

The Treasury

Miscalculation of Disposable Income Release

February 2014

Release Document

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- [1] 9(2)(a) - to protect the privacy of natural persons, including deceased people
- [2] 9(2)(g)(i) - to maintain the effective conduct of public affairs through the free and frank expression of opinions

Where information has been withheld, a numbered reference to the applicable section of the Official Information Act has been made, as listed above. For example, a [2] appearing where information has been withheld in a release document refers to section 9(2)(g)(i).

In preparing this Information Release, the Treasury has considered the public interest considerations in section 9(1) of the Official Information Act.

Report on the Review of Communication and handover processes relating to the transfer of Household Economic Survey - Taxwell data between Treasury and Statistics New Zealand

Purpose

The purpose of this report is to set out the findings, conclusion and recommendations from the review of the process followed for the transfer of the Household Economic Survey (HES) data from Statistics NZ to the Treasury and the return by Treasury of the Taxwell (HES) data set to Statistics NZ.

Objectives of the review

The objectives of the review are to:

- Determine the background causes of the current issue, and
- Determine changes to data co-production processes between Statistics New Zealand and the Treasury to prevent this type of mistake recurring

The review also considered the potential implications of this process on other systems (without investigating those other systems). It is noted that an internal audit is scheduled for February/March on the control environment for non-CASS IT models and tools such as Taxwell. The findings from this review will inform that audit.

Background

Each year Statistics NZ and Treasury engage in a co-production process involving Statistics NZ supplying Treasury with datasets from the Household Economic Survey (HES). Treasury puts the data through the Taxwell micro-simulation model. Treasury then supplies this dataset (Taxwell (HES) dataset) back to Statistics NZ with additional variables, including total disposable income. Statistics NZ then compiles a dataset containing both the Treasury information, and HES information, and provides this new dataset to MSD. This dataset then becomes the basis for any analysis of disposable income.

On 10 December 2013 it was discovered that the Accommodation Supplement (AS) had been included both by the Treasury in their Taxwell model, and again in the data calculated at Statistics NZ. This means the Accommodation Supplement was double counted, and disposable income for some households has been overestimated. The most high profile number affected is the percentage of people with low incomes.

This review mainly relates to the annual process followed by Treasury for receiving the HES data from Statistics NZ, processing it through Taxwell and returning the revised dataset to Statistics NZ. This was first done through Taxwell for the 2006/07 HES data. While the review covers the six year period from 2006/07 to 2011/12 the main focus has been on the process for 2009/10 HES data.

The review focused on the process followed by the agencies rather than auditing the data or the Taxwell model.

Emerging issue – 2007/08

In addition to this review of the process an additional review is being conducted. The objectives of the other review are:

- Assess the accuracy of the Taxwell dataset and associated documentation provided to Statistics New Zealand.
- Identify opportunities for improvements to verification procedures.

As a result of this review two additional issues have been identified related to the 2007/08 HES data.

The first issue is that the modelled Accommodation Supplement (AS) has been underestimated by Treasury by approximately \$650 million in the 2007/08 data.

The second issue is that an error in coding variables by Statistics NZ resulted in IRD payments being assigned to a 'miscellaneous' category. This issue was discussed with Treasury at the time (2009), but it was assumed by both parties that it would not impact on the modelled data. This assumption has proved to be incorrect, as Treasury models the IRD variables and adds the 'miscellaneous' category, thereby double-counting the IRD payments in 2007/08.

It is understood that that there are similar concerns on the adequacy of the Statistics NZ handover and communication process with those highlighted in this report on the Treasury handover and communication processes.

I will work closely with the appropriate staff from the Treasury and Statistics NZ to identify and evaluate the issue and consider the implications for this review's findings, conclusion and recommendations.

Findings and Analysis

Treatment of AS

The AS data is included in the HES data supplied by Statistics NZ to Treasury. Originally while Treasury modelled the value of accommodation supplement it was not believed to be of good enough quality, and so did not include it in calculations of total benefit income, total income, or disposable income. The option to include the modelled accommodation supplement was left up to users of the data. After discussions with MSD, Statistics NZ began adding the modelled amount of accommodation supplement to disposable income when creating the dataset for MSD.

Change in Treatment - 2009/10

There was a change in staff involved in the 2009/10 HES dataset process for both Statistics NZ and Treasury. Two new Treasury staff (an Analyst and Graduate Analyst) were involved in running the HES data through the Taxwell model. Prior to this the main Treasury person involved in running HES data through the Taxwell model was on secondment from Statistics NZ.

A change was made by the Treasury to include AS as part of the overall Disposable Income calculation. The change was made in the Taxwell model by switching the AS classification from a '0' (exclude) to '2' (include). From my review of various

documents and emails filed in iManage (reviewed folder TF-4-1) there is evidence that staff had raised a number of clarifying questions on the process with the previous person involved. However, I have not been able to find any documentation setting out the rationale for the why the change in treatment of AS was made, the implications, and who approved the change.

Treasury ran the HES data through Taxwell and on 25th March 2011 provided Statistics NZ two CDs (one being the master and the other being a copy) containing the SAS dataset, a data dictionary (a CSV file). The metadata contained in the Taxwell notes worksheet provided to Statistics NZ included the following statement:

Disposable Income does not include Accommodation Supplement

Additionally, in the list and description of Variables (there are 315 variables listed) the description of disposable income as *Amount of Disposable Income* which is considered uninformative as to what is actually included.

As would appear to be the standard handover practice, there was no formal documentation setting out the quality assurance processes in place or related to the formal sign-off and handover of the Taxwell modelled HES dataset back to Statistics NZ.

After running standard validation checks Statistics NZ raised three questions for Treasury on the data. The email exchange is attached as Appendix One. Of particular interest is the second question highlighting the significant (approx \$1b) increase in the amount of BenAllSuppAssist from 2008/09. In response Treasury advised:

With regard to 2):

This year we have included three components in Supplementary Assistance: Special benefits, disability allowance and the modelled variable accommodation supplement (AccommodationModel). You can derive a number for BenAllSuppAssist in line with last year's if you subtract AccommodationModel from the BenAllSuppAssist

There wasn't any further communication on this question as evidenced through the subsequent exchange of emails set out in Appendix One because the information provided about the IETC seemed to explain the discrepancy. The two Treasury staff involved in the 2009/10 no longer work at the Treasury and are not in the country and I was unable to discuss the review and findings with them. However, when the issues were first raised Treasury contacted the analyst responsible for running the Taxwell model and he advised Treasury that Statistics NZ were made aware of the changes made. I was able to discuss this with the relevant person from Statistics NZ who confirmed that in the absence of the necessary understanding of the Taxwell model as it related to processing the HES data by either party that it is likely that no other communications would have taken place. Given the information that I had and the nature of the issue I did not consider it essential to contact the Treasury's Graduate Analyst.

While the exchange of email communications between Statistics NZ and Treasury for the 2009/10 shows that Statistics NZ was advised by Treasury of the inclusion of the AS in the BenAllSuppAssist line the question is should this have prompted Statistics NZ to identify the potential for double counting AS? To do so would require either Statistics NZ staff to have a sound understanding of how the large number of variables

produced by the Taxwell model connected or Treasury to have explicitly pointed out the relationship between the two variables. From discussions with staff from both agencies it is apparent that this was not the case.

My review did not require gaining a technical understanding of the Taxwell model but to gain an appreciation of the complexity of it. To achieve this reference was made to the summary chart (refer Appendix Two) that was recently prepared by [1] (Treasury Analyst within the ERA Group). The chart provides an overview of the flow and connections of the different variables including showing how BenAllSuppAssist links to Disposable Income. This shows that there is a relatively large number of variables that are linked together to determine the Disposable Income.

In the absence of having this overview it would be difficult for Statistics NZ to appreciate the full implications of the Treasury email response provided in March 2011. Furthermore the statement contained in the Taxwell cover note that has been referred to earlier would not have assisted in the identification of the implications of the change.

Other observations from the review of the Taxwell HES data process

From the review of the process the following observations are noted:

- There is no agreed timeframe for when the HES data will be provided by Statistics NZ to the Treasury, (although in the last three years it has been supplied in December), and when it has been processed by the Treasury through the Taxwell model and returned to Statistics NZ. For example, the dates when HES data has been returned by Treasury varies from the end of February for the 2007/08 data to the middle of April for the 2011/12 data. It is understood that in part this is driven by MSD's requirements.
- There is limited documentation on an end-to-end view of the HES data/Taxwell process. This should not only set out the key steps involved in the process but also the key controls and other assurance mechanisms in place including operating an Issues Register. The other assurance mechanisms should involve the additional analytical review processes undertaken as part of the current testing into the annual review process (refer separate review report [Draft data report for Double Counting AS \(Treasury:2823936v4\)](#)). The register provides an important control mechanism to log issues with the HES/Taxwell process ensuring that they are satisfactorily resolved at the time the formal handover of the HES/Taxwell datasets.
- Related to the last point is the need to strengthen the change management procedures and practices. It is appreciated that each year there will often be changes being made either to the Taxwell model or the HES process. A large proportion of these would be of a low level/routine nature. However, for those that are deemed more significant then there should be a clear control process for where and how this is approved ie by a manager, and the required level of communications with other stakeholders that would be impacted as a result of the change. What is considered significant needs to be determined but I would suggest that the change in the treatment of AS that occurred during 2009/10 would be an example of a significant change requiring escalation to and approval by a manager.
- This review has not looked at the control procedures for maintaining the integrity of the Taxwell model by ensuring that only valid and authorised changes are accurately made. An assessment of the adequacy of the Treasury's control environment for non-CASS controlled modelled will be

covered by the Deloitte internal audit review scheduled to be conducted during February/March 2014.

When assessing and evaluating the circumstances that lead to the 2009/10 double counting of AS it is considered that the issue is more the result of the limitations of the process in place rather than as a result of errors by the individuals involved. These identified limitations should be the focus for enhancing the overall process.

Memorandum of Understanding

There is an existing Memorandum of Understanding (MoU) between the Treasury and Statistics NZ dated 17 April 1998. The MoU in its current form mainly relates to the supply of HES data and adjustment data by Statistics NZ to the Treasury. The MoU does not cover the supply by the Treasury of the HES package after it has been processed through the Taxwell Model (referred to as the HES Taxwell dataset).

The original term of the MoU was for three years expiring on 31 December 2001 with the format and content of similar to a legal contract. It would appear that this is still being used as indicated by the reference to it in the letter dated 29 January 2013 from Hamish James (Statistics NZ) to Gerald Minnee (the Treasury).

Each year the Treasury formally requests the latest annual HES data set. This results in a Variation to Memorandum being prepared. In a Variation to Memorandum signed in March 2008 it was agreed that Treasury shall supply Statistics NZ with a variation of the HES package after it has been through the tax modelling process (refer clause 3 of the Variation).

From the review of the MoU and subsequent Variations it is apparent that it needs to be reviewed and updated to reflect the current operating environment. This review should consider:

- The term of the MoU and how and when the two agencies will work together to ensure it is kept fit for purpose.
- Ensuring that it covers the process for the two way transfer of HES data from Statistics NZ to Treasury and back to Statistics NZ once it has been processed through the Taxwell model. This should avoid the need for Treasury to formally request by a Variation access to the HES data.
- Setting out the annual timeframe for when the HES data is provided by Statistics NZ to the Treasury and when it will be returned by the Treasury after being processed through Taxwell.
- Communicating changes with the HES data and the Taxwell model as it relates the HES dataset that is provided to Statistics NZ.
- Setting expectations and requirements for both agencies on the quality assurance arrangements in place. This should include establishing shared issues registers and feedback loops as part of the issues resolution processes to ensure that the results of review undertaken by other agencies are fed back to Treasury and formal sign-off when the data is handed over to the other agency.
- Advice on third parties that will be using the data and how it will be used.

Summary of Issues

The following is a summary of the main issues for the HES-Taxwell data transfer process

Process

- The reliance on staff – particularly when there is a change in key staff
- Sufficiency of the business process documentation on the end-to-end view of the HES–Taxwell data process.
- Adequacy and currency of metadata such as the Treasury data dictionary.
- Clarity of change management processes including approval and notification of significant changes.
- Adequacy of QA processes in place including management assurance mechanism.
- Adequacy of formal handover process between agencies.
- The need to maintain adequate documentation on the above processes.
- Level of mutual understanding between Statistics NZ and Treasury about the relationship between the survey data and Taxwell, each others' respective production processes, and how the data is used.

Memorandum of Understanding

- Ensure the scope of the MoU is sufficient to cover the overall two way transfer process.
- Clarity on term and how the Statistics NZ and Treasury work together to keep it current and fit for purpose.
- Provide clarity on the timeframe for the annual process.
- Ensure there is effective communications for processing of any changes that may impact the other agency.

Conclusion

This review has highlighted limitations in Treasury's internal processes and with the arrangements in place between Treasury and Statistics NZ. The issue that arose for 2009/10 mainly resulted from the limitations in process rather as a result of errors by the staff involved.

The recommendations made reflect the need to strengthen the control environment by providing a better understanding of what is required and how changes are made including clarifying and confirming the role of management as part of the overall assurance mechanism. Importantly as part of the design process consideration is given to getting the balance right between the additional compliance cost and the level of risk involved. This should ensure that the process is kept fit for purpose shifting more reliance on the adequacy of the process rather than being overly reliant on key staff.

While the Taxwell (HES) dataset is a co-production process the nature of the 2009/10 issue meant that the focus has largely been on Treasury processes. As indicated by the emerging issues for the 2007/08 HES data, it is noted that these lessons would also be relevant for Statistics NZ to consider in relation to the QA and handover processes that they operate as well.

Recommendations

The following recommendations are made:

Process

It is recommended that:

- The Treasury review procedures in place for making changes to ensure significant changes (need to define what is significant) are identified, evaluated, communicated and approved at the appropriate level.
- Statistics NZ should consider reviewing the adequacy of their QA and sign-off HES data processes.
- The Treasury review and document an end-to-end view of the revised HES data modelling process. This should include:
 - incorporating the additional QA analytical review processes undertaken as part of the current testing into the annual review process as well, and
 - formalising the handover process including sign-off at the appropriate level that all the necessary checks and balances have been done and that both parties are aware of and understand the nature of all significant changes that have been made.
- Need to ensure that sufficient level of documentation of the process followed is maintained.
- The Treasury review and update meta data provided to Statistics NZ.
- The Treasury work with Statistics NZ to ensure that both agencies have sufficient understanding of the process including having the overview of how variables are linked. This will include establishing shared issues registers and feedback loops as part of the issues resolution processes to ensure that the results of review undertaken by other agencies are fed back to Treasury.
- The Treasury and Statistics use the 2012/13 HES data process to identify and modify the process.

MoU

It is recommended that the MoU be reviewed and updated to include:

- The roles and responsibilities for the two-way transfer of data between Statistics NZ and the Treasury.
- The timing of process.
- How changes are made and communicated.
- Clarity on how the information will be used and by whom including third parties. This will include when stakeholders requirements on the HES-Taxwell modelled dataset change.

Gary Taylor
Risk Advisor
Treasury

Appendix One

[2]

