

Reference: 20220277



8 August 2022

Dear [REDACTED]

Thank you for your Official Information Act request, received on 21 July 2022. You requested the following:

*Please provide the total net or “in-hand” income and effective marginal tax rates for a single parent family with two under 14 year old dependent children, working 15, 20, 25, 30, 35 and 40 hours per week on the minimum wage, receiving Sole Parent Support and Accommodation Supplement and living in Auckland.
I would appreciate the provision of this information to be why way of spreadsheet that shows the calculations in the cells (i.e. not just the values).*

Thank you for your request for the total net or “in-hand” income and effective marginal tax rates for a single parent family with two under 14 year old dependent children, working 15, 20, 25, 30, 35 and 40 hours per week on the minimum wage, receiving Sole Parent Support and Accommodation Supplement and living in Auckland.

At the 2020 New Zealand Association of Economists (NZAE) conference Treasury modelling was presented that showed the net income and EMTRs for a sole parent on \$20 for a range of hours of work. The sole parent was assumed to have two children (aged 1 and 4) and be renting in Accommodation Supplement Area 2. This conference presentation ‘Effective marginal tax rates, budget constraints and the Treasury’s Income Explorer Tool’ is included in this release. Please note, official contact details have been withheld under section 9(2)(g)(ii) – to maintain the effective conduct of public affairs through protecting Ministers, members of government organisations, officers and employees from improper pressure or harassment.

This material was not produced using an Excel spreadsheet but was instead produced with a tool that the Treasury has developed using the R programming language. The code for this tool has been made publicly available on the Treasury’s Github page at: <https://github.com/Treasury-Analytics-and-Insights>. This code allows the user to model the effect of the tax-transfer system on different scenario households.

Please note that this letter (with your personal details removed) and enclosed documents may be published on the Treasury website.
This reply addresses the information you requested. You have the right to ask the Ombudsman to investigate and review my decision.

1 The Terrace
PO Box 3724
Wellington 6140
New Zealand
tel. +64-4-472-2733

<https://treasury.govt.nz>

Yours sincerely

Patrick Nolan
Manager - Analytics & Insights

OIA 20220277

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Effective marginal tax rates, budget constraints and the Treasury's Income Explorer Tool

Michael Eglinton, Kevin Chang, and Patrick Nolan
Analytics and Insights Team

24 June 2021

Overview

- Motivation
- Background
- Income Explorer tool and examples
- Final thoughts

Motivation

- Understand the complex relationship between income and the tax and transfer system and assist in policy development
- Iron triangle (or Beveridge's dilemma):
 - “when wages were low and family sizes large the income from work could fail to provide an adequate family income and be less than the income from government transfers when not working. The design of family allowances therefore needed to balance the goals of ensuring adequate family incomes and encouraging labour supply. This balance had to be found within the constraint of limited government funds” (Nolan, P., 2006, emphasis added).”

Background

- Why look at budget constraints?
 - When a person changes their hours of work the change in their income in the hand does not just reflect the change in their gross income.
 - Income in the hand reflects a complex interaction of tax and transfer programmes. Budget constraints can thus usefully show how income in the hand varies with hours of work.
 - Understanding budget constraints are important for understanding financial incentives to work and poverty reduction.
- Why look at EMTR?
 - Effective Marginal Tax Rates (EMTRs) show how much of a dollar increase in earnings is kept as income in the hand. Put simply: $EMTR = 1 - \Delta Y_{NH}$. But can be complex to calculate in practice ...

Background

- Model family approach
 - Shows assistance received/EMTRs faced by particular family types
 - Can recognise a range of criteria for targeting (e.g., family size, ages, wage rates, hours of work, etc.)
 - Requires choosing “representative” cases
 - Not all assistance received is modelled
- There are plans to produce aggregate measures of EMTRs as part of the suite of TAWA standard outputs, not just modelling example families

Setting a scenario

Status quo parameters

Browse... IncomeExplorer_TY22.xlsx

Upload complete

Reform parameters

Browse... IncomeExplorer_TY22.xlsx

Upload complete

Download Results

Hourly wage:

\$18 \$40 \$100

18 26.5 35 43.5 52 60.5 69 77.5 86 94.5 100

SQ: WFF or Benefit Max

Reform: WFF or Benefit Max

WEP: Average week

Weekly accomodation cost: \$0 \$450 \$1,000

0 100 200 300 400 500 600 700 800 900 1,000

AS Area: 2

Accomodation type: Renting

BHC equivalised median 43000

AHC equivalised median 33100

Poverty thresholds (fraction of medians) 0.5

Partnered

Partner's hourly wage: \$20 \$100

15 23.5 32 40.5 49 57.5 66 74.5 83 91.5 100

Partner's hours worked: 0 80

0 8 16 24 32 40 48 56 64 72 80

Age of children (e.g. '1, 4' or leave blank)

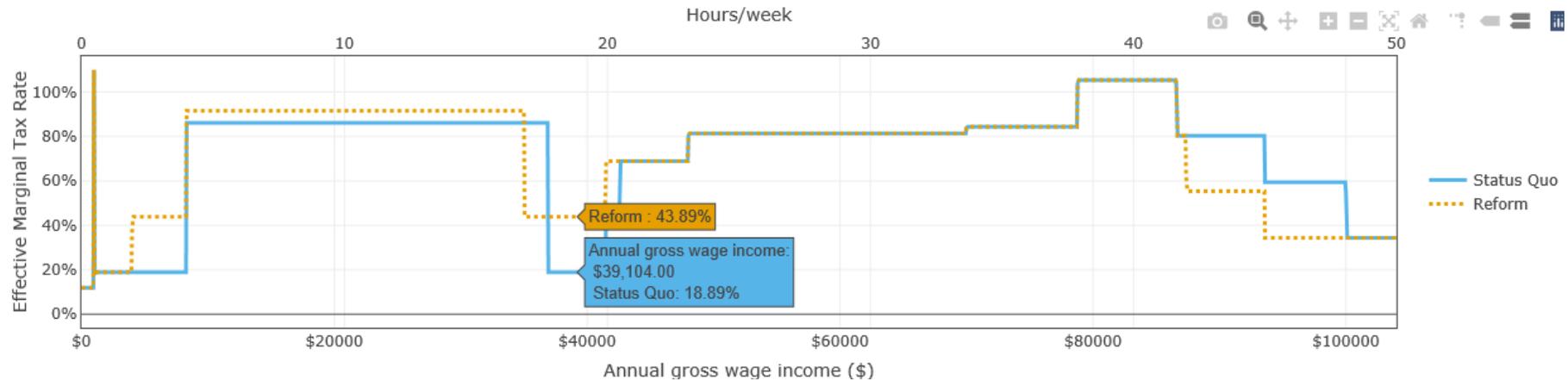
1,4

Net income and EMTR (\$40/hr, family, sole earner)

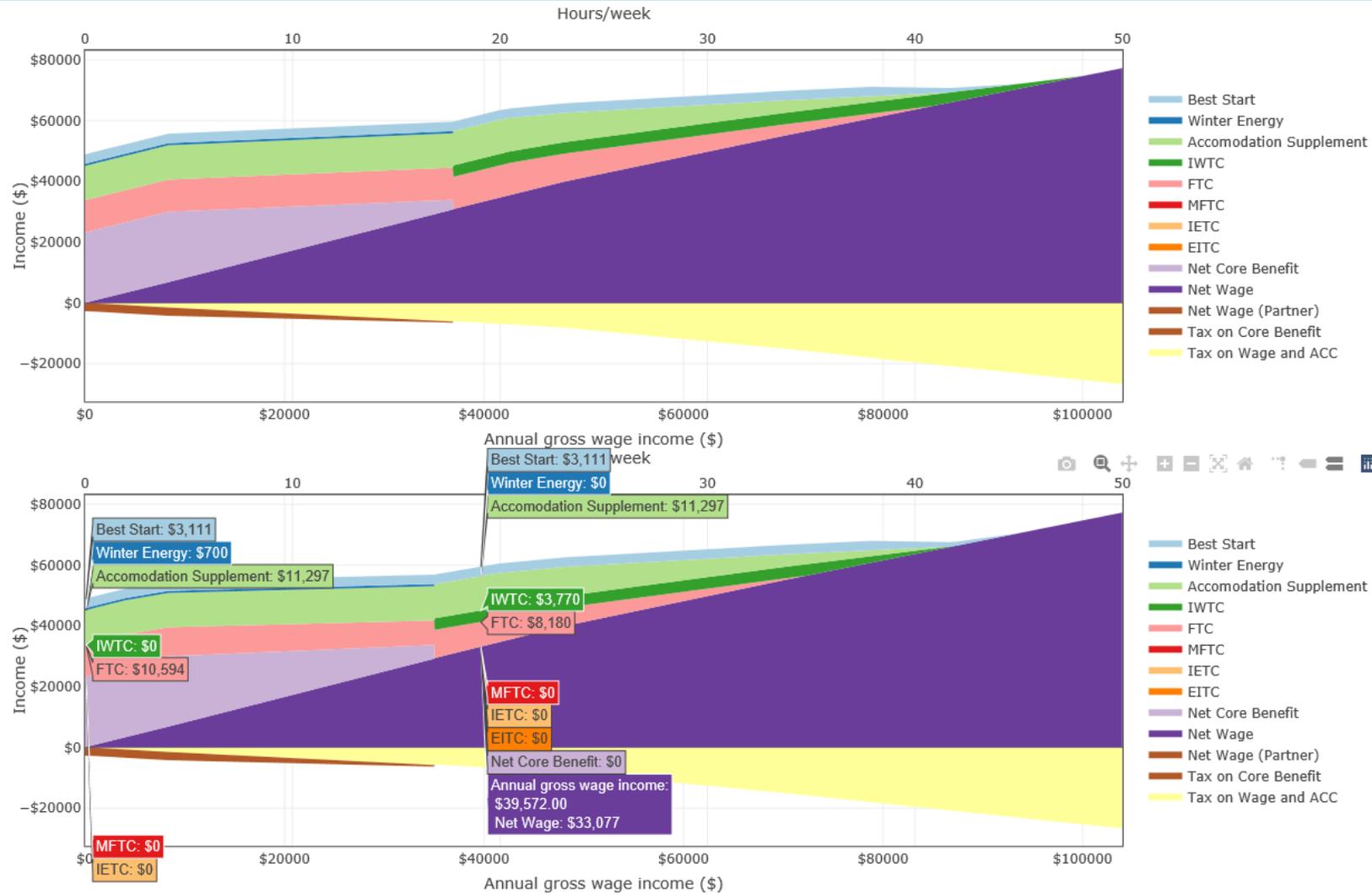
Net Income



Effective Marginal Tax Rate

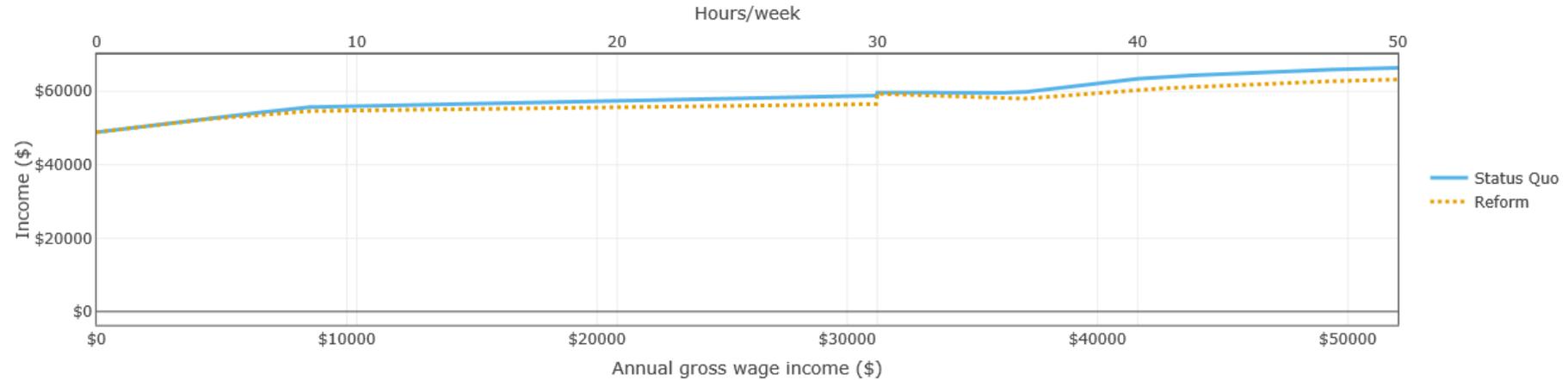


Income composition (\$40/hr, family, sole earner)

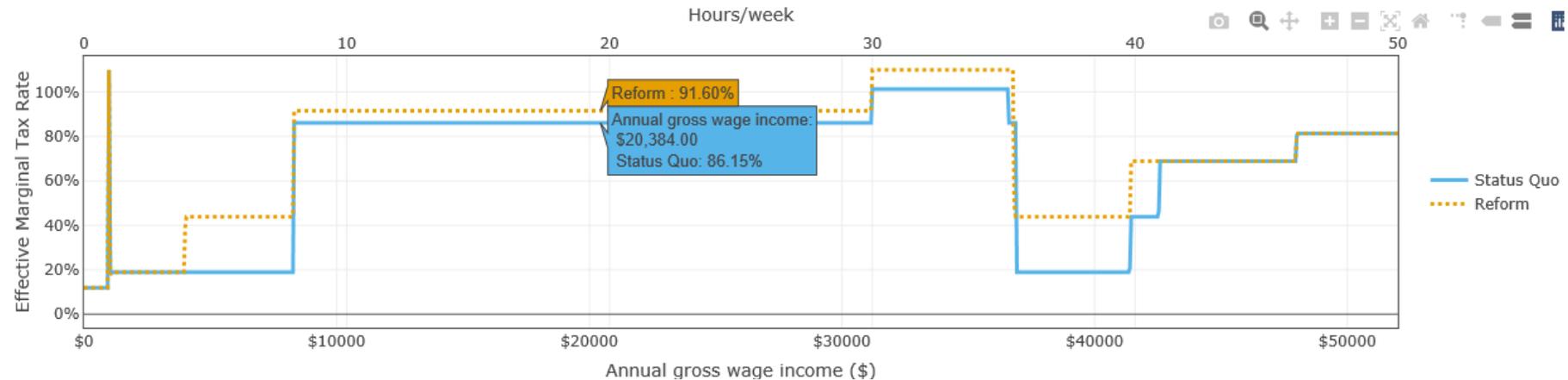


Net income and EMTR (\$20/hr, family, sole earner)

Net Income

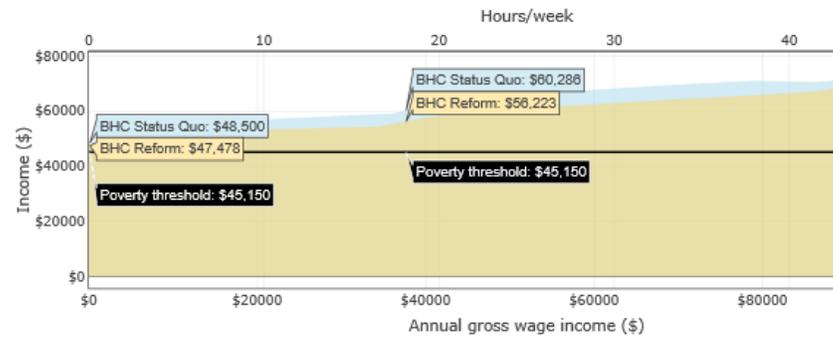


Effective Marginal Tax Rate

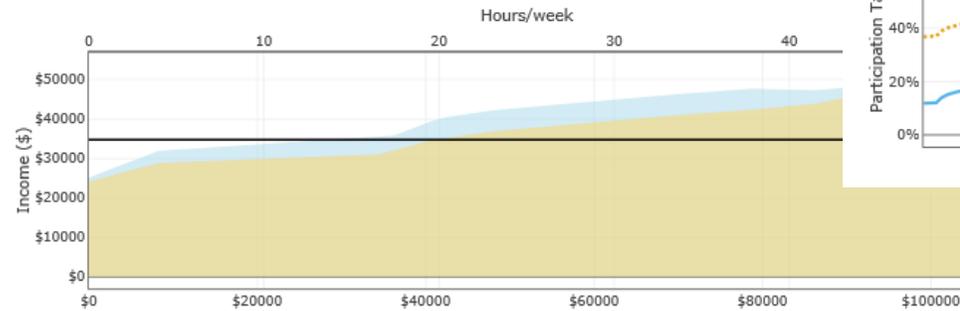


Other analyses

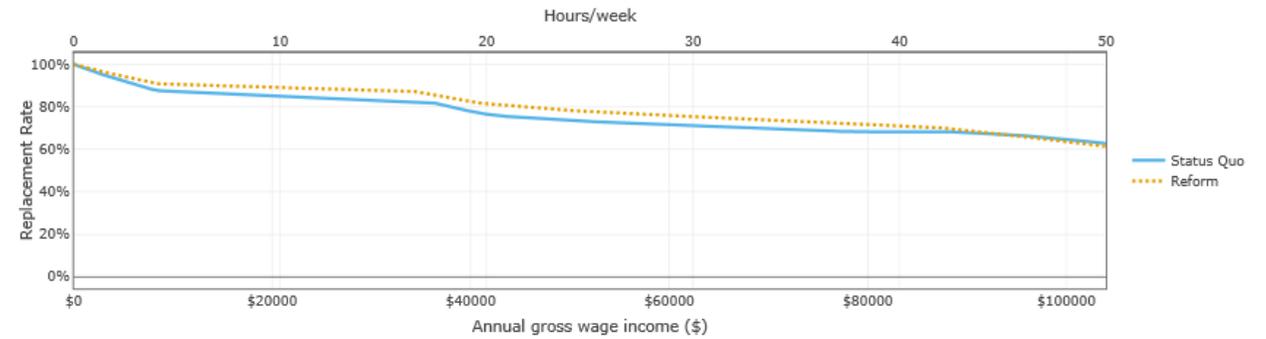
BHC Poverty



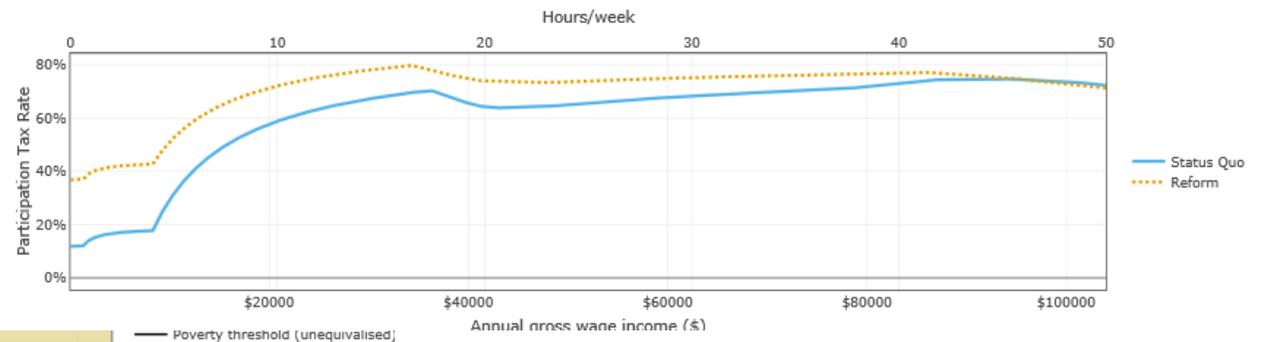
AHC Poverty



Replacement Rate



Participation Tax Rate



Final thoughts

- Tool developed in R
- Keen for others to use it
- Future developments include
 - Easily shareable
 - Improvement to MFTC calculation
 - Functionality compare between different family types
 - EMTR distribution as part of our standard TAWA output



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Thanks!

s9(2)(g)(ii)

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Abstract

- Abstract: A standard optimal tax framework highlights that individuals choose the combination of income and leisure that maximises their utility subject to their budget constraints, which depend on taxation and the provision and abatement of transfers. These incentives can be illustrated with two key measures: Effective Marginal Tax Rates (EMTRs) and budget constraints. EMTRs reflect the interaction of the personal income tax scale, main benefits, and supplementary benefits. They show how a dollar increase in gross income translates to an increase in income in the hand (after taxation and the withdrawal of income-tested assistance). Budget constraints show the net income after taxation and the payment of abated assistance that is received at different hours of paid employment. In practice calculating EMTRs and budget constraints can be difficult, reflecting the complex interaction of different tax and welfare programmes. This paper presents EMTR profiles and budget constraints for a range of scenario families generated by the Treasury's Income Explorer Tool. This paper explains how the Income Explorer Tool works and discusses the limitations of the measures produced. This can help illustrate what programmes create high EMTRs (poverty traps) and how these incentives may affect different families. High EMTRs mean that some low-wage families need to work long hours to make work pay. For other families these poverty traps encourage a weak attachment to the labour market and relatively short employment spells.