

# ARE GST EXEMPTIONS FAIR?: PART ONE HORIZONTAL EQUITY

POLICY RESEARCH PARTNERSHIP

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The Goods and Services Tax (GST) is a major feature of the tax system in Australia, raising approximately 14% of government revenue (ABS, 2025a). Relative to other countries, Australia's GST is narrow, with around half of spending untaxed, such as fresh fruit and vegetables, and education fees (OECD, 2024). In this note, we explore the horizontal equity consequences of these exclusions and discuss the winners and losers from expanding GST to tax all consumption items (broadening the base).

Horizontal equity reflects charging the same tax rates for households with the same ability to pay for taxation. When these effective tax rates differ, two households who spend the same amount every week pay different amounts in GST, solely due to the particular goods and services they purchase. We find:

- **Effective tax rates differ for similar households:** Across all spending and income levels there are large differences in tax paid. For example, among average spenders the GST rate paid on spending varies from 5.6% to 8.9% – in other words a high taxed household is paying 37% more tax than a low taxed household even though they spend the same amount.
- **Age and household structure do not explain this:** There are large differences in tax rates between individuals of a similar age and with a similar household structure.
- **Different exemptions matter for different people:** The exclusion to food generates much of the variability among low-spending and low-income households, while exclusions to education and child care are more important for high-spending and high-income households.

**Broadening the GST base would remove the horizontal inequity in the current system.** To illustrate this we estimate a scenario where the GST is broadened to include all exempt categories, alongside an annual transfer to all Australian adults. This reform scenario would be budget-neutral and compensate households with fewer resources.

The GST, as Australia's Value-Added Tax (VAT), applies at a rate of 10% to many final goods and services. However, a range of items are exempt from GST, including some items within the broad categories of food, healthcare, water and sewerage, child care, and education.<sup>1</sup>

Equity concerns were part of the original motivation for these exemptions (Parliamentary Joint Committee, 1999). As low-income households tend to spend a larger share of their income, exemptions were introduced as a means to mitigate the *vertical inequity* of making those with lower means pay a higher share of tax (a higher effective tax rate, ETR, for those with low means). However, these exemptions introduce differences in the tax paid among those who spend and earn similar amounts. This reflects a form of *horizontal inequity* that is similar to the inequity discussed in income taxation by Kaplan et al. (2025). In this note we focus on the horizontal equity implications of GST exemptions.

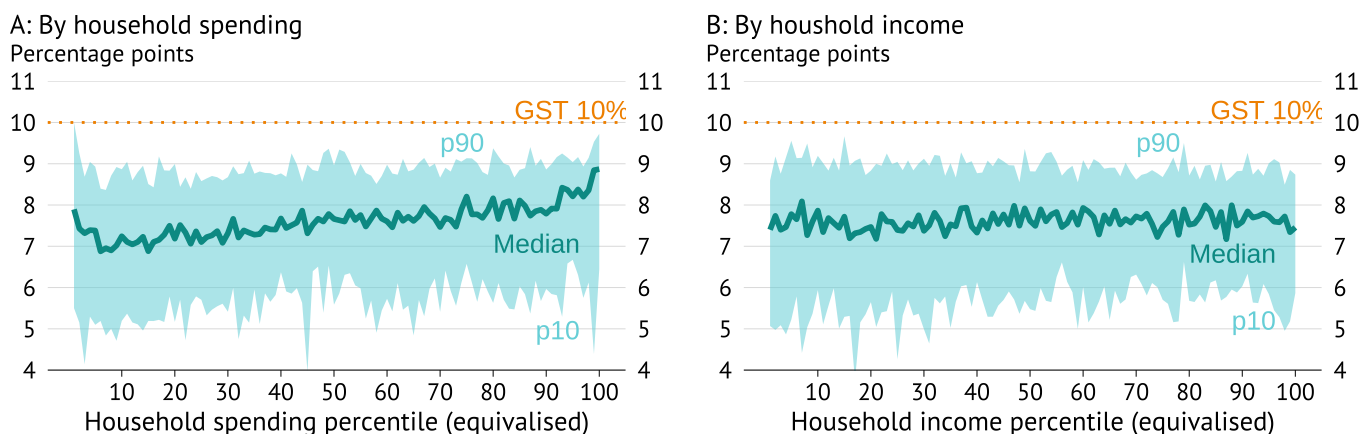
Horizontal inequity is a negative feature of a tax system for two reasons: fairness and efficiency. As a fairness principle, horizontal inequity is bad as it involves making households contribute different amounts of tax when they have the same means to pay. In terms of efficiency, taxing different consumption choices differently encourages people to change their decisions about what to consume solely due to taxation – leading households and firms to organise themselves in inefficient ways to avoid the tax (i.e. supermarkets no longer offering warm cooked chickens to focus on the untaxed cold cooked chicken substitute).

To analyse the GST tax burdens faced by households, we draw on the latest Household Expenditure Survey (HES). This is a nationally representative survey covering approximately 10,000 households and their spending across 600 product categories. We map household spending in the HES onto items that are taxed and exempt. The latest HES release was collected in the 2015/16 year. However, since exemptions and the share of consumption exempt remained roughly unchanged over the last decade, these data can provide useful insights about current GST policy.

<sup>1</sup> For example, some food items such as fresh fruit and vegetables are exempt from GST, while other items such as prepared meals and snack foods are taxable.

In Figure 1, we document that the exemptions of product categories generates dispersion in the amount of GST tax paid as a share of total household spending. Assuming that a household's income or total level of spending is informative about its ability to pay for taxation, the fact that we see dispersion within each income and spending percentile violates the principle of horizontal equity and raises concerns about the fairness of the system. For instance, among households close to the median (50th percentile) in total spending, effective GST tax paid varies from \$5.63 (10th percentile) to \$8.89 (90th percentile) per \$100 of spending – a 2.2ppt higher ETR on high-taxed households with the same means.

**Figure 1: The Distribution of Effective GST Tax Rates as a Share of Total Spending**



\* Equivalised household income and spending uses the OECD-modified equivalence scale.  
Sources: ABS Household Expenditure Survey 2015/16; e61 Institute

## What Drives The Dispersion in Effective GST Tax Rates?

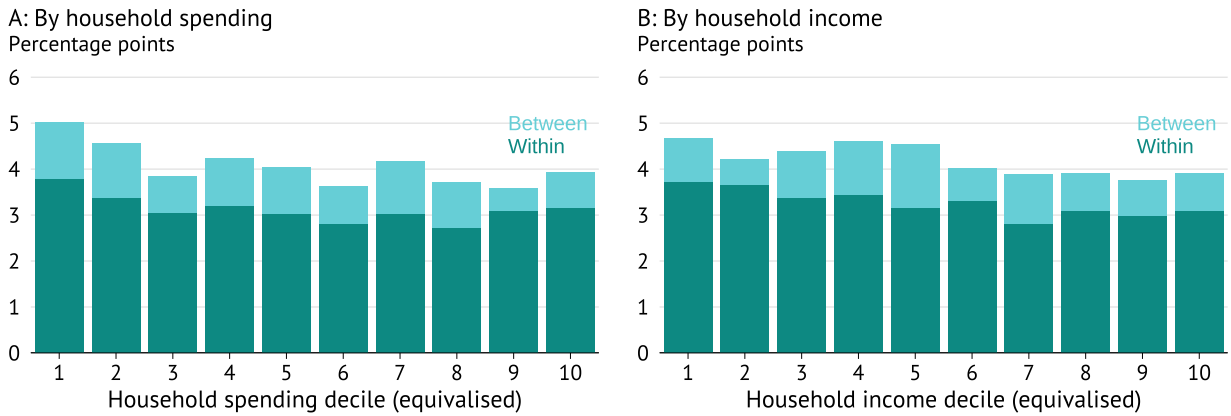
The GST ETR that a household faces is driven by the share of GST taxable items that it purchases. We may expect consumption bundles to differ systematically between households due to their age and composition, which in turn may explain these varying tax rates. For instance, we would expect a young family to allocate a greater share of its consumption on child care (an item exempt from GST), as compared to a household without children.

Figure 2 shows the distribution of GST paid as a share of total spending, broken down by age and household type within each spending and income decile. We find that the dispersion within age groups and type of households is significantly greater than the dispersion between groups, and this holds across each income/spending decile.<sup>2</sup>

This tells us that, even among people who are at a similar age with a similar household composition (partner, children), there are large differences in the amount of tax paid.

<sup>2</sup> Appendix A.5 validates this finding using regression analysis.

**Figure 2: Decomposing The Effect of Age and Household Type on The Dispersion in GST Effective Tax Rates**

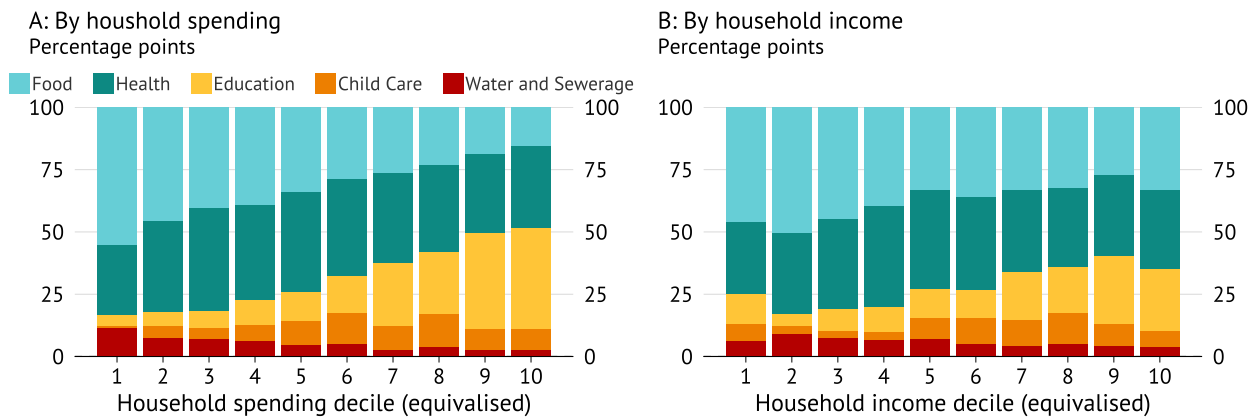


\* Dispersion in GST ETRs between age and household types, versus within age and household types. Dispersion is measured in terms of percentiles (p90-p10), applying population weights. Equivalised household income and spending is adjusted based on a household's size and composition, using the OECD-modified equivalence scale.  
Sources: ABS Household Expenditure Survey 2015/16; e61 Institute

Although age and household composition don't seem to explain what is going on, there are important differences based on what households purchase.

In Figure 3, we show how each currently exempt product category contributes to the overall dispersion in GST ETRs. The results indicate that different exemptions matter more for households with different spending and income profiles. For households with low-spending or income, the exclusion of basic food items, such as fresh fruit and vegetables, is the largest source of variation in effective GST tax rates. In contrast, for high-spending and high-income households, exemptions for education and child care play a larger role.

**Figure 3: The Share of Dispersion (p90-p10) in GST Effective Tax Rates from GST Exempt Product Categories**



\* Share of total dispersion (p90-p10) explained by each GST-exempt category within each decile of household income. Equivalised household income and spending is adjusted based on a household's size and composition using the OECD-modified equivalence scale.  
Sources: ABS Household Expenditure Survey 2015/16; e61 Institute

The importance of this result can be illustrated by focusing on exemptions for food. By exempting some food items current GST policy generates significant horizontal inequity among low-income and spending households, as some are unable or unwilling to shift to GST exempt items. However, this horizontal inequity comes from less tax being paid by a group of low-income or low-spending households – implying that any move to broaden the base would have a large effect on the budget of this group.

# Policy Illustration: Broadening the GST Base

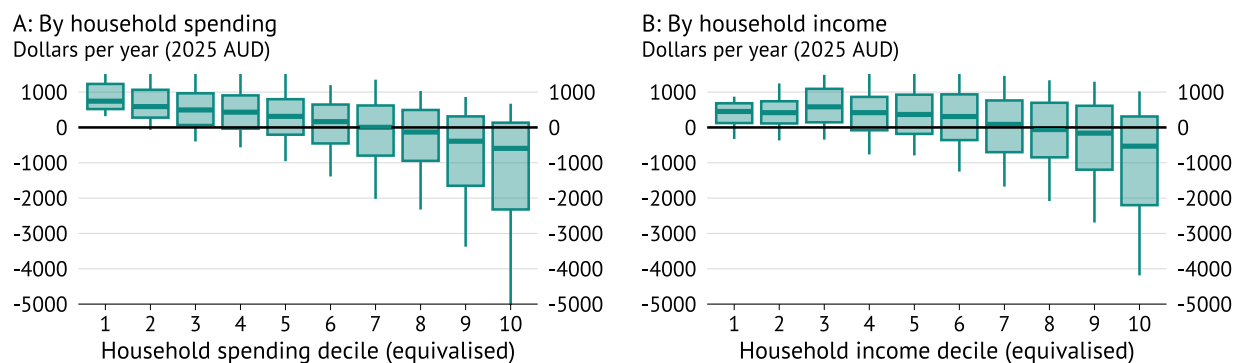
Previous authors have proposed *broadening the GST base*, which involves removing the current exemptions for certain products (Daley & Wood, 2015; Holden & Dixon, 2025). Such a reform would mean that all households face the same GST effective tax rate, removing the horizontal inequity under the current system. For example, if the GST base was broadened while maintaining the current rate of 10%, all households would face an effective GST tax rate of 10%, regardless of the particular goods and services that they consume.<sup>3</sup>

While this would eliminate horizontal inequity, it would do so by raising effective tax rates for some households. As a result, the burden of higher taxes would fall disproportionately on those most affected by the removal of exemptions. This raises potential concerns about vertical equity, since higher taxes may impact households least able to bear them. It is therefore important that any GST reform considers these broader equity objectives, as in the *Progressive GST* proposal of Holden and Dixon (2025).

Given this, can we design a change where we broaden the GST base to remove this horizontal inequity without making low income and spending households worse off? We can. Drawing on our analysis of the HES data, we estimate that broadening the GST at a rate of 10%, combined with an annual transfer of approximately \$900 (in 2025 AUD) to every Australian adult aged 18 and over, would be budget-neutral while eliminating the horizontal inequity in the system. This transfer amount should be interpreted as a conservative estimate rather than a precise figure, as it is somewhat sensitive to modelling choices. Details and assumptions behind this calculation are provided in Appendix A.6.

The policy scenario we consider would impact households' financial position in two ways. First, the annual transfer would benefit households by providing an additional flat payment to each adult. Second, the broadened GST base means that households now pay more GST. In Figure 4, we illustrate the net influence of these two effects on households based on their spending and income levels.

**Figure 4: Change in Net Annual GST Transfers Under Base Broadening**



\* In each box plot, the box spans the 25th to 75th percentiles, the interior line shows the median, and the whiskers indicate the 10th and 90th percentiles, applying population weights. Equivalised household income and spending uses the OECD-modified equivalence scale. Sources: ABS Household Expenditure Survey 2015/16; e61 Institute

We see that the vast majority of people who are in the lowest 20% by spending or income are made better off, while those in the top half of the income distribution end up paying additional tax. This implies that such a policy reform would be highly progressive, would end the horizontal inequity in GST treatment based on what people buy, and would make the GST system more efficient by not distorting household decisions about what to buy.

However, making a policy decision about compensation involves questions of vertical equity. In a forthcoming note, we will investigate this issue in greater detail.

<sup>3</sup> The implications of such a reform are complicated by behavioural changes. This is discussed in greater detail in Appendix A.4.3

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## A.1. Data Description

We draw on data from the latest wave of the Household Expenditure Survey (HES), administered by the Australian Bureau of Statistics in 2015/16. This is a nationally representative survey covering approximately 10,000 households and their spending across 600 product categories.

We map household spending in the HES onto items that are taxed and exempt, following the classifications by the Australian Taxation Office (ATO). There is some uncertainty in the mapping of ATO determinations to consumption items recorded in the HES. We apply our best judgment to this and we find similar aggregate statistics to the previous work of Daley and Wood (2015) and PBO (2020).

We follow the HES measurement conventions, which records household spending primarily on an acquisitions basis. For durables this means expenditure is recorded in the period of purchase, while for non-durables it closely aligns with actual consumption. Weekly expenditure values are derived by the ABS using two-week diaries for regular items and longer recall periods for infrequent purchases.

No uprating is applied to the data used in this analysis. As a result, the *discussion of horizontal equity refers to the population and spending patterns as they were in 2015/16*. Analysis in IFS (2011) uprates based on national accounts consumption categories assuming that the household distribution of such spending and household characteristics remains unchanged. While the survey was conducted nearly a decade ago, we argue that it remains relevant for assessing the horizontal equity implications of the GST. This is because there has no been a major reform to the scope of GST exemptions in the years since, and we assume that household spending patterns across broad product categories remain stable over time.

For the purpose of our analysis, we derive the following following variables for each household  $i$ :

- **Weekly income $_i$** . This is derived from survey responses of the total household income from the previous financial year (INCTOTPH).
- **Goods and Services Spending $_i$** . This is the sum of weekly expenditure on all of the goods and services in the HES, excluding:
  - Rent payments
  - Mortgage repayments (including interest and principal components)
  - Tax payments (including council rates)
  - Superannuation and insurance products.
- **Spending on GST taxable items $_i$** . This is a subset of Goods and Services Spending $_i$ , based on our mapping of consumption items in the HES to ATO classifications.

We use these variables to construct our objects of interest, effective rates of GST taxation. For the purpose of this note analysing horizontal equity, we define the Effective GST Taxation Rate as a share of spending

$$\text{GST ETR}_i^{\text{Spending}} = \frac{\text{Spending on GST taxable items}_i \cdot \tau_{\text{gst}}}{\text{Goods and services spending}_i}.$$

where  $\tau_{\text{gst}} = 0.1$  under current policy settings. Another measure of the effective GST rate is measuring GST tax expenditure as a share of household income

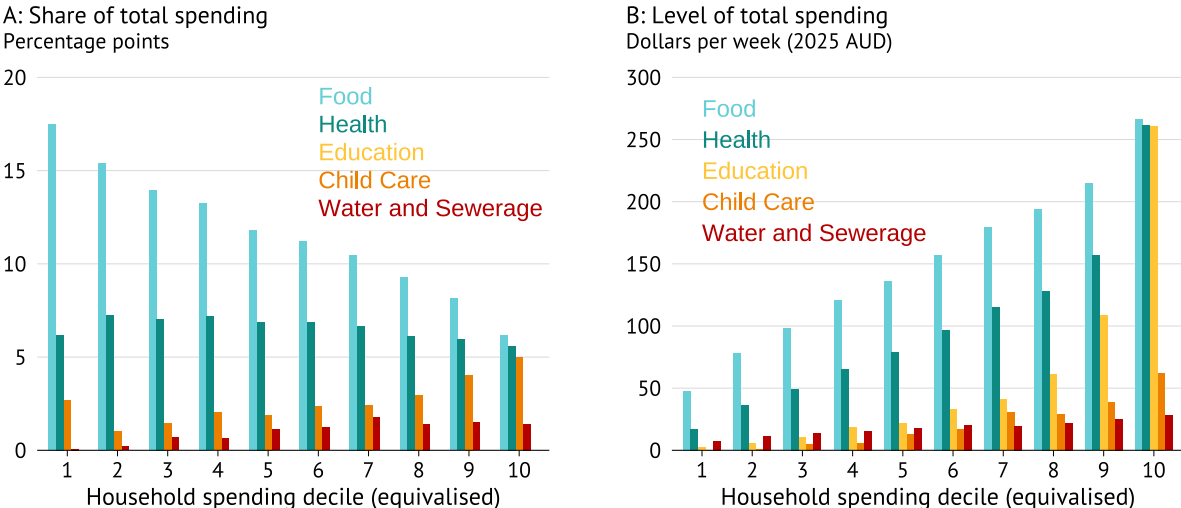
$$\text{GST ETR}_i^{\text{Income}} = \frac{\text{Spending on GST taxable items}_i \cdot \tau_{\text{gst}}}{\text{Weekly income}_i}.$$

We consider  $\text{GST ETR}_i^{\text{Spend}}$  to be a more informative measure of a household's effective rate of GST taxation than  $\text{GST ETR}_i^{\text{Income}}$  for the purposes of this analysis. The latter, which expresses GST payments as a share of current income,

is influenced by a household’s level of saving and borrowing in a particular period. As a result, it can depart from the concept it seeks to approximate, which is the household’s underlying ability to pay taxes, since current income can differ substantially from lifetime income. In contrast, expenditure tends to be more closely aligned with lifetime resources and thus provides a more stable indicator of tax incidence. This interpretation follows the arguments previously elaborated by IFS (2011) and Thomas (2020). In future work, we will further examine the relevance of  $GST\ ETR_i^{Income}$  for assessing vertical equity.

A household’s GST ETR as a share of spending is driven by it’s proportion of spending allocated to GST-exempt items. In Figure A.1, we present the average share and level of household spending on these exempt product categories across household spending deciles.

**Figure A.1: Average weekly spending on GST exempt items**



\* Mean within each decile, applying population weights. Equivalised spending is adjusted based on a household’s size and composition, using the OECD-modified equivalence scale. Sources: ABS Household Expenditure Survey 2015/16; e61 Institute

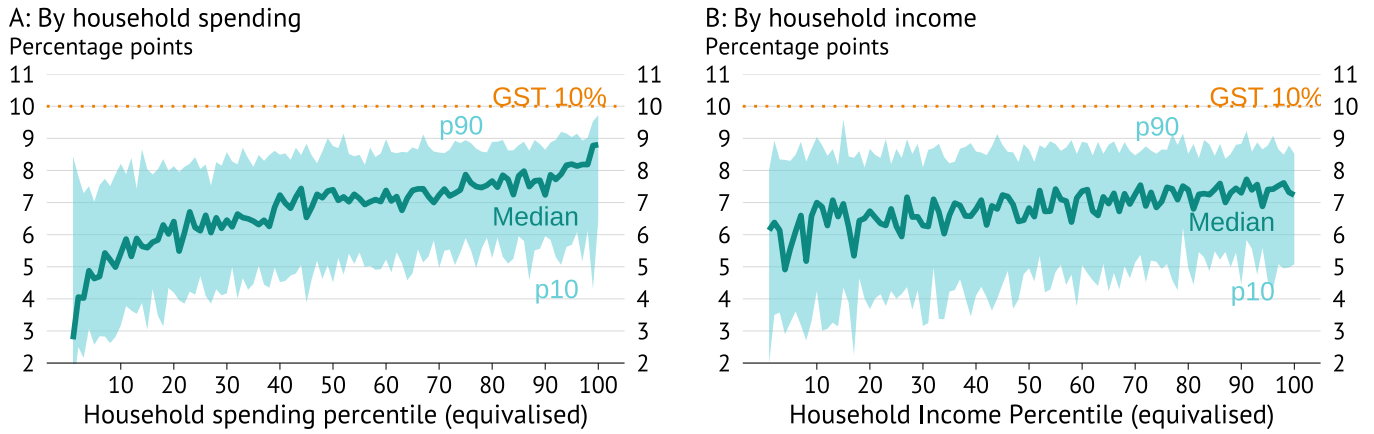
## A.2. The role of rent

For our main analysis of GST ETRs, we exclude rent from our measure of household spending on goods and services. We argue that this is appropriate for two reasons:

1. GST is a consumption tax on final goods and services. In the case of housing, the construction of a new home is subject to GST, while the costs of operating a rental property are *input taxable*. Applying GST to ongoing rent payments would therefore amount to double taxation, taxing both the stock (i.e. the asset when it is built) and maintenance of the stock, alongside and the subsequent flow of consumption (i.e. rent).
2. If rent were to be treated as taxable household consumption, then the value of housing services consumed by owner-occupants, known as imputed rent, ought also to be taxed. Provided that we do not tax imputed rent, excluding actual rent keeps the treatment of renters and owner-occupiers consistent.

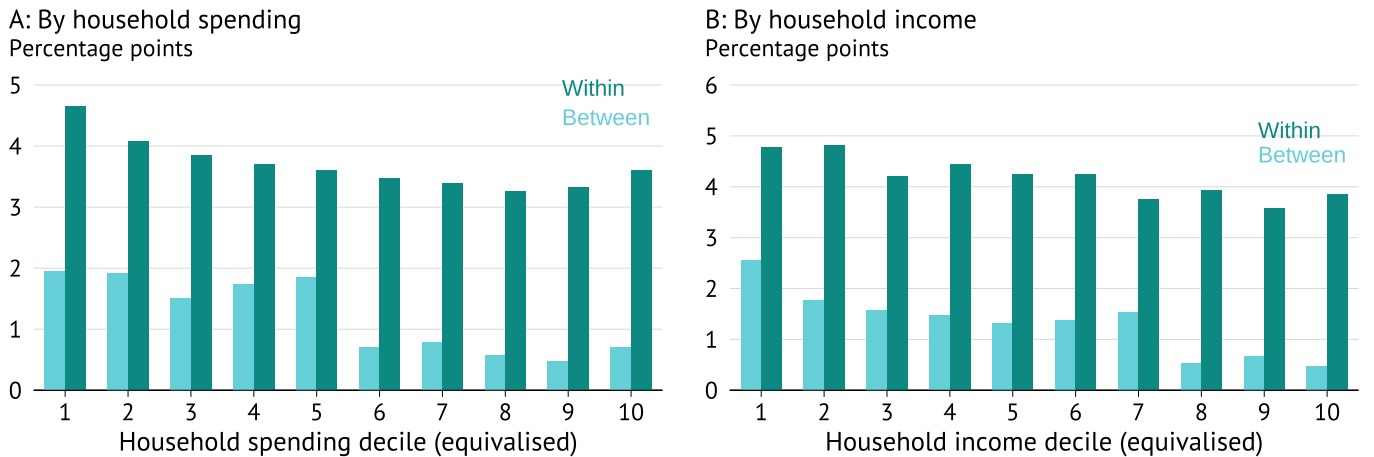
To show the sensitivity of our results to the exclusion of rent, we present the same analysis including rent as an untaxed component of household spending. In Figure A.2 we see that that the dispersion in effective GST ETRs remains persistent across the household spending and income distributions. Likewise, in Figure A.3 we see that that dispersion within each age and household type explains the majority of dispersion, as compared to dispersion between age and household groups. Both of these illustrations means that the inclusion of rent does not change the main interpretation of our findings in the context of horizontal equity.

**Figure A.2: Effective GST Tax Rates as a Share of Total Spending, Including Rent as Spending**



\* Equivalised household income and spending uses the OECD-modified equivalence scale.  
Sources: ABS Household Expenditure Survey 2015/16; e61 Institute

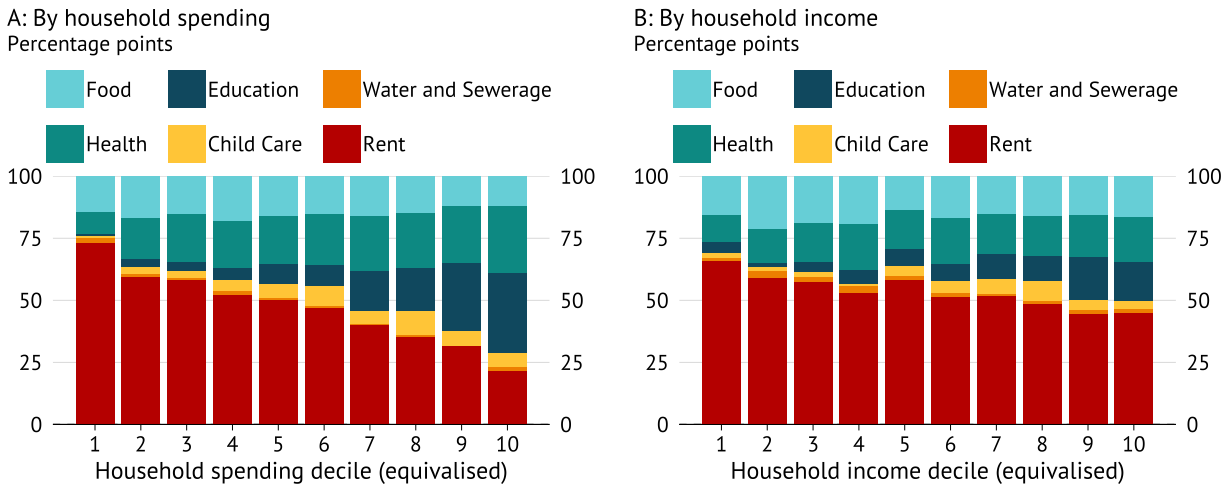
**Figure A.3: Decomposing the effect of age and household type, including rent as spending**



\* Dispersion between age and household types, versus within age and household types. Dispersion is measured in terms of percentiles (p90-p10), applying population weights. Equivalised household income and spending is adjusted based on a household's size and composition, using the OECD-modified equivalence scale.  
Sources: ABS Household Expenditure Survey 2015/16; e61 Institute

In Figure A.4, we see that the inclusion of rent as a type of household spending contributes to a significant amount of dispersion in GST ETRs as a share of household spending.

**Figure A.4: Decomposing the influence of spending categories, including rent**



\* Share of total dispersion (p90–p10) explained by each GST-exempt category at each decile of household spending and income. Equivalised household income and spending is adjusted based on a household's size and composition using the OECD-modified equivalence scale.

Sources: ABS Household Expenditure Survey 2015/16; e61 Institute

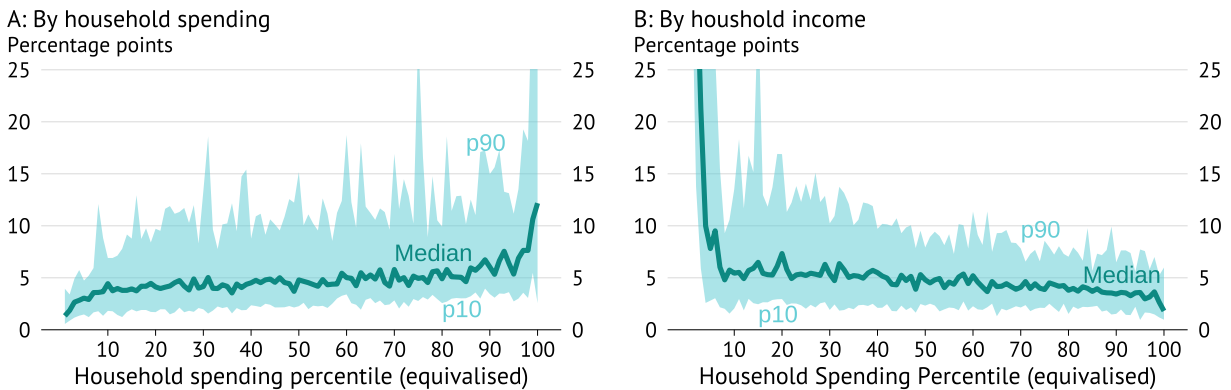
### A.3. Different Effective Tax Rates

In this note, our analysis has focused on GST payments as a share of a household's total spending - with the plots either ordered by household equivalised spending or income.

Another measure of a household's ability to pay is its current income. In Figure A.5, we show the distribution of GST effective tax rates as a share of household income. We see that there is substantial dispersion in effective tax rates within each level of household income and spending. This is consistent with our findings for GST payments as a share of spending in Figure 1.

However, measuring GST payments as a share of current income can be misleading, as it is influenced by a household's level of saving in a particular period. Households who are saving will have a lower ETR as a share of income than they would otherwise. Complicating matters is the fact that savings will face GST in the future – so when an individual is dissaving (or borrowing) their ETR will become higher again in the future. We will discuss this issue in more detail in a future note on vertical equity.

**Figure A.5: The Distribution of GST Effective Tax Rates as a Share of Household Income**



\* Equivalised household income and spending uses the OECD-modified equivalence scale. Sources: ABS Household Expenditure Survey 2015/16; e61 Institute

## A.4. Exemptions

### A.4.1 Types of exemptions

In the Australian GST system, a rate of GST is applied to the sales of a good or service, and a tax credit can be received for the GST paid on the inputs purchased to create that good or service. This series of taxes and tax credits ensures that this is only a tax on *value add* rather than an inefficient *transaction tax* which would punish more complicated production processes.

When we discuss GST exemptions in this note there are two forms of exemptions. Both lead to a zero rate of tax being applied on the sale of the good or service, but they have different implications on the credits that can be received.

The products mentioned in the main note are **GST-free**. This implies that a seller can claim input credits and are "charged" GST - but at a zero rate.

Excluded categories in our analysis (i.e. rent and financial services) are instead **input taxed**. Here a zero rate of GST is applied, but no tax credit is given - implying that the final price of the good or service reflects GST paid earlier in the value chain. These items are not truly exempted from the GST, but instead have the tax levied at a different level due to compliance or administrative costs.

### A.4.2 Share of exemptions

In the note we reference that around a half of the consumption tax base is taxed, based on (OECD, 2024) estimate of the VAT Revenue Ratio (VRR). This is a top-down measure for estimating the efficiency of the consumption tax revenue for raising revenue. At its simplest this measure compares the total revenue raised to the consumption tax rate times the total amount of consumption in the National Accounts – in the case of Australia 10% of total consumption. This result suggests that the GST revenue received is around half of what we would expect if all consumption was taxed at 10%, lower than the OECD average (58%), and well below a broad-based system like New Zealand's (96%).

Australia's performance on this measure is especially low given that Australia's GST rate is well below most OECD countries. A low VRR can be due to both direct exemptions and a lack of compliance with the tax. As non-compliance rises with the tax rate, we would expect Australia's VRR to be higher than other countries if there was the same set of exemptions.

The 50% figure discussed does differ from the 67% figure noted in (Treasury, 2024) and (Freebairn, 2025), as this figure reflects the proportion of the *private consumption* that is liable for GST. The reason for this is that the VRR also includes public consumption.

A considerable number of the exemptions in Australia are for publicly provided services. If GST was levied on these services this would not increase the governments net revenue – as the cost of the service would rise by the same amount as the tax received. Even without the revenue benefit, there is still a benefit in including public consumption in GST – as by equalising treatment between private and public entities this encourages contestability, and makes the cost of private and public service provision comparable.

### A.4.3 The importance of behaviour

When considering the interpretation of effective tax rates or the implications of a policy reform, it is worth noting that this will change the relative price of goods and services. For example, consider the case of private education, which is currently exempt from GST. If GST is applied to private schools, some consumers may reduce their level of demand for private education. Such a policy change would also impact the demand for other goods, which requires estimation of own-price and cross-price demand elasticities.<sup>4</sup> In this note we do not model consumption responses to a broader tax base. Instead, for illustrative purposes, we assume that there are fixed spending shares irrespective of the tax – a version of the fixed income assumption applied in income-based effective tax rate estimates.<sup>5</sup>

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<sup>4</sup> Estimating demand systems in product markets and introducing counterfactual policy experiments is a more ambitious task, see Berry and Haile (2021) for a review of related issues. Hasan and Sinning (2018) apply an Almost Ideal Demand System framework to estimate demand elasticities for Food in Australia. <sup>5</sup> IFS (2011) is a cross-country analysis of GST systems that imposes an equivalent assumption on the incidence of the levied tax – namely that quantities are fixed and a change in GST rates is fully shown in prices. For vertical equity questions this allows the GST to be analysed like a direct increase in household income. Thomas (2020) notes that such assumptions are common in the literature, and provides a framework for using almost ideal demand system models to think more broadly about incidence in GST systems.

An additional change in behaviour is labour supply, which is especially relevant in the scenario where the increase is compensated with a lump sum income transfer. A higher GST rate is equivalent to an increase in the labour income tax rate for decisions about how much to work.

## A.5. The Influence of Age and Household Type

Our graphical analysis of within-between dispersion in Figure 2 suggests that life-cycle and household structure do not explain the observed dispersion in GST ETRs. In this section we support this result with regression analysis and a further within-between group spread decomposition.

### A.5.1 Regression Analysis

- Let  $y_i$  denote the outcome variable of interest, corresponding to the effective GST taxation rates defined in Section A.1:
  - $y_i^{\text{spend}} \equiv \text{GST ETR}_i^{\text{Spending}} \in [0, 0.1]$ , is the household's effective rate of GST as a share of total spending.
  - $y_i^{\text{income}} \equiv \text{GST ETR}_i^{\text{Income}} \in [0, 1]$ , is the household's effective rate of GST as a share of total income.
- Let  $\mathbf{x}_i$  denote a row vector of dummies for age group, household structure, and their interactions.
- Let  $\beta$  be a column vector of regression coefficients.

To understand the influence of age and household type on effective rates of GST taxation, we are interested in estimating a regression model:

$$(1) \quad \mathbb{E}[y_i] = \mathbf{x}_i \beta.$$

We estimate the linear specification in Equation 1 using both Ordinary Least Squares (OLS) and fractional logit. The OLS regression provides a simple benchmark that is easy to interpret in terms of average percentage point differences across groups. However, as noted by Wooldridge (2010), when the dependent variable  $y_i$  is fractional and restricted to a known interval, OLS predictions may fall outside the feasible support. This issue is particularly relevant for  $y_i^{\text{spend}}$ , where the effective GST rate cannot exceed  $\tau_{\text{GST}} = 0.1$  under the current policy.

To account for these bounds, we also apply the fractional logit model,

$$(2) \quad \mathbb{E}[y_i | \mathbf{x}_i] = a + (b - a) G(\mathbf{x}_i \beta),$$

where  $a$  and  $b$  denote the lower and upper bounds of  $y_i$ , and  $G(z) = \frac{e^z}{1+e^z}$  is the logistic cumulative distribution function (CDF). Both models are estimated separately for the spending-based and income-based effective tax rates, and the results are reported in Table A.1. The results from the regression analysis suggest that age and household structure have weak explanatory power for the variability in both measures of effective GST taxation rates, consistent with our graphical within-between spread decomposition in Figure 2.

### A.5.2 Within-between Dispersion

Figure A.6 decomposes the dispersion in effective GST rates within and between household structures and age groups. Consistent with Figure 2, the results show greater variation within groups than between them, confirming that this pattern holds even without conditioning on spending or income levels.

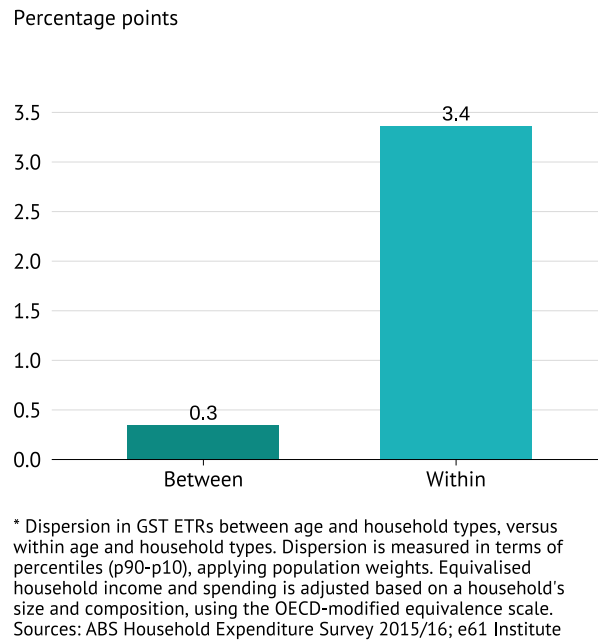
**Table A.1: OLS Coefficients and Fractional Logit Average Marginal Effects (AMEs) of Age and Household Type on Effective Tax Rates**

	OLS Estimates		Fractional Logit (AMEs)	
	GST ETR <sub>i</sub> <sup>Spending</sup>	GST ETR <sub>i</sub> <sup>Income</sup>	GST ETR <sub>i</sub> <sup>Spending</sup>	GST ETR <sub>i</sub> <sup>Income</sup>
<i>Baseline: Couple, no dependent children; Age &lt; 25</i>				
Couple, dep. children	-0.0052 (0.0030)	-0.0128 (0.018)	-0.0063 (0.0113)	-0.0139 (0.064)
Other household	-0.0053 (0.0022)	0.0067 (0.012)	-0.0064 (0.0080)	0.0063 (0.039)
Single only	-0.0021 (0.0022)	0.0206 (0.012)	-0.0027 (0.0082)	0.0178 (0.038)
Single, dep. children	-0.0110*** (0.0028)	-0.0003 (0.015)	-0.0122 (0.0093)	-0.0003 (0.050)
Age 25–40	-0.0043*** (0.0016)	-0.0107 (0.0089)	-0.0053 (0.0059)	-0.0114 (0.029)
Age 40–64	-0.0074*** (0.0015)	-0.0024 (0.0085)	-0.0087 (0.0057)	-0.0024 (0.028)
Age 65+	-0.0135*** (0.0015)	0.0073 (0.0084)	-0.0146** (0.0056)	0.0068 (0.027)
Couple, dep. children × Age 25–40	-0.0005 (0.0032)	0.0153 (0.018)	0.0003 (0.0116)	0.0167 (0.065)
Other × Age 25–40	0.0052** (0.0025)	-0.0035 (0.014)	0.0064 (0.0090)	-0.0027 (0.046)
Single only × Age 25–40	0.0034 (0.0024)	-0.0164 (0.013)	0.0042 (0.0088)	-0.0131 (0.042)
Single, dep. children × Age 25–40	0.0035 (0.0030)	0.0044 (0.016)	0.0045 (0.0099)	0.0049 (0.054)
Couple, dep. children × Age 40–64	0.0010 (0.0031)	0.0096 (0.018)	0.0022 (0.0115)	0.0105 (0.064)
Other × Age 40–64	0.0066** (0.0023)	-0.0070 (0.013)	0.0079 (0.0084)	-0.0066 (0.042)
Single only × Age 40–64	0.0035 (0.0023)	-0.0200 (0.0128)	0.0042 (0.0084)	-0.0172 (0.039)
Single, dep. children × Age 40–64	0.0100*** (0.0029)	0.0121 (0.016)	0.0112 (0.0097)	0.0114 (0.052)
Couple, dep. children × Age 65+	0.0049 (0.0041)	0.0317 (0.023)	0.0060 (0.0138)	0.0290 (0.075)
Other × Age 65+	0.0088*** (0.0024)	-0.0236* (0.0135)	0.0097 (0.0086)	-0.0232 (0.044)
Single only × Age 65+	0.0051** (0.0023)	-0.0266** (0.0128)	0.0055 (0.0083)	-0.0233 (0.039)
Single, dep. children × Age 65+	0.0144*** (0.0039)	-0.0022 (0.0216)	0.0154 (0.0130)	-0.0020 (0.071)
Num. Obs.	9986	9858	9986	9858
Estimator	OLS	OLS	QMLE	QMLE
Std. Errors	Conventional	Conventional	Conventional	Conventional
R <sup>2</sup>	0.007	0.054	-	-

\* p < 0.1, \*\* p < 0.05, \*\*\* p < 0.01

Notes: OLS columns report estimated coefficients; fractional logit columns report average marginal effects (AMEs). Omitted (reference) category: Couple, no dependent children; Age < 25. The ETR income sample is smaller because 128 households with GST ETR<sub>i</sub><sup>Income</sup> > 1 are dropped.

**Figure A.6: Decomposing The Effect of Age and Household Type on The Dispersion in GST Effective Tax Rates**



## A.6. Compensation Methodology

To approximate the annual per-person transfer required to offset the increase in GST payments under a base-broadening reform, we proceed as follows. We first calculate the marginal GST paid for each household  $i$  in the HES sample, converting the weekly expenditure data into an annual amount

$$\text{Annual Marginal GST}_i = \text{Weekly Spending on GST exempt items}_i \cdot \tau_{\text{gst}} \cdot 52.2.$$

HES consumption data is at the household level. Following the Progressive GST proposal of Holden and Dixon (2025), we are interested in calculating an annual transfer at the individual level, which can be applied to all Australian adults. This is defined as follows

$$\text{Annual Transfer} = \sum_{i=1}^N \text{Annual Marginal GST}_i \cdot w_{\text{population},i} \cdot \bar{h} \cdot \pi_{2015 \rightarrow 2025},$$

where  $w_{\text{population},i}$  is the household's population weight,  $\bar{h}$  is the mean number of adults in each household, and  $\pi_{2015 \rightarrow 2025}$  is the inflation scalar. We calculate  $\bar{h} = 1.82$  based on the 2015 HES sample and we set  $\pi_{2015 \rightarrow 2025} = 1.31$  based on inflation data (ABS, 2025c).

Given that this transfer corresponds to the weighted average additional GST paid by households under the reform, this amount is designed to be budget-neutral. This follows the assumption that consumers have no behavioural response to the change in relative prices that are induced under the reform.

We calculate the annual transfer amount of \$918.73 in 2025 AUD. We note that this transfer amount is lower than previous modelling of the same reform scenario by PBO (2015), whose estimates would suggest that revenue is available for an annual transfer of \$1,391.98 in 2025 AUD.<sup>6</sup> A driver of this discrepancy is likely to be that the HES survey tends to under-account household spending, when compared to aggregates from the Australian System of National Accounts (PBO, 2015) – a factor that PBO modelling adjusted for while our main results do not.

<sup>6</sup> We calculate this based on the PBO's estimate of the same reform collecting \$21.6 billion (2018 AUD) in revenue, divided by the number of Australian adults in 2018, which was 19.41 million, and scaling by inflation (ABS, 2025b, 2025c).

To test the sensitivity of our results to this, we compare consumption levels from the 2015/16 HES data with 2015/16 National Accounts consumption data. We focus on the broad categories of GST-exempt items, as these are the items that are used to calculate our annual compensation amount. Child care spending is excluded since it is not reported as an expenditure category in the National Accounts. Table A.2 compares consumption levels from the 2015/16 HES sample with 2015/16 National Accounts estimates (ABS, 2022). This indicates that National Accounts tends to report higher spending for food, water and sewerage, and health, while HES tends to find higher aggregate spending on education.

**Table A.2: Comparison of HES and National Accounts Consumption Aggregates**

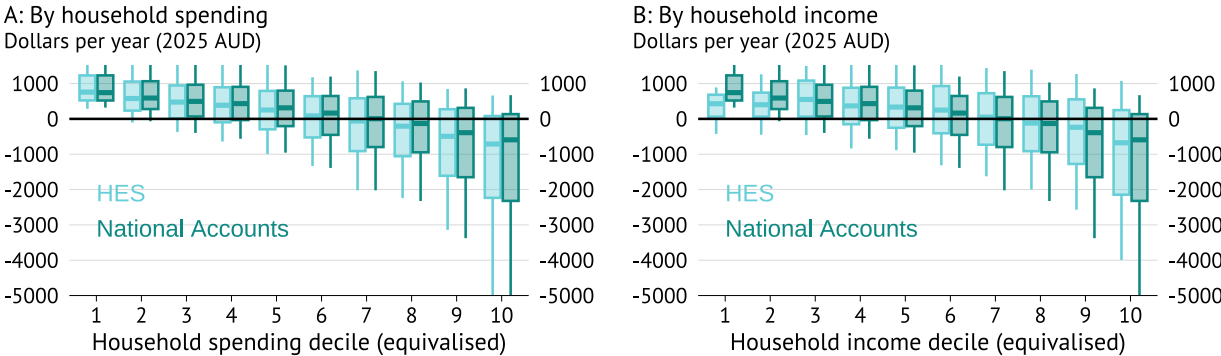
	HES	National Accounts	HES / National Accounts
Food	143.78	163.34	0.88
Education	19.45	12.91	1.51
Water and sewerage	8.48	11.50	0.74
Health	49.75	52.05	0.96

Notes: All figures are expressed in billions of 2025 Australian dollars. HES totals are authors' calculations from the ABS *Household Expenditure Survey 2015–16*. National Accounts total are from ABS (2022). The food spending in the National Accounts includes food spending in cafes, hotels and restaurants, to align with the broad food spending category in HES.

If we assume that National Accounts may be a more reliable indicator of aggregate spending levels than HES, this may lead us to mis-estimate our annual transfer amount. To account for this, we scale household spending on GST-exempt product categories in HES by the ratio of HES to National Accounts estimates for each category. It is worth noting that the National Accounts data is not granular enough to cover GST exempt and taxable spending within each broad category, so we assume that the discrepancy between HES and National Accounts for a category is the same for the spending on exempt items within that category. We calculate an annual transfer amount using the national accounts data of \$960.72 in 2025 AUD, which is slightly higher than our estimate from the HES data of \$918.73.

A particularly relevant concern is whether the discrepancy between HES and National Accounts spending numbers changes the welfare implications of the reform across the spending and income distributions. In Figure A.7, we present the change in net annual GST transfers under the reform when applying the HES to National Accounts Ratio for each spending category. We see that accounting for the discrepancy between HES and National Accounts does not materially change the welfare implications of the reform.

**Figure A.7: Change in Net Annual GST Transfers Under Base Broadening, Applying National Accounts Spending Levels**



\* In each box plot, the box spans the 25th to 75th percentiles, the interior line shows the median, and the whiskers indicate the 10th and 90th percentiles, applying population weights. Equivalised household income and spending uses the OECD-modified equivalence scale. Sources: ABS Household Expenditure Survey 2015/16; e61 Institute

Adjusting our underlying results for the differences between HES and National Accounts measures leads to both a higher payment and a relatively more *progressive* outcome in terms of incomes – increasing the strength of the results in the main report. For this reason we have opted to report the uncorrected figures as a conservative estimate of these effects.

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