

# Measuring Production and Well-being Outcomes of a Public Sector Clean Heat Subsidy Programme

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Over a fifth of New Zealanders find their homes to be cold and damp. We evaluate the outcomes of a government programme – Warmer Kiwi Homes (WKH) – which subsidises heat pumps for disadvantaged households. The programme aims to make homes warmer, drier, and healthier, while improving energy efficiency.

In addition to identifying a range of outcomes for the programme, the evaluation raises conceptual questions as to how these outcomes should be measured when assessing the programme's contribution to production at the national accounts level and to broader concepts such as subjective wellbeing.

Specifically, the evaluation examines the impacts that subsidised WKH heat pump provision has on household outcomes including comfort and wellbeing, indoor environmental outcomes and electricity use. The evaluation covers 127 households who applied for a heat pump through WKH in 2021. Evaluation methods include two qualitative household surveys, a house survey, hourly indoor environmental quality readings from a monitor in the living area, and hourly electricity use measured using smart meter data. Timing of heat pump installation for each house was effectively randomised by the onset of COVID-19, so constituting a natural experiment. The qualitative and quantitative data show that houses became more comfortable, warmer and less damp following heat pump installation relative to a house without a heat pump yet installed. These gains were achieved despite a fall in energy use.

These findings, together with directly measured wellbeing outcomes (life satisfaction and the WHO5), are derived to provide inputs into a cost benefit analysis of the programme. The cost benefit analysis in turn raises questions as to how both the benefits and the costs should be incorporated into broader measures of production and wellbeing.

