Appendices: Do people change their earnings to avoid losing benefit payments?

Appendix A: Description of data sources

The micro note, *Do people change their earnings to avoid losing benefit payments*, uses a number of data sources.

These data sources, their benefits, and their limitations, and discussed below.

- DSS Data Over Multiple Individual Occurrences (DOMINO):
    - DOMINO is a cleaned and anonymised version of the Department of Social Services administrative data on benefit recipients.
    - It represents the entire population of individuals who interact with the DSS. Some individuals will be excluded from analysis if their administrative records appear incomplete.
    - Publicly available aggregates for this information are available at https://data.gov.au/data/dataset/jobseeker-payment-and-youth-allowance-recipients-monthly-profile, with some time series data available at DSS Income Support Recipients – Monthly Time Series (researchdata.edu.au).
- Multi-Agency Data Integration Project (MADIP)
    - MADIP is secure data asset that includes several cleaned and anonymised administrative data. The sources used in this analysis come from the ATO, ABS, and DSS.
    - The ATO data used refers to:
        - For self-employed individuals we use the Financial Year 2019 ATO Personal Income Tax data.
        - For beneficiaries we use the Single Touch Payroll (STP) data for the first six months of 2022.
    - The DSS data used refers to the DOMINO data for the first six months of 2022.
    - The ATO and DSS data is linked using Personal Linkage Spine IDs provided by the ABS.
    - All statistics produced were aggregated to protect privacy, and cleared by the ABS for public release.

Appendix B: Abatement by family type

The $150 per fortnight income-free threshold discussed in the micro note refers to the personal income test for JobSeeker recipients. Irrespective of age, family type, carer responsibilities, or number of children the income-free threshold was at the same value in the first half of 2022.

However, there are several ways an individual could end up with a larger income-free threshold than this $150 value while receiving government support.

1. **Using their Working Credit balance**: The working credit is a personal income test concession based on prior earnings. If an individual had been previously earning less than $48 per fortnight, they generate a *credit* equal to $1 up until the balance reaches $1,000. This credit can be used in circumstances where they earn above the income-free threshold to prevent the reduction of their benefit payment.
2. **Abstudy, Austudy, and Youth Allowance Apprentices**: The income-free threshold is set at a much higher $452 per fortnight.
3. **Sole parent with children under 8**: Parenting paid single has a higher income-free threshold of $194.60 for a sole parent with one child under the age of 8. This rises by $24.60 for each additional eligible child.

Appendix C: Bunching theory and interpretation of elasticity

The bunching approach used in the micro note, and the implied elasticity, are based on the method of Chetty etal (2011). The implementation is based on the *bunching* package in R as outlined here.

The logic behind bunching is as follows. At a given amount of income the tax-rate on additional income suddenly changes – for example from 37% to 45% at 180,000. For an additional dollar of earnings between $179,999 and $180,000 you will pay a tax rate of 37%, while for the next dollar you pay a tax rate of 45%. Due to this, the additional income you receive when earning an extra dollar suddenly declines at that threshold.

In the absence of this threshold, we would expect the distribution of taxable income to be smooth in the range around the threshold. However, given the existence of the threshold and related reduction in the marginal benefit from receiving/reporting the additional income there will be some individuals who will decide to reduce their taxable earnings until they are precisely at the threshold – leading to bunching.

This bunching produces *excess mass* at the threshold. Conceptually this excess mass is the number of individuals between the marginal non-buncher (the individual who would have earned exactly $180,000 even when the tax rate did not change) and the marginal buncher (the individual with the highest income who has the incentive to reduce their income to $180,000 given the tax rate change). The size of this excess mass can then be used to calculate the elasticity as described in Saez (2010) – with a larger excess mass reflecting a larger behavioural response due to the tax change.

Following Chetty etal (2011) we define the *counterfactual density* in the absence of the tax change using a fitted polynominal excluding the bin from estimation. This allows us to define the excess mass.

There are likely to be *optimisation frictions* that make it difficult for individuals to adjust their earnings to exactly the threshold – as a result the estimates are made with diffuse bunching which the excluded bins are between a lower and upper range around the threshold.

Furthermore, individuals tend to bunch at salient *round numbers* and a correction for this is also included.

Finally, the estimates use the integration constraint to shift the counterfactual density as in Chetty (2011) to account for the fact that excess mass will be drawn from individuals from the right-hand side of the distribution.

As stated in the micro note, for self-employed earners at the top tax rate this bunching is equivalent to an elasticity of taxable income of 0.18. This implies that a 1% reduction in the marginal net of tax rate (e.g. an increase in the top tax rate from 45% to 45.55%) leads to a 0.18% reduction in reported taxable income (e.g. a reduction from $180,300 to $180,000). This response could be due to a reduction in taxable income by:

1. working less,
2. avoiding reporting income,
3. or change patterns of work in response to the additional tax burden.

Appendix D: Assumptions for each set of bunching results

Self-employed results

Assumptions

Bin width = $500 per year

Number of bins below the threshold excluded = 10

Number of bins above the threshold excluded = 3

Total bins in range around threshold = 150

Degree of polynominal fit = 7

Benefit recipient results

Assumptions

Bin width = $6 per week

Number of bins below the threshold excluded = 0

Number of bins above the threshold excluded = 0

Total bins in range around threshold = 30

Degree of polynominal fit = 7

Appendix E: Employment shares on NewStart/JSP payments

Most JobSeeker recipients are out of work. Between 2012 and 2023, over three-quarters of individuals receiving the JobSeeker payment have not been in paid work.

Among those that are working, at any point in time around 10,000-11,000 individuals report earnings below $150 per fortnight – or around 5.5% of earners. This is consistent with the bunching transaction data used for the analysis from single touch payroll.

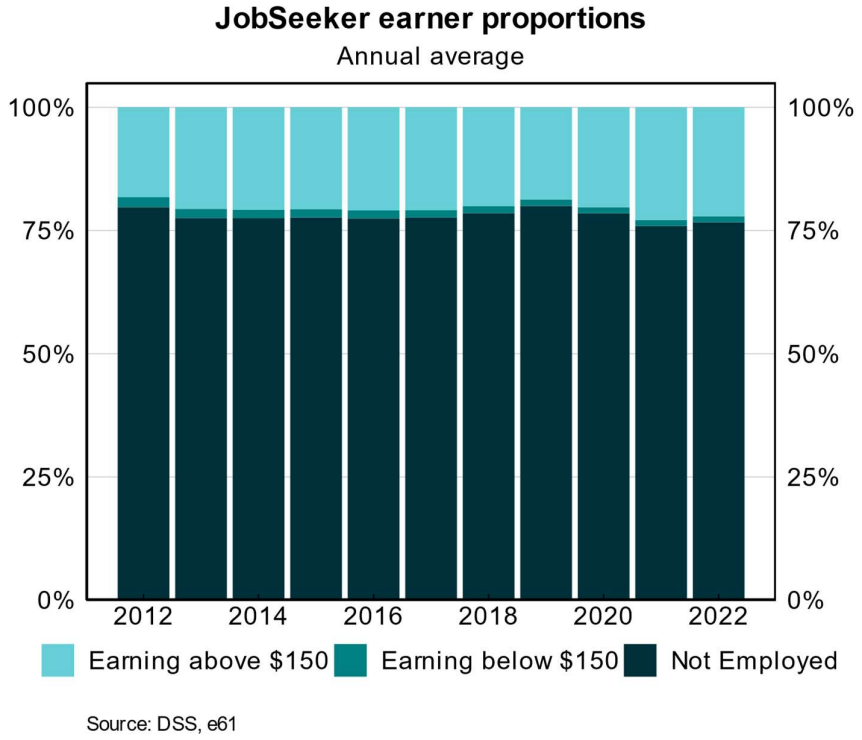

Figure E.1

Those earning above $150 per fortnight will benefit with higher incomes if the threshold is increased. According to Figure E.1 this would account for approximately 22% of total recipients in a given year – around 180,000-200,000 people.

However, many individuals earning over $150 per week earn significantly more than this threshold, and so may be receiving a zero rate or are suspended from the payment. Excluding these individuals gives a lower estimate of the number of individuals who may benefit from the increase in the threshold of 90,000 people – or about 12% of those who receive a positive amount of the JobSeeker payment.

Appendix F: Definition of "benefit exit" categories

The benefit exit categories used in Figure 3 are based on the DSS DOMINO microdata. There are 643 reasons for exit, which we manually coded to six categories.

Mutual obligations: The aggregation of 207 of categories where the individual failed to attend or act based on their mutual obligations.

Did Not Respond: This refers solely to category "DNL" which is an automatic non-lodgement category. It is possible that some mutual obligation failures were caught by this code prior to 2013/14, which is why we report it separately to other categories.

Natural causes: This refers to 86 situations where the payment ended due to age, death of someone else, or changes to family status.

Work: This is the 18 categories where individuals are observed exiting to work. This highly underestimates the number of individuals who exit to work, as many recipients will simply stop reporting to DSS.

Means: Those 24 categories where they fail the asset or income (i.e. seasonal work, income exceeds limit) tests.

Other: Made up of 307 categories that are not defined above – includes travel overseas, death of the recipient, file and TFN mismatches, and administrative exits due to other payments.

Appendix G: Definitions of effective tax rates

Effective tax rates provide a measure of the proportion of a measure of tax relative to a measure of income. The definition of effective tax rate described in this micro note refers to the common *participation tax rate* that is used in the literature.

This tax rate reflects how of a sum of income earned the individual keeps when they move from not working to working in a given job – as a result the tax measure includes both the tax paid and the benefits that are sacrificed.

We can think about this tax rate in the following way. If an individual was to work for an employer for a number of hours, h, they would receive gross labour income of $g = w \times h$ where w is the gross wage earned.

Their take home income as a function of hours worked will be equal to $y(h) = g(h) + b\big(g(h)\big) - T(g(h))$ where disposable income depends on the gross income earned, the benefit income received, and income taxes paid. There is debate about whether we include taxes on benefits as tax paid for these measures, but this assumption does not change the discussion in the micro note.

The participation tax rate is equal to 1 minus the proportional amount of earned income the individual keeps when working. This proportional term has a numerator that is the difference between the disposable income for a given job offer (with a given level of hours and wages) to the disposable income when not working. The numerator is equal to the difference in the gross labour income when working and not working. For an hours level h^* this is:

$$PTR = 1 - \frac{y(h^*) - y(0)}{g(h^*) - g(0)}$$

Here disposable income can increase by less than gross labour income (and thereby lead to a positive PTR) due to i) tax being paid on labour income ii) benefit payments declining.

As noted in Ching (2023) there are a number of different effective tax rate measures that represent different concepts. This participation tax rate tells us the following:

1) How much income an individual sacrifices from any gross labour earnings when they decide to work that job.
2) The financial disincentive associated with moving from not being employed to being employed in that job.

However, it does not tell us anything about the *net contribution* of the individual in terms of taxes and benefits.

Even though a low-income earner may have a very high PTR due to the abatement of benefits, in many circumstances the amount of statutory tax they pay is still less than the government benefits they receive. As a result, the tax-benefit system will be *redistributing* to these individuals.

Fairness reflects social views about how much individuals and families contribute to the government out of income, relative to how much they receive. Very high PTRs may still be seen as fair if they *target* assistance towards those who need it most, and if such targeting is an objective of tax-transfer policy.