Senate Standing Committee on Economics

ANSWERS TO QUESTIONS ON NOTICE

Treasury Portfolio

Additional Estimates – 25–26 February 2009

Question: aet 33

Topic: **Stimulus Package – Mathematical Calculations**

Hansard Page: **E9 - 10 (25 February 2009)**

Senator JOYCE asked:

Senator JOYCE—You might want to take this on notice. Would you be able to table for us the mathematical calculations surrounding the stimulus package?

Dr Gruen—As in the jobs impact?

Senator JOYCE—Yes, in the various factors. The jobs impact would be absolutely of vital interest. Would you be able to table the mathematical calculations that surround that issue?

Senator CAMERON—Senator Abetz said the economic modelling on climate change was guff; can we get that as well?

Senator JOYCE—Dr Gruen, is that your answer?

Senator ABETZ—Chair, I did not say that. What I did say was that in answer to one specific question, I got 26 pages of guff that did not answer the specific question that I had asked.

CHAIR—Thank you, Senator Abetz. It points out the danger of us talking to us each other about interjections. I think Dr Gruen wanted to answer the question from Senator Joyce.

Dr Gruen—I think we have tried to lay out our thinking on how big the jobs impact is, but I am very happy to take the question on notice.

Senator JOYCE—The question on notice is that you will table the maths.

Dr Gruen—Well, that is the question, yes.

Answer:

The *Updated Economic and Fiscal Outlook* states that the Nation Building and Jobs Plan (NBJP) is expected to boost GDP growth by around ½ per cent in 2008-09 and ¾ to 1 per cent in 2009-10, supporting up to 90,000 jobs over the next two years.

The estimated GDP impacts reflect judgements on two factors:

- the GDP multiplier applying to stimulus measures; and
- the timing of the GDP impacts.

The estimated GDP impacts are based on GDP multipliers within the range of 0.5 to 1 suggested by international studies. For the NBJP, a lower multiplier was assumed for the bonus payments to households than for the infrastructure spending components of the package, reflecting an expectation that households will save a portion of these

payments. In mathematical terms, the calculation of GDP impacts can be characterised as:

$$\Delta GDP = \text{Infrastructure spending} \times \text{Infrastructure spending multiplier} + \text{Bonus payment spending} \times \text{Bonus payment spending multiplier}$$

In practice, the calculation is slightly more complex because some fiscal measures are likely to affect GDP with a lag, so some of the impact on GDP occurs in later quarters. In particular, the impacts of payments to households on consumption are assumed to be spread over a number of quarters rather than being concentrated in the quarter in which payments are received. This means that part of the GDP impact of payments made to households in the final quarter of 2008-09 is expected to occur in 2009-10.

The estimated employment impacts are calculated from the estimated impacts on quarterly GDP, using an econometric model of quarterly employment growth. The model is estimated from historical data, which indicate that employment normally responds to changes in GDP with a significant lag. On average, a 1 per cent increase in GDP leads to a 0.75 per cent increase in employment after 5 quarters. As the employment impact builds up to its peak over this period, there are lower employment multipliers applying to the intervening quarters.

The employment impacts derived from this model are a function of changes in GDP up to 5 quarters previously. In mathematical terms, the impact on employment in quarter T is the sum of the percentage impacts on GDP over the preceding quarters (T-1 to T-5), multiplied by the relevant employment multiplier for each of these quarters, multiplied by the baseline level of employment (before the policy change).

$$\Delta\text{Employment}_T = \sum_{t=1}^{5}\left(\frac{\Delta\text{GDP}_{T-t}}{\text{Baseline GDP}_{T-t}} \times \text{Employment multiplier}_t \times \text{Baseline employment}_T\right)$$

The estimate that the NBJP will support up to 90,000 jobs over the next two years reflects the peak impacts on quarterly employment calculated using this approach.