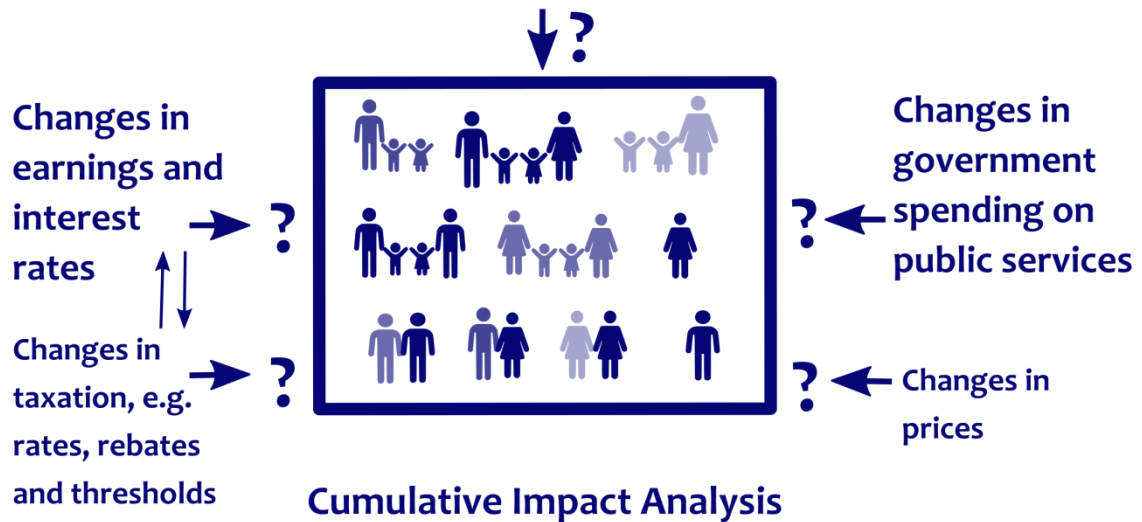


Case Study: Cumulative Impact Analysis

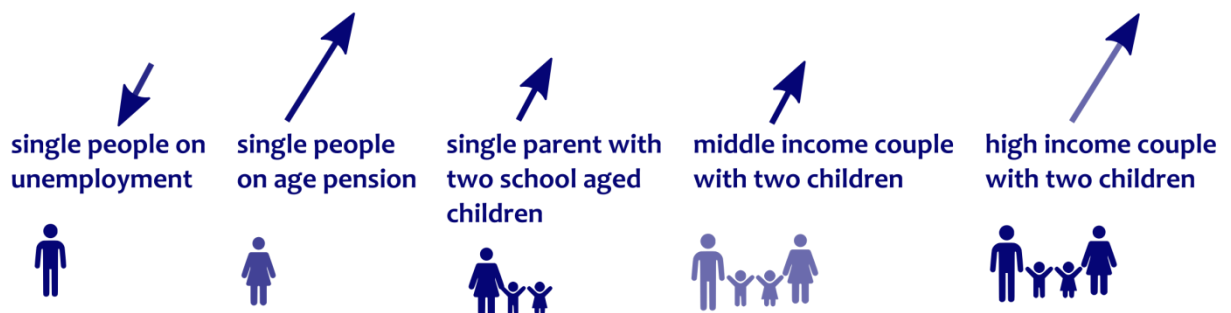
Changes in social security and other benefits

e.g. JobSeeker; Child Care Subsidies; Age Pension; Family Tax Benefits



examines the combined impact of changes in taxes, benefits and government spending on the financial position of different types of households and individuals

Cumulative impact of changes in tax and benefits on real disposable incomes for different groups, 2009-10 to 2019-20



CASE STUDY 4: CUMULATIVE IMPACT ANALYSIS

Siobhan Austen, Monica Costa & Rhonda Sharp¹

Why do a cumulative impact analysis?

A cumulative analysis of the budget means looking at the combined impact of a number of spending and revenue raising measures. The effect of some individual measures may be small, but taken together the cumulative impact may be substantial for certain households and individuals.

Cumulative impact analysis promotes an understanding of the distributional effects of a range of tax, benefit and spending policies by describing the combined effects of these budget measures in terms of changes in the net income and/or the value of public services accessed by different types of households and individuals.

When a gender lens is applied, cumulative impact analysis can help identify how much different groups of women and men are affected by a set of budgetary measures. To illustrate, academic analysis of the controversial austerity measures included in the Abbott coalition government budget of 2014-15 showed that low income families and people receiving social security benefits would do the heaviest lifting in contributing to budget savings over the following four years. Particularly large adverse impacts were estimated for sole parents, the majority of whom are women, and young people. There was no negative impact on high income couple households with no children.²

Cumulative impact analysis can:

- *provide a more comprehensive understanding of the combined impact of budgetary measures, including distributional effects over time*
- *contribute to transparency by providing pertinent information on how budgetary changes impact on different types of households and individuals*
- *make visible the reality of changes to public services and taxation for different groups of women and men by shifting the focus away from analyses that simply describe the total or average level of expenditure, tax or benefits*
- *inform discussions about inequality and poverty by giving attention to harmful inequalities*
- *clarify validity, or not, of political rhetoric around the budget by providing numbers that relate the budget to the experiences of households and individuals.*

This case study illustrates the potential of cumulative impact analysis, and some limitations, for gender-responsive budgeting by describing a small-scale evaluation of the distributional effects of changes in taxes and benefits in recent Australian federal budgets.

Applying a gender lens to cumulative impact analysis

Using a gender lens, cumulative impact analysis of a budget can help determine how much different groups of women and men are affected by budgetary measures. The UK Women's Budget Group casebook includes a series of cumulative impact analyses of the distributional impact of all cuts and changes to social security, spending on public services and tax policies from 2010 projected forward to 2020.

For this casebook, we conducted a smaller-scale evaluation analysing the impact of changes in taxation and benefits, including Family Tax Benefits, in the Australian federal Budgets between the financial years 2009-10 and 2019-20. We used a publicly available micro-simulation model, together with census and other data. We examined a limited set of policy 'reforms' to illustrate how the gender impacts of policy changes introduced in stages over a period of time might be evaluated. Due to data limitations (discussed below), the evaluation falls short of what a full cumulative analysis can achieve.

A distributional analysis. Cumulative impact analysis is 'distributional', examining the impact of policy changes on the *disposable (net) incomes* of women and men and their households across a range of different household types (such as different sized households, households with and without children, different age groups, employment statuses, income and wealth).

Such analysis should be conducted at both the household and individual level because there is gender inequality both between households and between individuals. Women tend to disproportionately live in particular types of households. Table 4.1 shows that sole parents and single age pensioners are more likely to be women in Australia, while working-age singles without children are more likely to be men. But there is also gender inequality between individuals, including between those who live in the same household, and this can only be captured if we examine what budgetary changes mean for individuals as well as households.

The steps and data involved in cumulative impact analysis






An initial step in cumulative impact analysis is to identify representative groups of households, so that the differential effects of changes in taxes and benefits can be assessed.

In our study we used data from the joint report into inequality in Australia by the Australian Council of Social Services and the Social Policy Research Centre of UNSW³ to identify five household types (Column 1, Table 4.1). To achieve a gendered analysis, we added details, where appropriate, on the proportion of each household type that is female. Data limitations meant that this analysis could not include diverse characteristics such as race, ethnicity, LGBTIQ+ and location.

A further step is to assess the effects of taxes and benefits, and to do this we first needed to measure the earnings and wealth of the adults within each household type.

We used ABS data on median earnings⁴ (rather than average earnings) for the mid-income household, to focus on outcomes for those in the middle of the earnings distribution. For high-income households we used data on the earnings of the men and women at the 80th percentile of their respective earnings distributions. In the low-income households there were no earnings (see column 3 of Table 4.1). We used Davidson et al.'s (2020) data to measure the housing and other wealth of each household type (see column 4 of Table 4.1).

Table 4.1 Characteristics of representative households, 2019-20

| Income Group | | Income | Wealth |
|--|-------------|---|---|
| Household 1 (39.3% female)¹ | | | |
| Single; no kids; unemployed  | Lowest 10% | Earnings: \$0 | Own home: \$0 Financial Wealth: \$10,000 |
| | | Social Security Benefits: (Newstart): \$18,065 Disposable Income: \$18,065 | |
| Household 2 (80.1% female)¹ | | | |
| Single parent; 2 school- aged kids (10 and 7); unemployed  | Lowest 10% | Earnings: \$0 Social Security Benefits: (Parenting Payments and Family Tax Benefit): \$ 39,127 Disposable Income: \$39,127 | Own Home: \$0 Financial Wealth: \$10,000 |
| Household 3 (68.2% female)¹ | | | |
| Single aged pensioner  | Lowest 20% | Earnings: \$0 Social Security Benefits: (Age Pension): \$23,780 Disposable Income: \$23,855 | Own Home: \$518,000 Financial Wealth: \$75,000 |
| Household 4 | | | |
| Middle-income couple; 2 school-age kids (10 and 7); waged  | Middle 20% | Earnings: His: \$1,491 pw Hers: \$522 pw Social Security Benefits: (Family Tax Benefit): \$1,324 Disposable Income: \$87,544 | Own Home: \$296,000 Financial Wealth: \$271,000 |
| Household 5 | | | |
| High income couple; 2 school-age kids (10 and 7); waged  | Highest 20% | Earnings: His: \$2,808 pw Hers: \$983 pw Social Security Benefits: \$0 Disposable Income: \$142,956 | Own Home: \$551,000 Financial Wealth: \$963,000 |

Adapted from Davidson et al. (2020)⁵

Note 1: The gender characteristics of the 3 single households are based on Census 2021 data. These statistics are not relevant to mixed-sex couple households

The STINMOD+ model. To measure the taxes and benefits affecting each household – and the individuals within them, we fed the information on each individual’s earnings and the wealth of their household into the STINMOD+ model for 2009-10 and 2019-20 (with wealth data limited \$1m due to restrictions in the model). This generated estimates of each individual’s entitlement to benefits and their liability for personal income tax in 2009-10 and again in 2019-20 (see column 3 of Table 4.1 for 2019-20).

A note on STINMOD+

STINMOD+ is a publicly available tax and welfare policy simulation model from the National Centre for Social and Economic Modelling (NATSEM).

STINMOD+ includes a policy database covering all major taxes and benefits over the last two decades.

Establishing a baseline. Assessing the impact of the changes in taxes and benefits on the disposable income of the individuals and household types in our study involved a further important step. We constructed a ‘baseline’ for each adult and household type shown in Table 4.1. *This baseline consisted of the disposable income that the person/household type would have had in mid-2019, taking account of inflation, if the tax and benefit changes introduced over the period 2009-10 to 2019-20 had not taken place.*

Measuring the difference. We then estimated the actual disposable income of each person and household type in 2019-20, taking account of the tax and benefit policy changes that had been put in place over the preceding decade, and also taking account of price inflation and the growth in earnings. The difference between the baseline and actual incomes in 2019-20 represents the cumulative impact of tax and benefit changes between 2009-10 and 2019-20 for each person or household type. To facilitate the comparison of the cumulative impacts across different household types and individuals, we measured these impacts as a proportion of net income in 2009-10.

Calculating a baseline income in 2019-20

If a person were earning the median male full-time wage in mid 2009, their private income would be \$57,253 a year. Taking account of the income taxes and benefits for which they would be liable/eligible for, we estimated a disposable income of \$45,628 in 2009-10.

Taking account of inflation over the ensuing decade, their earnings are equivalent to \$70,994 in 2019-20 and their disposable income (earnings net of taxes and benefits) are equal to \$56,579. This is their baseline income in 2019-20.

Actual incomes in 2019-20

By mid 2019, the median wage had risen by \$6,751 to \$77,745. Tax changes saw the taxes paid by workers on the median wage rise by \$3,142 (at 2019 prices). Another change increased their Medicare levy by \$490 per annum (in 2019 prices) whilst changes in the mid-income tax offset gave them an extra \$758. The actual disposable income of a person earning the median male full-time wage in 2019 was thus:

$$\$56,579 + \$6,751 - \$3,142 - \$490 + \$758 = \$60,456.$$

That's a net rise of \$3,877 a year (6.9%). Keep in mind, though, that most of this positive change in income was driven by the growth in median earnings. The changes in tax and benefits reduced disposable income by \$2,874 (5.1%).

As a final note on the methodology of our study, we assumed equal splitting of both household benefits, such as Family Tax Benefits, and household wealth. This is because data are not currently available on how such resources are shared within households and the STINMOD+ model only allows data on household housing wealth to be captured. This is a further limitation of the case-study because research has shown that while households do share some resources, they are not always equally shared. Future studies of cumulative impacts will hopefully be able to access data on the gender pattern of payments of Family Tax Benefits and the ownership of wealth within households.

What we found

The impact of the tax and benefit changes across and within the different household types

Our cumulative impact analysis focused on changes in disposable income in five types of household between 2009-10 and 2019-20, and on the impact of changes in taxes and benefits across couples and singles, and across women and men in a number of household types.

Differences in the impact of the tax and benefit changes across gendered household types

- We found that single people on unemployment benefits, of which the majority are men, experienced a fall in their real income over the decade by 1.0% (or \$184 per year) as JobSeeker payments failed to keep pace with inflation.
- As shown in Figure 4.1, single people on the Age Pension, the large majority of whom are women, saw their incomes rise by a relatively large amount (29.5%), but we need to keep in mind that access to the Age Pension was tightened over the decade, including an increase in the qualification age for the Age Pension for women¹. Hence, a smaller proportion of women were able to access its higher benefits.

¹ The pension age for women rose from 60 to 65 between 1995 and 2013. And between 2017 and 2023 the pension age for all Australians rose in stages to 67.

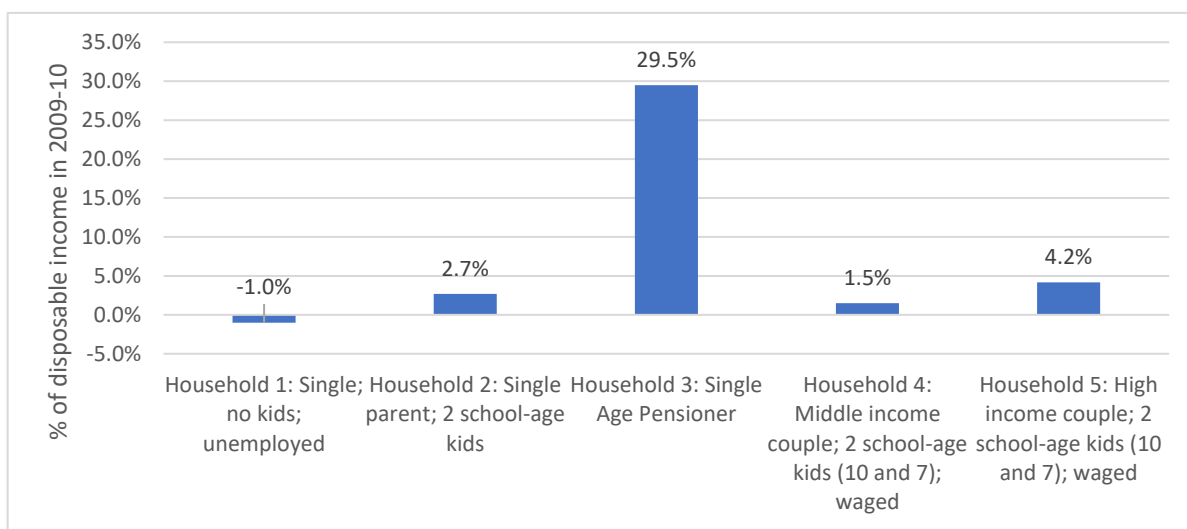


Figure 4.1 Changes in real disposable income between 2009-10 and 2019-20

- High income households with children saw their incomes grow in real terms by 4.2%, but the increase for mid-income households with children was only 1.5%. In terms of the impacts of changes in taxes and benefits, the mid-income household with children (as well as those on unemployment benefits) fared poorly. The mid-income household was heavily affected by a reduction in the means tested Family Tax Benefits, which fell in real terms by \$3,682 per annum (73.6%). Income tax liability also increased for this household type – by \$2,298 per annum (13.8%); the Medicare levy increased by \$742; and the low-income tax offset fell by \$1,184. Thus, whilst the real earnings of the mid-income household rose by \$9,142 per annum over the 10-year period, changes in taxes and benefits eroded most of these gains by pushing its real disposable income down by \$7,583.
- For high-income households, annual real earnings rose by \$17,110 (9.5%) over the decade, but changes in taxes and benefits reduced the growth in real income to \$5,715 (4.2%). Income tax liability increased by \$8,199 (19.7%); the Medicare level increased by \$1,243 (46.0%); whilst tax offsets increased by \$21 (1.6%).

Gender differences in the impact of the tax and benefit changes within couple households

- Figure 4.2 shows the relative growth in individual disposable incomes of men and women in mid- and high-income couple households between 2009-10 and 2019-20. The rate of wage growth across all individuals and households was assumed to be the same (at 9.5%).
- The differences shown in the graph reflect the differential impact of tax and benefit changes over the period. Women living in high income couple households fared relatively well, with their net income rising by 5.2% in real terms. Women in mid-income households fared the worst, barely shifting their disposable income over the study period, largely because of reductions in their Family Tax Benefits. Within these households the level of inequality increased further.

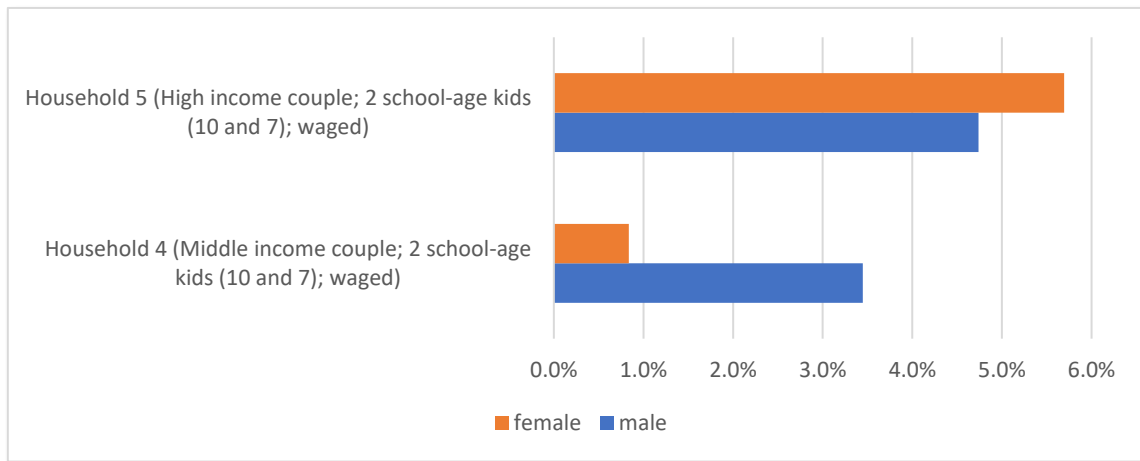


Figure 4.2 Growth in the real disposable incomes of men and women in mid- and high-income couple households, 2009-10 to 2019-20

Realising the potential of cumulative impact and other distributional analysis

The ability to undertake cumulative impact analysis is heavily dependent on the data that are available. Household level data, of the type used in this chapter, can be analysed to show budgetary impacts on different types of households. This type of analysis can give a measure of what is happening to standards of living of households in different circumstances. Such analysis can be extended to assess budgetary impacts on gendered household types, comparing, for example, the outcomes for single men, single women and couples.

A further option is individual analysis, which isolates the effect of budgetary measures on men and women within households. This can be harder to do if the data on the economic resources of people within households aren't fully available and, thus, assumptions may need to be made about how they are shared. In this chapter data on individual earnings was available but assumptions needed to be made about the sharing of Family Tax Benefits and wealth within households, and this limited the impact assessment. Examining the access individuals have to money of their own is important because it gives some measure of financial autonomy, an important determinant of well-being.

Studies of the distribution of public services are important in understanding the gendered impact of budgets, given their role in determining individuals' standard of living. Inequalities in health, education, transport are especially important over a life-course and require different forms of analysis. The UK Women's Budget Group identify the types of models and data that can be used to assess the effects of public services.

The use of cumulative impact analysis by the federal government



Inequality has only appeared twice in the past 10 years of [federal] Budget Paper 1 (3493 pages). Reference to Australian 'poverty' appeared only once.

David Sligar (2017)⁶



Cumulative impact and other distributional analyses are used around the world as part of good budgeting practice by governments. Australia's federal budget does not regularly provide information about the distributional effects of taxes and benefits for informing public debate about the income and gender impacts of the budget.

Between 2005 and 2015, the Australian federal government did provide a distributional analysis in their budget documents, examining the effect of budgetary measures on a small number of hypothetical households and individuals. While these simple cumulative analyses were useful, they revealed a limited understanding of gender impacts as they glossed over the distribution of impacts within households, didn't say how prevalent those household types were (and so didn't give a picture of the overall distributional impact), and they failed to reflect the diverse composition of Australian households. In addition, commentators have noted that the analysis did not include spending on services or consider costs such as childcare. Small additions since the removal of distributional analysis from the budget papers in 2014 have not addressed the need for such analyses.

The limited distributional analysis in the federal government's budget papers, including in the Women's Budget Statement, has left the responsibility for rigorously demonstrating the financial effects of policies on different groups with researchers in organisations outside government.⁷ As noted above, cumulative impact analysis that captures gendered impacts better requires more sophisticated models and data that are often beyond the resources of women's and community groups.

Notes, Case study 4

- 1 To cite this work: Austen, S. (2024). Cumulative impact analysis. In M. Costa & R. Sharp Women Count Australia: A Casebook for Gender-responsive Budgeting. Adelaide, Australia.

We would like to thank Jerome De Henau author of Cumulative impact analysis. In UK Women's Budget Group. (2018). [Women Count: A Casebook For Gender-Responsive Budgeting Groups](#). United Kingdom.
- 2 Whitford, P., & Nethery, D. (2014). [How the budget pain is unfairly shared](#). *The Sydney Morning Herald*. May 18; Phillips, B. (2014). Sharing the budget pain. [NATSEM independent modelling of 2014-15 Federal Budget](#). Canberra: University of Canberra.
- 3 Davidson, P., Bradbury, B., Wong, M. and B., & Hill, P. (2020). Inequality in Australia, 2020. Part 2: Who is affected and why? Australian Council of Social Service (ACOSS) and UNSW (Sydney).
- 4 Australian Bureau of Statistics (ABS). 2020. Characteristics of employment, Australia. August 2020. Cat. no. 6333.0. Canberra.
- 5 Davidson et al. *Op cit.* (2020).
- 6 Sligar, D. (2017). [Budget honesty should mean incorporating distributional analysis](#). *The Mandarin*. May 22.
- 7 National Foundation of Australian Women (NFAW). (2015). *Budget 2015-16 – A gender lens*. Canberra, NFAW.