

2024DINA UPDATE FOR NEW ZEALAND

TAYLA FORWARD
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government expenditure, are out of scope. Compared to prior work, we therefore present distributional information that is based on more comprehensive income concepts, concerned with the total of national income rather than income as measured in the household income account.

This work continues in the spirit of extensive earlier work to produce long-run series of top income shares in New Zealand (Atkinson & Leigh 2007 and 2008; Alvaredo & Atkinson 2013 and 2014; Alvaredo 2017; and Alvaredo & Kergozou 2019). Fisher-Post (2020, 2023) extends those estimates - which were based on fiscal income data from tax authorities - updating them and extending the estimates to cover all sources of national income, including non-fiscal (nontaxable) income that is not reported on tax returns, applying the techniques described in Alvaredo et al (2020).

Data sources

Aggregates

The National Accounts aggregates are compiled by StatisticsNZ following the System of National Accounts (SNA 2008) developed by the United Nations Statistical Commission (UNSC). See StatsNZ (2024) for the detailed methodology. The WID uses a single price index to deflate all series: the national income deflator, always anchored to the base year of the data, in this case 2022 New Zealand dollars (NZD). StatsNZ provides a more detailed decomposition of property income - we integrate these into the National Accounts aggregates available in the World Inequality Database (WID). The construction of National Income for our purposes is presented in Annex 1.

Administrative tax microdata

Access to the microdata used in this study was provided by Stats NZ under conditions designed to give effect to the security and confidentiality provisions of the Data and Statistics Act 2022. The results presented in this study are the work of the author, not Stats NZ or individual data suppliers.

We combine tax microdata tables adapting the method employed by StatisticsNZ in the construction of the Administrative Population Census (APC, Welsh 2023, Stats NZ 2023). Adaptations provide for the more detailed disaggregation of income sources, particularly capital income types, than is found in the IDI's APC tables.

Imputation of distribution of interest expenditure from survey data

Microdata on individuals' expenditure on interest payments is not contained in the administrative tax sources. We make use of the Household Economic Survey (HES)² to impute values onto the tax microdata set. The HES collects information on household income, savings, and expenditure, as well as demographic information on individuals and households in three components: HES income, HES expenditure, and HES household net worth. HES income is the main vehicle for collecting household economic information, running every year. A basic survey on household expenditure is run alongside the income survey annually; wealth and more detailed expenditure data are collected only every three years. The HES data is able to be linked to the tax microdata held in the IDI from 2006/07 to 2021/22.

We use the HES expenditure survey to impute the distribution of aggregate interest payable. On the full tax microdata set, we form groups over seven labour income groupings (L), seven capital income groupings (K),

² For survey concepts and methodologies, see: <https://datainfolplus.stats.govt.nz/Item/nz.govt.stats/27d850c1-939c-4e93-b61c-a1b5196b7f27#/nz.govt.stats/375fda94-7f95-4866-9756-8c1f0af32bf1/#%20>

and five age brackets (Age)³, that is, we form 245 L x K x Age groups, and fit parameters of the distribution of interest expenditure in the linked tax-survey set for each of these groups. From these parameters for each group, we draw a value for interest expenditure for each individual in the full tax microdata set, preserving the relation between labour and capital income ranks and age groups found in the survey data.

Concepts

Within the resident population, our benchmark DINA series consider the subpopulation of people of age 20 and older. In New Zealand the tax unit is the individual, therefore we construct “individualistic adult” series from the microdata, then apply a simple transformation to attain an equal-split adult series, drawing on the relation between the individualistic and equal-split series for Australia, constructed in Fisher-Post et al (2022).

Four main national income concepts are identified in Alvaredo et al. (2020): pretax factor income; pre-tax post-replacement income; post-tax disposable income; and post-tax national income. We construct series for these four concepts, of which three are made available in the WID.

Ideally, pre-tax factor income corresponds to total income accruing to capital and labour, where all of national income is attributed to capital and labour. Pre-tax national income is the same as pre-tax factor income, but with an adjustment made to account for the public pension system by allocating pension payments to recipients and deducting the contributions used to fund them (such that it still sums to national income). In New Zealand, the pension system is non-contributory, and as such a contributions basis for distributing pension income lacks meaning. Aiming as nearly as possible to the concepts proposed by the WIL while representing the pension system soundly, our factor income and our pre-tax national income series differ in that the former allocates net government primary income (consisting of revenue from indirect taxes, operating surpluses, and property income⁴) in proportion to factor income prior to government income, meaning net government primary income scales net incomes but preserves shares, and the latter allocates pension income to its recipients, then distributes the remaining government income in proportion to factor income. In this way, factor income can be thought of as “pre-pension”, and pre-tax national income as “post-pension”. Post-tax series go on to capture the wider tax and transfer system.

From there, post-tax disposable income deducts all taxes attributable to individuals and adds cash transfers - atop the pension income already distributed as pre-tax national income. As an accounting identity, the total value of taxes deducted equals the total value of taxes collected by government. In the first instance, government expenditure is not allocated to individuals and thus the sum of post-tax disposable income is less than national income. The post-tax national income series then distributes all of government expenditure, proportionate to post-tax disposable income, scaling total income while maintaining the distribution.

We provide finer groupings³ within the top 1% of the distribution, using the generalized Pareto interpolation technique developed by Blanchet et al. (2017).

Previewing comprehensive work

³ This was found to be the minimum quartile size producing sufficient observations in each L x K x Age grouping in the linked subset.

⁴ Only in the post-tax income series is the personal income tax system accounted for, whereupon taxes paid are attributed to individuals as negative income.

This technical note has presented in brief the high-level construction of a distributional national accounts series for New Zealand, previewing a comprehensive presentation of our approach and results, expected in early 2025.

The comprehensive paper will cover the concepts and methods touched upon here in greater detail, presenting a broad range of auxiliary analyses supporting the approach taken and discussing institutional features and particularities of the data sources in the New Zealand context. Methods and results for income concepts other than those provided for the benchmark DINA series will also be presented and discussed, including those for a Haig-Simons income concept inclusive of capital gains due to asset-price movements, comparable to the approach taken in Robbins (2018). Implications for policy evaluation and design will receive significant attention.

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