ACT Government

COMMONWEALTH GRANTS COMMISSION 2020 REVIEW OF GST REVENUE SHARING RELATIVITIES

URBAN TRANSPORT REPORT STAGE 2 AND RURAL ROAD LENGTHS

ACT GOVERNMENT SUBMISSION

DECEMBER 2018

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URBAN TRANSPORT REPORT STAGE 2

BACKGROUND

On 26 October 2018 the Commonwealth Grants Commission (CGC) released to State and Territory (State) Treasuries the final report on the second stage of the consultancy which reviewed the urban transport assessments as part of the 2020 Methodology Review of GST Revenue Sharing Relativities (2020 Review).

The CGC convened a telepresence of all States on 3 December 2018, at which this report was a major topic of discussion, including questions from States and responses from both the consultants and CGC staff. CGC staff have requested State submissions on the Stage 2 report by 12 December 2018.

This submission provides a summary of issues concerning the report, including those raised in the telepresence, as well as some others where the ACT is seeking further clarification or provision of supporting data.

The ACT welcomes the CGC's initiative in commissioning this consultancy and acknowledges the high standard of work and comprehensive approach taken in the production of the two reports by the consultants.

THE PREFERRED MODEL

The consultants considered a number of alternative models, with the aim of identifying a model relating expenditure (the dependent variable) to a set of independent variables comprising demand factors; supply or network factors; and city specific factors.

The preferred model (Model 1b at Appendix E of the report) uses density to depict demand, distance to work to represent network complexity, passengers by mode to represent availability and congestion, and mean land slope to account for topography (see pp.49-50).

The form of the preferred model is a linear-log functional form, which combines linear relationships for the density, distance to work and slope variables, and logarithmic relationships for the passenger number variables (train and bus). This implies that per capita expenses increase as the network becomes more complex, but the rate at which this occurs decreases as passenger volumes increase.

ACT Comments

- We support the inclusion of key drivers other than population, which is the sole use-related driver under the current assessment methodology. The proposed model is substantially more sophisticated than the current approach to the assessment and is conceptually sound.

- We support amalgamation of recurrent and capital expenses into a single model, with drivers of capital expenses based on those for recurrent expenses. This is conceptually logical and accords with the treatment of investment expenditure for all social infrastructure (i.e. excluding Roads and Transport) in the CGC's current assessment framework. We note the very high correlation of investment volumes with recurring expenses as indicated at p.40 of the report.

    - This approach also at least partly addresses the lack of adequate data on capital expenses, as reflected in the fact that the investment dataset provided

to the consultants contained datapoints for only 19 out of 101 Significant Urban Areas (SUA)[1], of which half were in Western Australia (p.38 of the report). The ACT has also previously raised concerns about probable inconsistencies among States in the valuation of urban transport assets. These concerns were confirmed by the CGC's very late change of approach in treatment of asset values for public transport in the 2015 Review.

- We understand that exclusion of datapoints (see Table 3.3, p.35) has not led to any bias in the outputs of the model at State level (the report comments that an inspection of the residuals for the preferred model indicates that the estimated values are unbiased overall and by State – p.49).
    - That said, we consider it would still be helpful and in the interest of transparency for the consultants to identify which specific SUAs have been excluded from the model. Additional details relating to the independent variables at the SUA level if known, such as population and passenger numbers, would also be welcomed.
- We note the SUA-based approach to the model, which gives 101 data points, of which 70 have actual data. While we recognise that some estimation of expenses by SUA has been required e.g. to apportion the costs of rail networks which cross SUA boundaries, this level of granularity in the data is welcome.
- Some States have raised concerns about the failure of the consultants to adjust the model to compensate for policy influences. The ACT does not support these criticisms, as we consider that the task of the consultants was to identify all relevant variables impacting on per capita expenses, and that adjustment for policy influence is essentially a task for the CGC in designing the final assessment methodology. We understand that such adjustments could include (but would not be limited to) holding certain variables constant or discounting the impact that they have on expenditure.
    - This approach has ensured that all relevant variables and their influence on the dependent variable are identified and captured, avoiding any problem of omitted variable bias.
    - There is a question as to whether passenger numbers are a policy influenced variable. Commentary from some States indicates that it should be treated as a demand rather than supply variable – classification as the former would imply that it is essentially a policy neutral variable. However, the consultants have described passenger numbers as a supply variable, with the implication that it is subject to a constraint determined by State policy as to the level of service provision i.e. it represents demand which is actually met. This seems reasonable, with a likely impact on modal mix and possible congestion spillovers or underutilisation in other modes if a fairly optimal level of provision in any mode is not maintained.

[1] SUAs are developed by the Australian Bureau of Statistics (ABS) and represent clusters of one or more contiguous Statistical Areas 2's (i.e. suburbs or towns of equivalent size) containing one or more urban centres less than 5km apart or which share a labour market, have an aggregate urban population of 10,000 or more or at least one urban centre with a population of at least 7,000.

  - Nevertheless, the consultants have rightly commented that the relationship represented in the model implicitly captures the average policy of States – this is no different to the methodological approach generally followed by the CGC.

- Modal mix is one of the factors which appears to be most sensitive to policy choice. A key question would be whether the model shows fundamental discontinuities between urban areas with bus-only systems, those with bus plus light rail only, and those which combine bus, light and heavy rail. A cursory review of actual provision across Australia suggests that light rail systems become viable at SUA populations of around 500,000, and heavy rail at SUA populations of around 1 million**.** The assumption that jurisdictions seek to optimise modal mix appears reasonable, in the absence of evidence that State policy is designed on any other basis, with a fairly wide range of SUA sizes over which the three modal mixes mentioned above would reasonably apply.

- The question of returns to scale has been raised as a possible complicating factor over the form of the model relationship. The Stage 1 report suggested that a U-shaped curve may be most appropriate for recurrent expenses, which would imply the location of the minimum point in terms of city size would be critical i.e. it implies a switch from increasing returns to scale to decreasing returns to scale at a particular size threshold.

  - However, the consultants have stated that a number of studies have shown increasing returns to scale for bus travel. Given the much larger capital component (larger divisible units) in the costs of light and heavy rail modes, it seems reasonable to assume that returns to scale for these modes would be substantially higher than for bus travel, giving progressively increasing returns to scale across modes and hence across city sizes. This assumes that capital and recurrent costs form part of a single model.

  - It is unclear what the impact of increasing density and distance to work might have, as they suggest congestion and complexity effects, which at some size threshold may offset the scale effect of increased passenger numbers. However, we note that a recent study quoted in the report found increasing returns to density for rail (p.8).

FURTHER CONSIDERATIONS

ACT Comments

The ACT has some further comments on points of detail which should be addressed by the CGC in its consideration of the consultants' report. We ask that these points be addressed in the 2020 Review draft report.

- Relative residuals should be plotted against each independent variable (these are only shown by State in the report) for the purpose of checking for heteroscedasticity.

  - The CGC should also clarify with the consultants whether corrections were made to the regression(s) for heteroscedasticity.

- Inclusion of the ratio of operating costs to total costs for heavy rail systems by SUA/City.

  - The CGC should clarify with the consultants as to whether they have a view about the range of this ratio over the five large capital cities (Sydney, Melbourne, Brisbane, Perth and Adelaide).

- The CGC should also clarify whether Queanbeyan is mapped to Sydney as its nearest capital city rather than to Canberra for the purposes of calculating the percentage of the population that commutes to the nearest capital city for work.

  - We note that Canberra and Queanbeyan are in a single SUA.

RURAL ROAD LENGTHS

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Chief Minister, Treasury and Economic Development Directorate

December 2018