

NORTHERN TERRITORY RESPONSE TO DISCUSSION PAPER CGC 2014-01-S: SIMPLIFYING THE INTERSTATE WAGES REGRESSION MODEL

Commission staff propose to recommend that the Commission:

- remove effects coding and use simple dummy variables;
- remove the female interaction variables; and
- remove the variable hours worked less than 15 and greater than 60.

The assessment of interstate differences in public sector wages is crucial for the Northern Territory, which faces above-average public sector wages due to factors beyond the Territory's policy control. As stated in our second submission to the 2015 Review, the cost of recruiting and retaining workers in the Territory is influenced by factors such as the high cost of living and high labour mobility. The Territory faces further wage pressures in the public sector due to the additional costs relating to Territory Government employees who are members of the Commonwealth Superannuation Scheme, which is more generous than comparable state schemes. In the more remote parts of the Territory, labour costs are also influenced by the need to provide higher wages and non-wage incentives such as housing subsidies to aid recruitment and retention of staff in these areas.

In the 2010 Review, the Commission assessed interstate differences in public sector wages based on regression modelling of private sector wages data from the Australian Bureau of Statistics' Survey of Education and Training (SET). The Commission's analysis was based on private sector wages as they were considered an appropriate, non-policy contaminated proxy for public sector wages. The Territory's concerns about the use of SET data – primarily that the SET does not capture the full range of factors influencing wages in the Territory – are well established and were reiterated in the Territory's second submission to the 2015 Review.

Commission staff propose to simplify the interstate wages regression model by replacing the current effects coding approach with a dummy variable approach and removing a number of variables that Commission staff consider do not add significant explanatory power to the model.

Removing effects coding and using dummy variables

The regression model currently used in the Interstate wages assessment is based on effects coding; which is based on a measurement of the differences in private sector wages between each state and the national average. Commission staff believe that the effects coding method adds complexity to the regression model, and propose to instead use dummy variables. The dummy variables approach is based on measurement of the differences in wages between each state and a selected reference state, with the results standardised to calculate the deviation from the national average.

Commission staff consider this approach removes a layer of complexity from the regression model.

The Territory's understanding is that the shift from effects coding to dummy variables would not have any impact on the outcomes of the regression model. It appears the Commission's proposal is anchored on the relative simplicity of the dummy variables approach, rather than any substantive concerns on the appropriateness of effects coding or its influence on the outcomes of the regression

model. Based on this understanding, the Territory does not object to the proposal to use dummy variables instead of effects coding in the regression model.

Removing female interaction variables and 'hours worked less than 15 and greater than 60' variables

The regression model currently includes a female interaction variable for every variable in the model. Commission staff consider that, while there may be a theoretical basis for including female interaction variables in the model, this only increases the explanatory power of the model by a small amount. Consequently, Commission staff propose to remove the female interaction variables.

The regression model also measures the impact on wage differentials of the number of hours worked per week. In this regard, the model includes a 'continuous hours worked' variable and two additional variables that measure the impact of working less than 15 hours and more than 60 hours per week. Commission staff consider that these additional variables do not add any explanatory power beyond the information included in the continuous hours worked variable and therefore propose to remove them from the model.

The Territory does not consider that there is sufficient justification for the Commission staff proposal to remove the above variables. From the information provided in the Discussion Paper, it is unclear how the decision on which variables to remove was reached, or if any consideration was made of whether alternative variables could be removed – or new variables added – with minimal or positive impacts on the outcomes of the regression model.

Commission staff consider that removal of the female interaction and the additional hours worked variables would significantly simplify the regression model by reducing the number of variables from 219 to 115. The Territory believes that while simplification is desirable, it must not be pursued at the expense of equalisation, which is the only stated and agreed objective of the GST distribution system. Given the complexity of the factors influencing the cost of providing government services, it is often necessary for the Commission's assessments to be based on modelling that incorporates a significant level of detail. In the case of the interstate wages assessment, it is important that the regression model include the full range of variables from the SET to allow the Commission to produce an assessment that reflects, as closely as possible, interstate differences in wages paid to comparable employees.

Notwithstanding this, the Territory is not convinced that the mere removal of variables would simplify the regression model, particularly given that the model is based on data that is readily available. The removal of the female interaction and additional hours worked variables would only reduce the precision of the model, with potentially negative implications for equalisation.

The Territory notes the Commission staff's conclusion that the proposed changes would not have a material impact for any state. However, the Territory considers that removing variables from the interstate wages regression model has the potential to set a precedent for the similar removal of variables from regression models used in other assessments. Over time, the cumulative impact of such changes could become material.

Consequently, the Territory does not support the proposal to remove the female interaction variables and the variables for hours worked less than 15 and greater than 60 from the interstate wages regression model.