

STATES OF JERSEY



PUBLIC AND POLITICAL ACCESS TO ECONOMIC MODELS (P.121/2004): COMMENTS

Presented to the States on 6th July 2004
by the Finance and Economics Committee

STATES GREFFE

COMMENTS

The Finance and Economics Committee urges States members to reject Report and Proposition P.121/2004 because –

- the Committee has already made available, and will continue to make available, OXERA'S Tax Take model; and
- the Strathclyde model can only be operated by professional econometricians and is hence not suitable for general availability.

Part (a) of the Proposition asks for the Committee to make available to States members any economic models. The Report identifies two such models as the OXERA Tax Take model and the Strathclyde economic model.

Members will be aware that the OXERA Tax Take model has already been made widely available to them. On Friday 18th June members were invited to a workshop where the OXERA model (and its limitations) was explained and members were given the opportunity to experiment with the model for themselves. In addition, the model was available to all States members on Tuesday 29th and Wednesday 30th June in the States Assembly building for them to familiarise themselves with it and model the revenue implications of different tax options. Members also have an open offer for them to arrange with the Economics Department a time convenient for them (within normal office hours) to use the model at Cyril Le Marquand House. The Finance and Economics Committee has had a number of officers trained in how to operate the model so that the necessary assistance is available for members whenever they want to use it.

Those members that have used the model will be aware that the model gives a broad estimate of the revenue raised by different tax changes but that it does not '*model the effects of different taxation options*' as P.121/2004 suggests. The exact effects are a matter of economic judgement and something that would need to be modelled on a more complex computer model, such as a Computable General Equilibrium (CGE) model.

The Strathclyde economic model is a CGE model of the Jersey Economy, similar to one held by OXERA. Such models are complex computer models based on input-output data (the most recent for Jersey is 1998). In practice, using a CGE model is an iterative process and the length of time required to obtain useful results varies. The minimum prerequisite to running a scenario, which only makes a minor modification to the existing model, requires the modeller to be very familiar with the CGE model and its underlying theory. Such a modification may take from one week up to a month. [The World Bank which uses CGE modelling widely to inform policy decisions, estimates that realistic durations for a CGE modelling project begin at a few months].

Running a CGE model requires a thorough understanding of what the main sectors of an economy are and what the linkages between the different parts of the economy (and the rest of the world) are. This is also reflected in the way the data for CGE models is organized; a so called Social Accounting Matrix (SAM), which combines data from different sources following national accounting identities. The results from CGE modelling depend crucially on the modeller's ability to specify the various functional structures describing the behaviour and the interactions of the agents and sectors correctly. CGE models are typically very complex; the Jersey CGE model contains well over one hundred behavioural equations. Results derived from CGE models are very sensitive to wrong functional specifications.

Prior to running a scenario the model first has to be calibrated. The calibration of the model involves essentially combining the theoretical approach of how the economy is believed to behave with the data from the SAM. This requires a thorough understanding of the behavioural equations that can be used in CGE modelling, and of the different ways economic linkages between the various agents and sectors can be modelled. The software packages used to construct and run CGE models are not user friendly (with no windows user interfaces available) and require familiarity with the software specific programming language.

Even a minor change to the existing model specification requires the modeller to adapt the existing behavioural equations of the model, requiring manipulations in the underlying code of the model and a good knowledge of the

model. The interrogation of the validity of the results also requires a thorough understanding of the code of the model. The final step, the interpretation of the results requires an expert judgement by the modeller and needs a profound understanding of the underlying assumptions of the model and its limitations.

To make a CGE model widely available for States members to use by themselves would be counterproductive as such models are definitely not user friendly and clearly laborious to operate. The Report implies that '*economic knowledge*' is sufficient to be able to make use of such models and the above explanation shows that clearly is not the case. Given the complexity of the models outlined above, most economists would defer the operation of such a model to either an econometrician or somebody with specific training for the model in question. It is not straightforward to use such a model; for example, modelling differential tax changes with a CGE model requires changing the relative cost base of different parts of the economy, to reflect the different incidence of the tax burden.

The sensible way for non-experts to get the most from a CGE model is to set out what they want to model (i.e. specific questions) and for the modellers to decide whether it is feasible within the confines of the model and if so the best way to go about it. In fact, if members of the Finance and Economics Committee want to make use of the model that is exactly the approach they adopt. The Committee discusses with the States' Economic Adviser, OXERA or Strathclyde whether use of the model is necessary and whether the model can be used for the purpose identified. Even then it will be down to either OXERA or Strathclyde, with their in-depth understanding of the relevant model to undertake the actual modelling. The Committee have used this approach in formulating their proposals. The answers they have received are set out in the extensive background information they have supplied.

Part (b) of the Proposition asks for the Committee to make the models available at the Public Library for public access. Members of the public are entitled to use the OXERA Tax Take model and only have to arrange a date and time with the Economics Department to have access to the model at Cyril Le Marquand House. This allows the necessary supervision to be on hand to allow the model to be used correctly, prevents it being misinterpreted and makes for more effective use of public resources. The complex nature of CGE models means that it would be clearly inappropriate for members of the public to try and use such a model and a waste of time to install it at the library.

Members must understand and appreciate that the Finance and Economics Committee has a duty at all times to ensure that economic models containing sensitive economic data remain secure. It is critical that such models and the data they contain do not fall into the hands of our competitors, enabling them to access information on the Jersey economy which could be to their advantage and which we could not access about their economies. Similarly, the Committee must ensure that it makes the most efficient use of resources paid for by public money and that such resources are not misinterpreted and thereby misinform the public debate.

The Committee feels very strongly that it has already taken sufficient steps to ensure that the economic models mentioned in P.121/2004, particularly the OXERA Tax Take model, are widely available to both States members and the wider public and that this Report and Proposition is unnecessary and should be rejected.