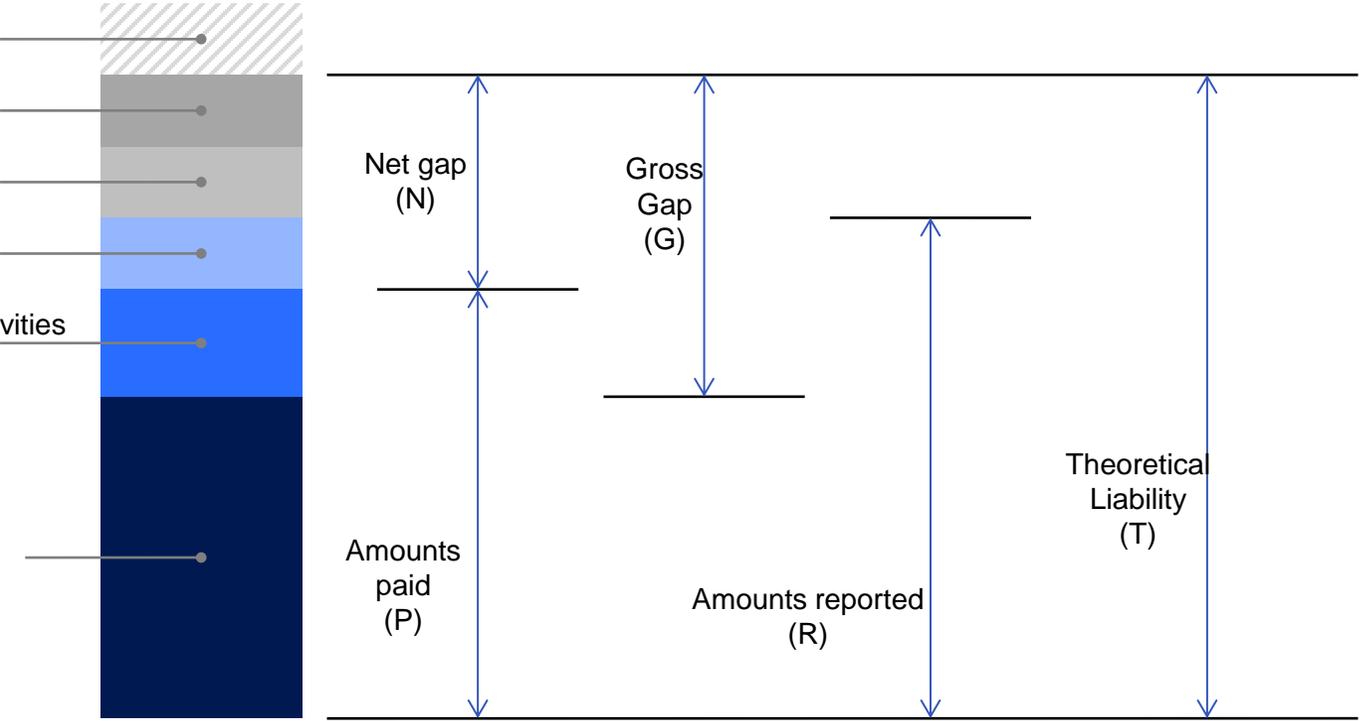
Non-detection (F)

Unreported amounts (E)

Non-pursuable
amounts (D)

Amendments due to compliance activities
and voluntary disclosures (A)

Amounts voluntarily
reported and paid (V)



ATO Tax Gap Program – Original Purpose

The journey

2011 The ATO first published tax gap estimates for VAT (Goods and Services Tax) and Luxury Car Tax.

2015 The gap program expanded to include all transactional based taxes and also the Pay-as-you-go Withholding system.

2017 Large Corporate Groups income tax gap was released while gap estimates for other income based taxes were being developed.

2019 We published a full suite of tax gap estimates, across 15 income based and transaction based taxes and 4 administered programs allowing us to estimate the headline tax gap for the Australian Tax and Super System.

2022 Publication of payment gap estimates related to COVID stimulus measures

The purpose

The gap program is both a performance measure and a transparency measure.

Performance measure: The gap program is one of a suite of revenue measures used to report on the overall performance of the tax and superannuation system as well specific components within the system.

It forms a part of the ATO's Portfolio Budget Statements and ATO Annual Report which are statutory reporting obligations to Government.

Transparency measure: The gap program forms a part of our broader commentary to the community on the performance of their tax and superannuation system.

We voluntarily publish more detailed information online for community and interest groups.

Links

[ATO Tax Gap Program](#)

[ATO Annual Report](#)

Tax gap tables are extracted and reproduced in Attachment A

[Data file](#)

ATO Tax Gap Program – More than a measure of tax performance

Insights

Tax gap estimates provide us with insights into the operation of the tax and super systems.

When developing the program, the decision was made to estimate tax gaps by market segments (large business, high wealth groups, small business, small super funds etc). The intent was to have market-level estimates that could provide insights into the drivers of the tax gap.

Insights come from bottom-up estimates that help us understand what drives the gap.

Behavioural data is captured for random audits to provide behavioural insights into the gap, i.e., who may be the mastermind of non-compliance and the intentionality of non-compliance.

Insights are published on ato.gov.au

Grants programs

The expertise gained in tax gap measurement allowed the ATO to use apply these methods to estimate “payment gap” for COVID economic stimulus measures – JobKeeper and Cashflow Boost.

Payment gaps are a performance measure that reflects the amount of payments that are correctly made to an eligible participant. It also captures incorrect payments recovered – which is also included in ATO revenue collections.

JobKeeper gap estimate was reviewed as a part of the review of JobKeeper by the Auditor-General.

These gap technique are now being used to assess the efficacy of the R&D tax incentive program.

JobKeeper

A wage subsidy program which disbursed estimated payments of \$89 billion from late March 2020 through March 2021.

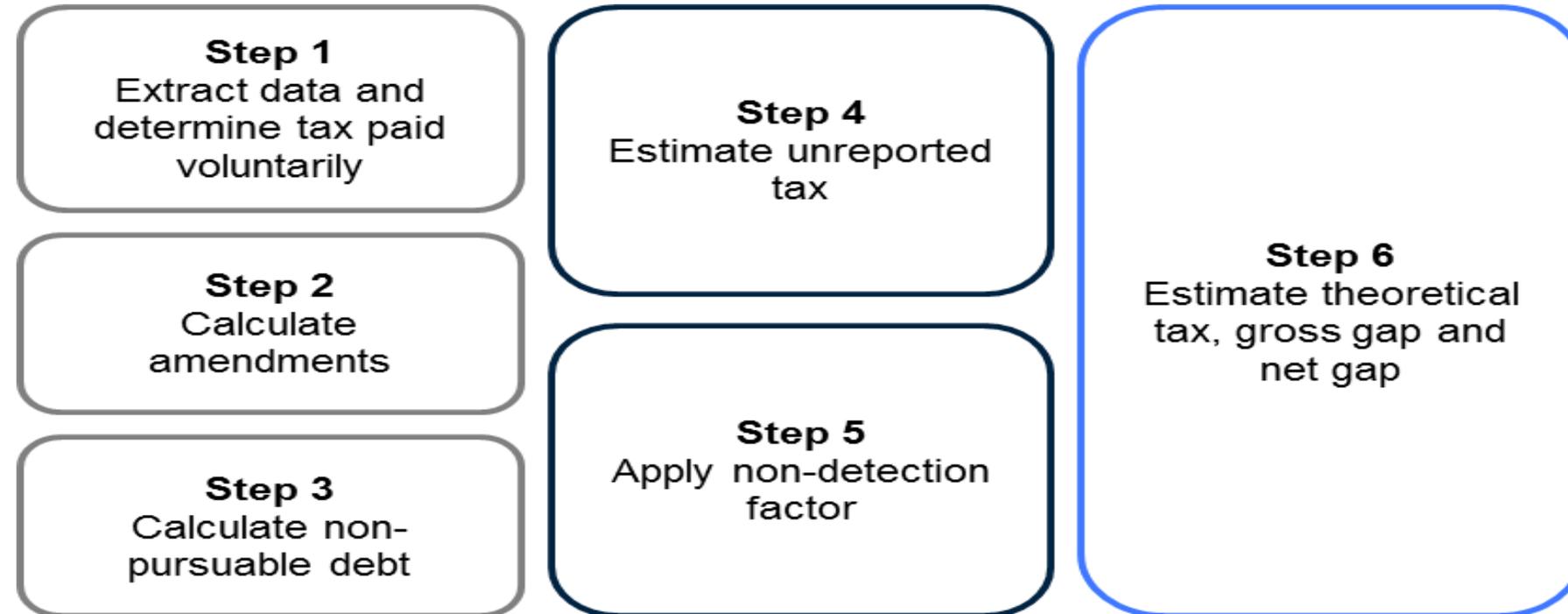
We estimated a once-off payment gap for JobKeeper to be 2.4% (\$2.2b).

Cashflow Boost

A series of tax-free payments delivered through credits in the activity statement system. The payments totalled around \$35b.

We estimated a once-off payment gap to be 2.7% (\$0.9b).

Stepping through the estimation process



Australian system characteristics underpinning our approach

Source based data

- **Step 1: Tax reported at lodgment**

source data used, no estimation

- **Step 2: Compliance outcomes**

source data used plus extrapolation and/or projections to account for lag in reporting

- **Step 3: Non-pursuable debt**

debt that the Commissioner of Taxation has assessed as being not legally recoverable or uneconomical to pursue

Estimation based data

- **Step 4 : Estimate unreported amounts**

An estimate of amount not reported to the ATO

- **Step 5: Estimate non-detection**

uplift for imperfections in our capacity and capability when doing compliance work

- **Step 6: Estimate theoretical tax liability, gross gap and net gap**

Gross gap : add Steps 3 to 5

Net gap: minus Step 2 from gross gap

theoretical tax liability : add Steps 1 to 5

Methodological approaches for all gaps

| Top-down | Bottom-up Model based approach | Bottom-up Random Enquiry Program | Bottom-up Statistical approach |
|--------------------------|-----------------------------------|-------------------------------------|-----------------------------------|
| Fuel excise | Large corporate groups | Fuel tax credits | Individuals not in business |
| Goods & services tax | Large super funds | Small super funds | Small business |
| PAYG withholding | Petroleum resource rent tax | | High wealth private groups |
| Superannuation guarantee | Tobacco excise | | Medium business |
| Luxury Car Tax | Fringe benefits tax | | Wine equalisation tax |
| | Alcohol | | |
| | Product stewardship for oil | | |

Significant steps for estimating the GST gap

The tax gap is an estimate of the difference between:

- A. Theoretical tax; what the ATO would have collected if every taxpayer was fully compliant (steps 1, 2 and 3); and
- B. the amount taxpayers report and/or the ATO actually collects (step 4)

Fully compliant is not observable; and needs to be modelled.

Step 1:

Construct the theoretical GST base using expenditure

Step 2:

Subtract GST concessions and exemptions to calculate the total theoretical GST base

Step 3:

Determine the theoretical GST liability by extracting the GST component from the theoretical GST base (which is 1/11)

Step 4:

Subtract GST reported and add non-pursuable debt to determine the net gap.

Step 5:

Add compliance results to calculate the gross gap.

Step 1: Construct theoretical GST base using expenditure data

Model predominantly uses ABS data to construct theoretical GST base

The constructed GST base includes the following items of expenditure:

- household final consumption expenditure
- gross fixed capital formation on dwellings; including newly constructed dwellings and alterations/additions to existing dwellings
- consumers' share of ownership transfer costs
- a proportion of land sales
- net impact of international tourism

Step 2: Subtract GST concessions or exemptions

Align with GST legislation – ie remove expenditures in ABS data but that do not attract GST

These are expenditures for which GST concessions or exemptions apply; including:

- expenditures that are exempt or concessionaly taxed, such as food, health and education
- input taxed supplies, such as rent
- certain financial supplies and reduced input tax credits
- concessions for entities with turnover less than \$75,000 (\$150,000 for not-for-profit entities)
- tourism refunds, travel agent for overseas travel services, religious services etc.

Based mainly on data from the Tax Benchmarks and Variations Statement (TBVS)

The residual amount is our best estimate of the GST tax base; spending that is subject to GST.

Step 3: Determine Theoretical Tax Liability

The ABS estimates of spending and hence our constructed theoretical GST base are GST inclusive (ie GST-exclusive price plus GST equal to 10%).

Theoretical or required GST is therefore modelled by multiplying GST-able spending by one-eleventh (given the fixed GST rate of 10% is incorporated in the modelled GST base).

The ABS adjusts consumer spending to incorporate estimates of the shadow economy but appears likely they are under-stating the “true” shadow economy. We are currently discussing these adjustments with the ABS.

Step 4: Subtract GST reported and recognise debt

Our calculation of what taxpayers paid is initially based on the actual GST liabilities reported on an accrual basis, including ATO compliance activities.

Uses the Economic Transaction Method (ETM) accruals approach based on when the economic activity took place; not when the data was reported to the ATO or cash exchanged.

We deduct this from the theoretical total GST liability to estimate the net tax gap without debt.

Initially all debt, including non-pursuable debt, is included in the GST liabilities reported and hence not included in the tax gap; this is known as the tax gap without debt (or debt-exclusive tax gap).

We specifically adjust accrual revenue to exclude non-pursuable debt (debt which will never be paid). This moves debt (NPD) into our headline accrual measure of net tax gap for GST. This is known as the tax gap with debt (or debt-inclusive tax gap).

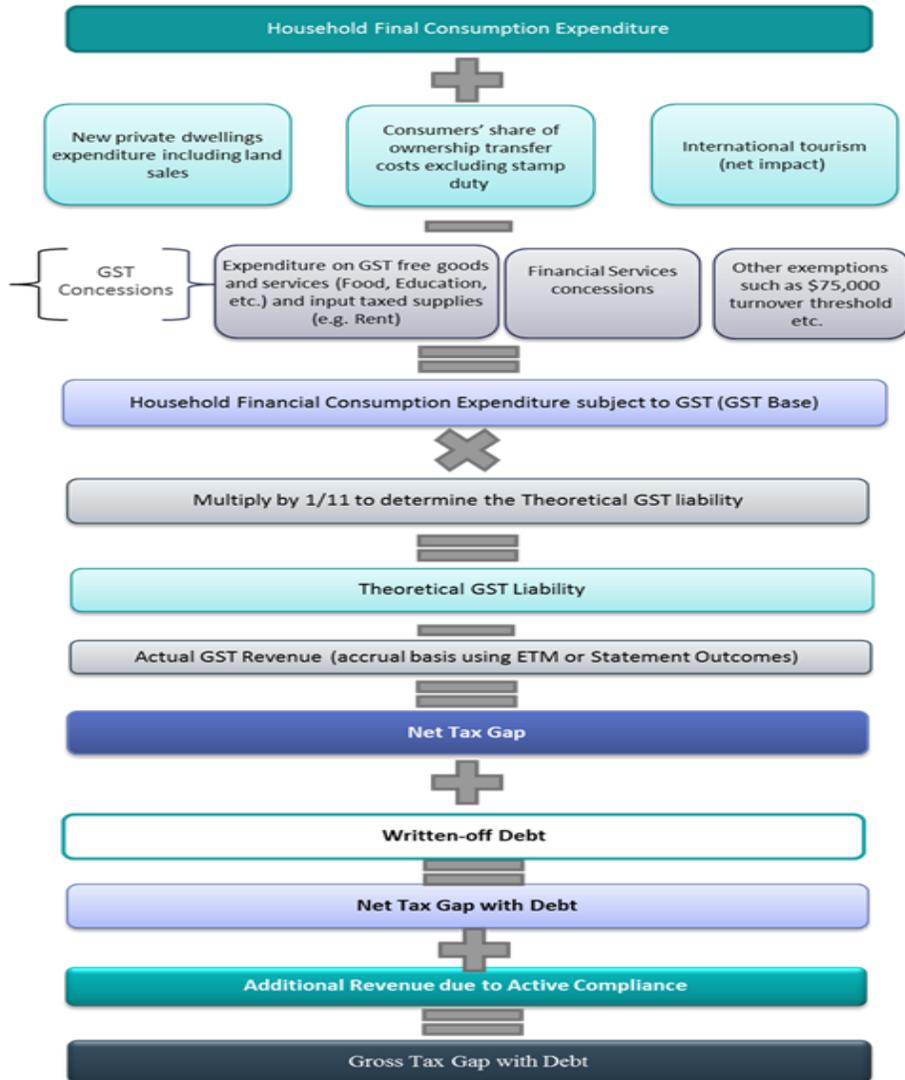
Step 5: Calculate gross tax gap

The gross tax gap (debt inclusive) is obtained by adding the liabilities raised from ATO compliance activities to the net gap estimates.

Actual GST revenue under accrual/ETM includes the additional revenue generated by ATO compliance actions.

Only paid compliance part as a result of our effort and so we need to add back any compliance amendments to derive the gross tax gap.

Summary of process



| \$ millions | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
|---|----------------|----------------|----------------|----------------|----------------|----------------|
| STEP 1: | | | | | | |
| Household final consumption expenditure (HFCE) base (A) | 554,324 | 568,877 | 594,086 | 611,056 | 582,298 | 587,473 |
| Dwelling investment (including land) | 143,285 | 152,219 | 162,770 | 169,318 | 161,993 | 174,638 |
| Consumers' share of ownership transfer costs excl. stamp duty | 17,863 | 18,852 | 18,479 | 15,069 | 14,537 | 19,475 |
| Net Impact of Tourism | -9,309 | -9,476 | -11,015 | -12,029 | -4,317 | -156 |
| Total GST base (D) | 706,162 | 730,473 | 764,319 | 783,413 | 754,511 | 781,431 |
| STEP 2: | | | | | | |
| Expected GST from National Accounts inputs (1/11 of Total GST Base) (E) | 63,807 | 66,017 | 69,094 | 71,219 | 68,592 | 71,039 |
| <i>less additional concessions</i> | 925 | 942 | 977 | 1088 | 792 | 659 |
| <i>less tourism refunds</i> | 194 | 202 | 225 | 250 | 190 | 20 |
| equals theoretical GST liability | 62,688 | 64,872 | 67,892 | 69,881 | 67,610 | 70,361 |
| <i>less Final GST reported</i> | 57,849 | 61,537 | 64,022 | 65,322 | 64,725 | 67,851 |
| STEP 3 to 5: | | | | | | |
| <i>Equals final GST liabilities not reported</i> | 4,838 | 3,335 | 3,870 | 4,559 | 2,885 | 2,510 |
| <i>add GST liabilities reported but not paid/non-pursuable debt</i> | 666 | 725 | 740 | 810 | 1,369 | 1,628 |
| equals net gap | 5,504 | 4,060 | 4,610 | 5,369 | 4,254 | 4,138 |
| <i>add compliance outcomes and taxpayer adjustments</i> | 2,848 | 2,430 | 2,438 | 2,498 | 2,175 | 1,923 |
| equals gross gap | 8,352 | 6,490 | 7,048 | 7,867 | 6,429 | 6,061 |
| Gross gap percentage | 13.3% | 10.0% | 10.4% | 11.3% | 9.5% | 8.6% |
| Net gap percentage | 8.8% | 6.3% | 6.8% | 7.7% | 6.3% | 5.9% |

Assumptions and macro data results in estimation errors. Tax gaps are best viewed as a trend.

Risks involved in top-down gap estimates

- Residual between 2 large estimates – theoretical GST and actual GST paid – and hence small relative errors can result in big movements in the estimated gap.
- Based on ABS/external data and so are
 - subject to estimation error in the underlying economic data
 - subject to revisions – which can be significant.
- Mis-alignment when ABS measure does not match tax base
- Do not correct for timing differences – became significant through COVID-19

Random Enquiry Program (REP)

- Each year, we randomly select a sample of individuals and small business tax returns for evaluation as part of our Random Enquiry Program (REP).
- Random selection avoids any systematic selection of segments of the population. It is designed to provide an unbiased representation of taxpayer information.
- In contrast, operational audit selection processes generally focus on taxpayers considered to have a higher risk of non-compliance with a potentially large amount of tax at risk.
- The REP provides insights that allow us to estimate the tax gap, in particular:
 - value of non-compliance and
 - proportion of the sample, and by extension the population, who are incorrectly reporting.

Small Business (REP): Key points

- This REP has been operating annually since the 2014/15 financial year, with new random samples drawn each financial year. The current REP is reviewing the 2020/21 financial year.
- The compliance activity involves comprehensive risk reviews of all randomly selected entities followed by audits for those with material risks.
- A key calculation step is identifying the average amendment and rate of amendments of taxpayers in each sample strata. This average is then extrapolated to the whole population strata to estimate its unreported tax liability.
- Other elements (non-detection, people outside the system and non-pursuable debt) are then added to derive the gap estimate.
- An external scrutineer reviews the REP process and results, while an internal panel provides quality assurance of the process and outcomes for a sample of REP cases.

Small Business (REP): Sample stratification 2021FY

Small Business Companies Population Stratification: By Turnover Size (\$) and Industry Type

| | Financial Asset Investing (Low Risk) | Other industries | Total |
|---------------|---|------------------|-------|
| Up to \$2m | 10 | 230 | 240 |
| \$2m to \$10m | 1 | 109 | 110 |
| Total | 11 | 339 | 350 |

Small Business Individuals Population Stratification : Rental VS Non Rental

| | Total |
|--------------------|-------|
| Non-Rental | 270 |
| Rental (High Risk) | 85 |
| Total | 355 |

Also sample 50 Small Business Trusts and 50 Small Business Partnerships to assess 'Goods and Services Tax' compliance

Small Business REP Extrapolation (Unreported Tax Liability)

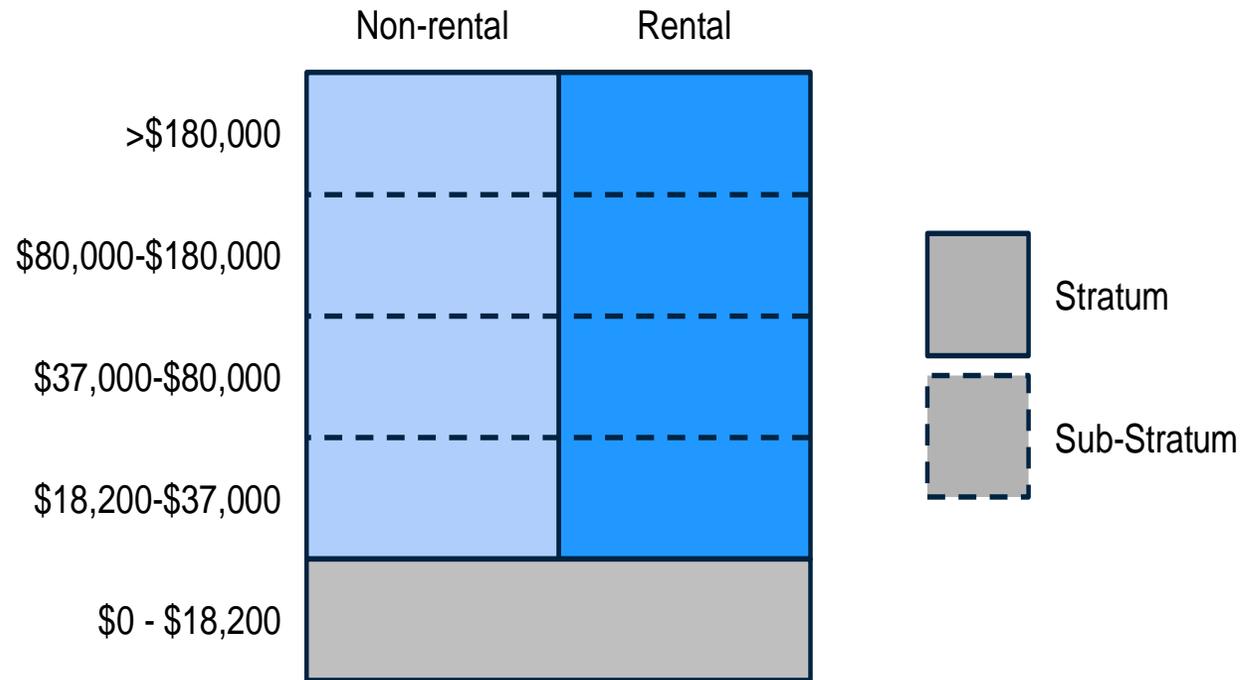
| Small Business Companies | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 |
|---|------------|--------------|--------------|--------------|--------------|------------|
| incidence rate (%) | 19.6% | 24.9% | 27.3% | 33.9% | 33.0% | 32.8% |
| Mean gap for all amended taxpayers (\$) | 3,405 | 5,968 | 5,943 | 5,829 | 5,542 | 5,308 |
| Base population | 943,972 | 974,443 | 1,004,107 | 1,039,169 | 1,070,750 | 1,083,716 |
| Potential amended population | 185,266 | 242,783 | 267,865 | 359,063 | 352,583 | 351,448 |
| REP extrapolation (\$m) | 631 | 1,449 | 1,220 | 1,333 | 1,085 | 924 |

| Small Business Individuals | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 |
|---|--------------|--------------|--------------|--------------|--------------|--------------|
| incidence rate (%) | 25.2% | 29.4% | 34.0% | 38.0% | 40.2% | 39.8% |
| Mean gap for all amended taxpayers (\$) | 6,236 | 4,438 | 4,350 | 3,698 | 3,599 | 3,168 |
| Base population | 3,728,346 | 3,769,971 | 3,800,286 | 3,853,612 | 3,939,902 | 4,083,562 |
| Potential amended population | 937,949 | 1,107,521 | 1,286,801 | 1,459,018 | 1,585,839 | 1,633,957 |
| REP extrapolation (\$m) | 5,849 | 4,915 | 5,613 | 5,408 | 5,701 | 5,102 |

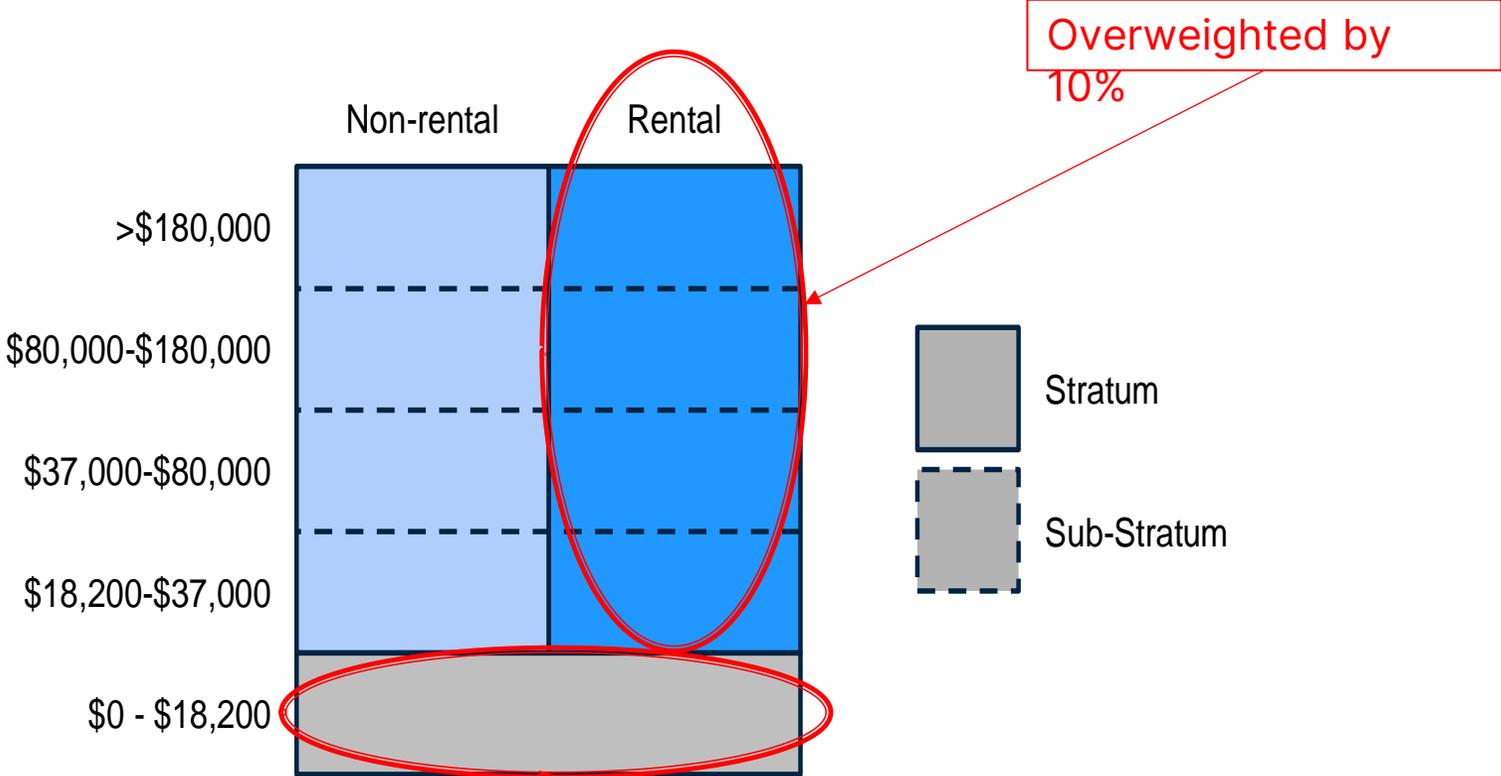
Individuals not in business random enquiry program

- Piloted on the 2014 Income Tax year (300 returns)
- Since transitioned to BAU, 545 returns sampled every year
- Stratified by tax bracket, rental v non rental
 - Forced proportional share of the sample to minimise sampling error

Sample stratification



Sample stratification



Overweighted by 10%

Underweighted by 10%

10%

Sample stratification, 2019 income year

| | 2019 | |
|--------------------|-------|------------|
| Income Band | Count | Proportion |
| \$0-\$18,200 | 49 | 9% |
| \$18,200-\$37,000 | 116 | 21% |
| \$37,000-\$90,000 | 256 | 47% |
| \$90,000-\$180,000 | 109 | 20% |
| >\$180,000 | 15 | 3% |
| Total | 545 | 100% |

Application of results

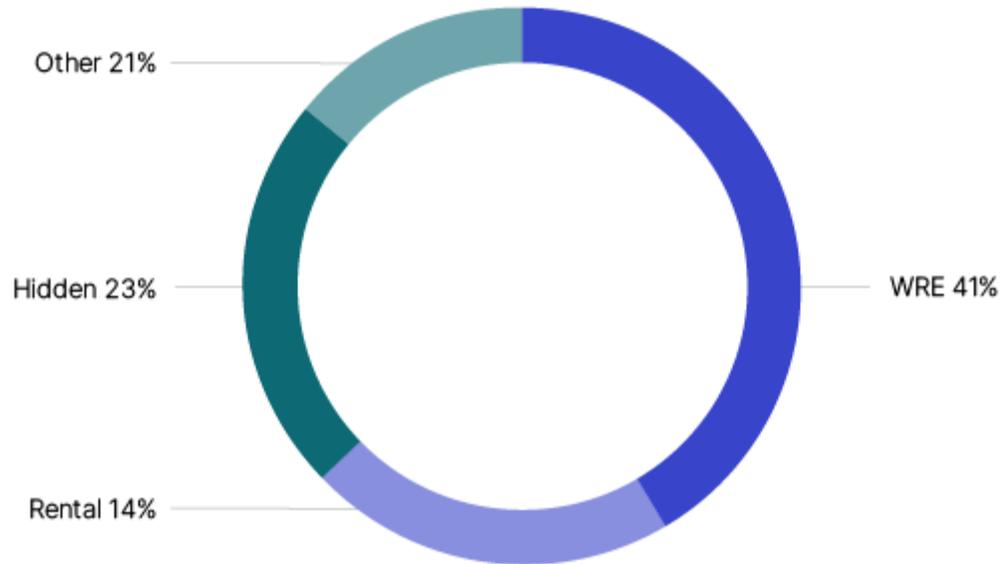
| Non-rental (taxable) stratum | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 |
|-------------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| incidence rate (%) | 89% | 91% | 89% | 88% | 84% | 85% |
| Mean gap for amended taxpayers (\$) | 687 | 735 | 725 | 707 | 648 | 658 |
| Base population | 7,141,771 | 7,304,948 | 7,474,727 | 7,689,632 | 7,910,430 | 8,227,224 |
| Potential amended population | 6,346,623 | 6,639,825 | 6,642,377 | 6,789,260 | 6,676,638 | 6,984,194 |
| REP extrapolation (\$m) | 4,360 | 4,883 | 4,815 | 4,801 | 4,324 | 4,596 |

| Rental (taxable) stratum | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 |
|-------------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| incidence rate (%) | 99% | 99% | 99% | 99% | 99% | 98% |
| Mean gap for amended taxpayers (\$) | 2,022 | 1,918 | 1,846 | 1,733 | 1,451 | 1,353 |
| Base population | 1,155,279 | 1,186,134 | 1,224,797 | 1,254,556 | 1,263,846 | 1,271,651 |
| Potential amended population | 1,140,275 | 1,168,755 | 1,214,084 | 1,236,427 | 1,248,665 | 1,248,841 |
| REP extrapolation (\$m) | 2,306 | 2,241 | 2,241 | 2,143 | 1,812 | 1,689 |

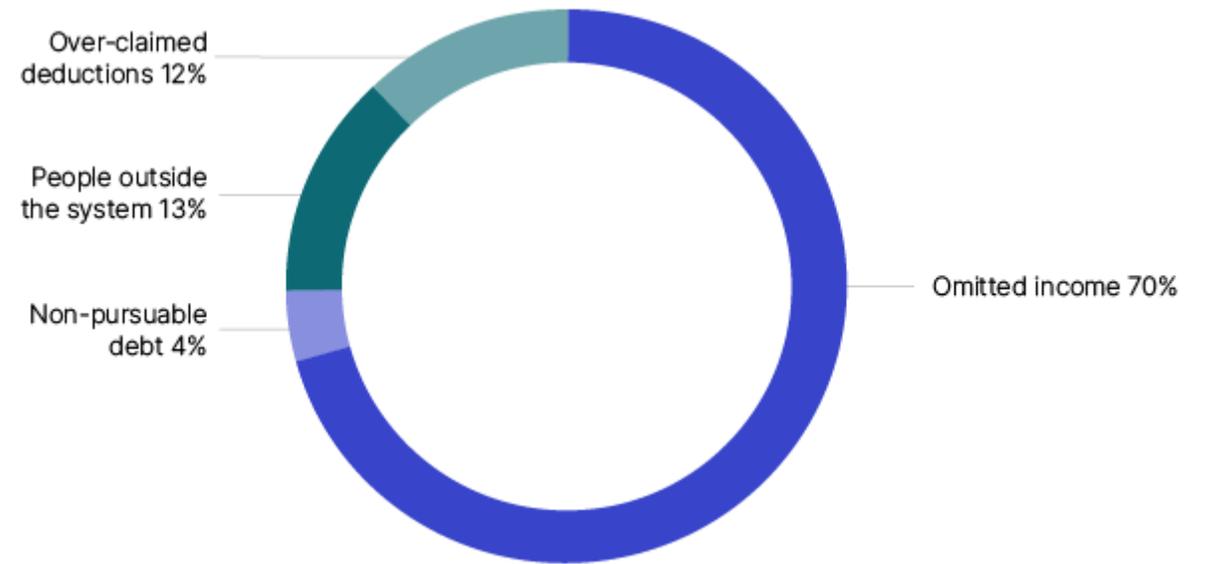
| Non-taxable stratum | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 |
|--|------------|------------|------------|------------|------------|------------|
| incidence rate(%) | 55% | 60% | 73% | 71% | 70% | 64% |
| Mean gap for all amended taxpayers(\$) | 146 | 101 | 132 | 290 | 266 | 290 |
| Base population | 2,254,137 | 2,353,600 | 2,422,643 | 2,361,860 | 2,273,542 | 2,053,593 |
| Potential amended population | 1,246,080 | 1,410,687 | 1,773,154 | 1,679,778 | 1,602,586 | 1,310,804 |
| REP extrapolation (\$m) | 181 | 143 | 233 | 488 | 427 | 380 |

Insights from random enquiry programs

Individuals not in business gap



Small business gap



Other bottom-up approaches

When a REP-based estimation approach is not possible/suitable, we do use other bottom-up approaches using operational data, including audit data, as inputs to estimation. They are suitable for populations with more extensive coverage of compliance activity and heterogenous in nature.

Advantages

- Less costly compared to a REP
- A variety of demographic and financial indicators can be used
- Provides the ability to 'drill down' into risk and behavioural drivers of non-compliance

Challenges

- Lacks a natural benchmark and can lead to “missing the mark”
- Quality and timeliness of data inputs
- Non-detection impacts and completeness

Two broad categories

Bottom-up statistical

- Relies on regression techniques
- Some of the ones we have applied include extreme value theorem; logistic and linear regressions; autoregressive distributed lags; pseudo poisson maximum likelihood etc.
- We have used these techniques in income tax gap estimation for High Wealth and Medium Business and indirect tax of Goods and Services Tax; Wine Equalisation Tax; and excise gap for Fuel Excise.

Bottom-up Illustrative/ microanalytical

- Relies on applying techniques to estimate the unreported tax and impact of non-detection for each individual tax record
- Data is aggregated to get the final results for the total population
- Suitable when
 - there is excellent compliance and coverage data
 - access to experienced staff and internal judgment and insight gained over many years (eg to inform moderation process, selection bias, non-detection)

Example 1: Application of the multi-stage regression method for companies related to High Wealth individuals

Step 1: Selection equation

- A logistic regression to derive the probabilities of entities being selected for treatment by the ATO. We found that there are positive correlations between total income, total expenses and distributions from trusts and the probability of treatment.
- Convert the probabilities into propensity scores to be used to debias observations in the subsequent regressions

Step 2: Probability of non-compliance equation

- A logistic regression to derive the probabilities of treated entities being non-compliant with selection bias corrected. We found that there are positive correlations between total income, income tax instalments, distributions from trusts and the probability of non-compliance.

Step 3: Tax gap amount per entity equation

- A linear regression to estimate the size of each company's potential tax gap with selection bias corrected. The key positive explanatory variables are interest expenses (in Australia) reported, deductions for tax losses and tax offsets.

Example 1: Application of the multi-stage regression method for companies related to High Wealth individuals (con't)

Step 4: Monte Carlo simulation

- Determine the status of non-compliance of an entity by comparing its probability of non-compliance with a randomly selected entity in a Monte Carlo process
- Multiply the probability of non-compliant entities with their tax gap amounts found in Step 3 and repeat this process 20,000 times.
- We estimate total unreported tax (including amendments) by taking an average of the results from 20,000 simulations.

Step 5: Apply a non-detection uplift factor

- We uplift the estimates preceding this step to account for non-compliance that is not detected.

Step 6: Consolidate the tax gap estimates

- We calculate the gross gap by adding up the unreported amounts; non-detection uplift and non-pursuable debt.

ATO Tax Gap Program – Beyond gap thinking

Tax gap projections

A limitation of tax gap estimates is that they are lagged measures. In the ATO, the latest release relates to FY2020-21 (and FY21-22 for some transactional taxes).

Work has been underway for the past 12 months to develop projections and forecasts for each tax gap.

Projections use available data and estimates for data that is not available to develop contemporaneous estimates, up to FY2023-24.

Forecasts are statistical estimates of each gap for the next two financial years.

This work is being done to have more meaningful gap estimates for planning and investment decisions. The first estimates will be available in February 2024.

Gap target setting

Beyond gap thinking is connecting gap estimates to strategy and investment. A part of this is setting targets.

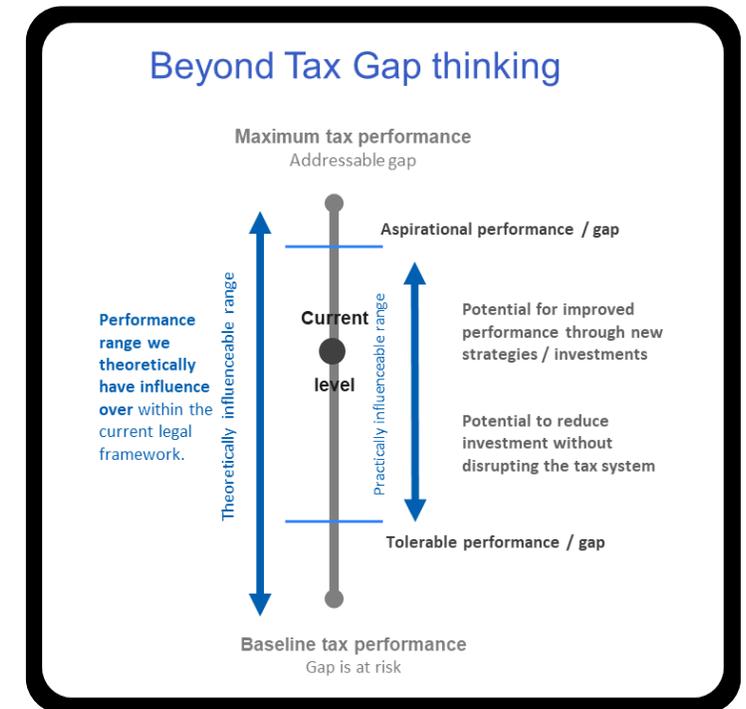
Addressable gap – minimum or smallest achievable tax gap

Gap at risk – maximum or largest tax gap based on limited ATO investment

Aspirational gap – the gap to which current strategies and investments are aimed

Tolerable gap – level of acceptable tax gap beyond which a change in current approaches (strategy and / or investment) is required

[Beyond tax gap. How a better understanding of tax performance changes tax administration. Speech by Jeremy Hirschhorn](#)



ATO Tax Gap Program – Link to strategy

Informing strategy

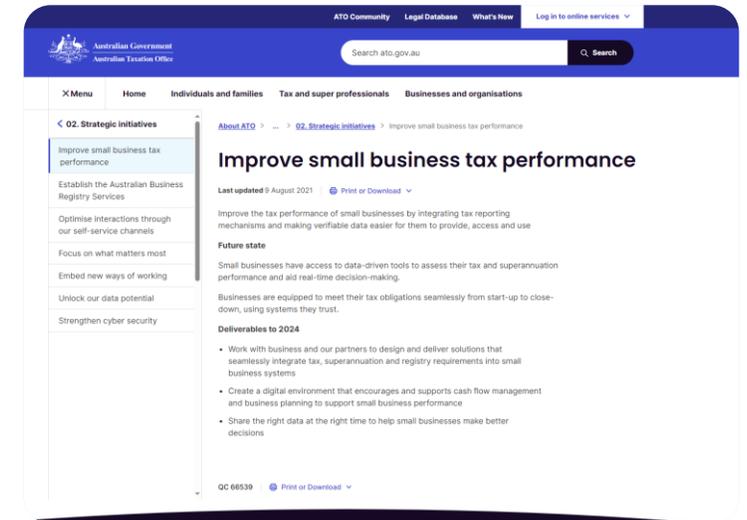
One of the ATO's seven **strategic initiatives** is to Improve Small Business Tax Performance. This is partly driven by the fact that small business have the largest income tax gap (net gap \$15.1 billion or 12.8%). Small business are also a significant contributor to the GST gap.

For small businesses, strategies include enhancing digital solution to minimise errors and mistakes and to take firmer action on evasion by addressing shadow economy behaviours.

In March each year, we begin the process of planning for the financial year (1 July to 30 June). As a part of this, we consider strategies that either **reduce the gap** (increase tax performance) or **protect the gap** (maintain tax performance and prevent backsliding).

Evaluating strategy

Tax gap is also used to evaluate strategies. For example, for individuals not in business, a focus on work related deductions (the biggest component of the individuals gap) saw a steady decline in the claiming of these expenses and a reduction in the income tax gap for individuals.



Strategic Initiatives

ATO Tax Gap Program – Link to investment and policy

Informing investment

Tax gap analysis also supports decisions on how to invest scarce resources.

Drawing on the Beyond Tax Gap concepts, we know that disinvestment may lead to deterioration in tax performance due to:

Backsliding risk – a reversion in the levels of compliance driven by taxpayers whose behaviour has been positively influenced previously. Improvements in compliance are not permanent.

Greater risk appetite – without investment, the risk profile is likely to change as more taxpayers adopt more aggressive tax risk postures.

Analysis for large business is shown in Attachment B

Informing policy

Tax gap information is shared with other agencies to help inform new policy.

The tax gap for illicit tobacco is shared with Treasury and Department of Health as inputs into policies around tobacco excise and anti-smoking health policies.

The individuals tax gap was used to support integrity measures that denied deductions on vacant land. This gap also supported a shortcut method for work from home deductions during COVID.

Tax gap analysis is also used to support new and rollover of existing policy proposals. Examples include additional government investment to address shadow economy and also more recent proposals to deal with fraud.

Links

[Shadow economy taskforce](#)

[Shadow economy gap estimate](#)

Table 6d: Shadow economy latest findings – total published program

| Tax gap program | Shadow economy estimation | Tax effect 2015–16 | Tax effect 2016–17 | Tax effect 2017–18 | Tax effect 2018–19 | Tax effect 2019–20 | Tax effect 2020–21 |
|---|---------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Transaction-based (\$m) | Various | 1,363 | 1,389 | 1,643 | 1,885 | 2,189 | 2,858 |
| Income-based (\$m) | Estimated using sample | 9,225 | 9,162 | 9,565 | 12,015 | 12,536 | 13,460 |
| Total of transaction and income-based taxes (\$) | Total of above | 10,588 | 10,551 | 11,207 | 13,900 | 14,725 | 16,318 |
| Total theoretical tax liabilities (\$m) | n/a | 305,158 | 315,212 | 336,964 | 348,231 | 355,470 | 375,749 |
| Proportion of total theoretical tax liabilities % | n/a | 3.5 | 3.3 | 3.3 | 4.0 | 4.1 | 4.3 |

ATO Tax Gap Program – Attachment A

Table 4.4 Net tax gap estimate – all federal taxes, 2017–18 to 2021–22^{(a)(b)(c)(d)}

| All taxes | Reliability assessment | Unit | 2017–18 | 2018–19 | 2019–20 | 2020–21 | 2021–22 |
|-----------|------------------------|------|---------|---------|---------|---------|---------|
| Tax gap | n/a ^(d) | % | 7.4 | 7.9 | 7.3 | 7.0 | – |
| | | \$m | 33,715 | 37,198 | 35,186 | 37,457 | – |

– = Results are not available for the given year.

Notes

- (a) All estimates are rounded to the nearest \$ million.
- (b) Due to data lags, the estimate for 2021–22 is not available.
- (c) Changes from previously published estimates occur for a variety of reasons, including improvements to methods, revisions to data and additional information becoming available.
- (d) This estimate covers all transactional-based and income-based taxes estimated, as outlined in Tables 4.5 and 4.6.
- (e) Reliability is assessed separately for all estimates, as outlined below.

Table 4.5 Net tax gap estimates – transaction-based taxes, 2017–18 to 2021–22^{(a)(b)(c)}

| Tax type | Reliability assessment | Unit | 2017–18 | 2018–19 | 2019–20 | 2020–21 | 2021–22 |
|------------------------------------|------------------------|------|---------|---------|---------|---------|---------|
| Taxes on goods and services | | | | | | | |
| GST | Medium | % | 6.3 | 7.2 | 4.5 | 2.7 | 3.6 |
| | | \$m | 4,265 | 5,017 | 3,031 | 1,939 | 2,845 |
| Luxury car tax | Medium | % | 15.8 | 10.6 | 14.9 | 7.7 | – |
| | | \$m | 129 | 79 | 112 | 73 | – |
| Wine equalisation tax | Medium | % | 3.9 | 3.2 | 3.1 | 2.8 | – |
| | | \$m | 37 | 34 | 33 | 31 | – |
| Excise and customs duties | | | | | | | |
| Alcohol excise | Medium | % | 8.8 | 8.8 | 9.0 | 9.0 | 9.1 |
| | | \$m | 536 | 558 | 596 | 691 | 745 |
| Fuel excise | High | % | 1.3 | 1.4 | 3.2 | 2.5 | 1.7 |
| | | \$m | 250 | 266 | 618 | 492 | 297 |
| Tobacco duty | Medium | % | 6.3 | 7.5 | 9.0 | 10.4 | 13.1 |
| | | \$m | 837 | 1,036 | 1,334 | 1,901 | 2,343 |

– = Results are not available for the given year.

Notes

- (a) All estimates are rounded to the nearest \$ million.
- (b) Due to data lags, not all estimates are available for 2021–22.
- (c) Changes from previously published estimates occur for a variety of reasons, including improvements to methods, revisions to data and additional information becoming available.

Table 4.6 Net tax gap estimates – income-based taxes, 2017–18 to 2021–22^{(a)(b)(c)}

| Tax on income | Reliability assessment | Unit | 2017–18 | 2018–19 | 2019–20 | 2020–21 | 2021–22 |
|--|------------------------|------|---------|---------|---------|---------|---------|
| Fringe benefits tax | Low | % | 26.1 | 24.1 | 20.1 | 28.2 | – |
| | | \$m | 1,361 | 1,240 | 982 | 1,275 | – |
| High wealth | High | % | 7.0 | 8.2 | 7.5 | 7.1 | – |
| | | \$m | 786 | 926 | 914 | 1,078 | – |
| Individuals not in business ^(d) | High | % | 6.7 | 6.3 | 6.5 | 6.3 | – |
| | | \$m | 10,213 | 9,840 | 10,550 | 10,201 | – |
| Large corporate groups ^(d) | High | % | 3.7 | 3.7 | 3.6 | 4.2 | – |
| | | \$m | 2,042 | 2,234 | 2,177 | 3,076 | – |
| Large superannuation funds | Medium | % | 0.6 | 1.9 | 1.4 | 1.2 | – |
| | | \$m | 78 | 160 | 162 | 278 | – |
| Medium business | Medium | % | 7.1 | 7.4 | 7.5 | 7.2 | – |
| | | \$m | 1,005 | 991 | 1,069 | 1,239 | – |
| Small business ^(d) | Medium | % | 12.4 | 14.4 | 13.1 | 12.8 | – |
| | | \$m | 12,120 | 14,759 | 13,554 | 15,092 | – |
| Small superannuation funds | Medium | % | 2.1 | 2.3 | 2.1 | 3.1 | – |
| | | \$m | 38 | 38 | 38 | 70 | – |
| Petroleum resource rent tax | Reliable | % | 1.4 | 1.7 | 1.7 | 2.0 | – |
| | | \$m | 18 | 18 | 16 | 19 | – |

– = Results are not available for the given year.

Notes

- (a) All estimates are rounded to the nearest \$ million.
- (b) Due to data lags, estimates for 2021–22 are not available.
- (c) Changes from previously published estimates occur for a variety of reasons, including improvements in methodology, revisions to data and additional information becoming available.
- (d) Provisional estimates. Some tax gap estimates are more significantly affected by additional compliance actions undertaken on the year(s) published, which can explain variations in the revised estimates made to prior years.

Table 4.7 Net gap estimates – programs we administer, 2017–18 to 2021–22^{(a)(b)(c)}

| Administered programs | Reliability assessment | Unit | 2017–18 | 2018–19 | 2019–20 | 2020–21 | 2021–22 |
|----------------------------------|------------------------|------|---------|---------|---------|---------|---------|
| Fuel tax credits | Medium | % | 1.4 | 1.5 | 1.5 | 2.3 | 2.6 |
| | | \$m | 97 | 105 | 108 | 166 | 175 |
| Pay as you go (PAYG) withholding | Medium | % | 3.1 | 2.6 | 2.4 | 1.7 | – |
| | | \$m | 6,052 | 5,391 | 5,294 | 3,871 | – |
| Product stewardship for oil | High | % | 0.7 | 0.5 | 0.6 | 0.6 | 0.6 |
| | | \$m | 0.88 | 0.63 | 0.77 | 0.95 | 0.85 |
| Superannuation guarantee | Medium | % | 5.0 | 5.2 | 5.2 | 5.1 | – |
| | | \$m | 3,096 | 3,445 | 3,609 | 3,619 | – |

– = Results are not available for the given year.

Notes

- (a) All estimates are rounded to the nearest \$ million, except for product stewardship for oil.
- (b) Due to data lags, only limited estimates for 2021–22 are available.
- (c) Changes from previously published estimates occur for a variety of reasons, including improvements in methodology, revisions to data and additional information becoming available.

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ATO Tax Gap Program – Attachment B

Large business

This hypothetical analysis shows the likely impact on tax gap for large business when **investment is reduced by 50%**.

The immediate impact is the decline in audit amendments which sees the net gap converge to the gross gap.

Over time, we see an increase in gap estimates due to increases in non-detection driven by lower levels of assurance activities.

We also see under-reported tax increase with fewer audit activities.

After three years, non-compliance rates grow as more aggressive positions are taken, resulting in the forecast gap exceeding the 2014-15 estimate (highest estimates gap for this population).

Large Corporate Group - Income tax gap at risk

