
G Referee reports

Report from Dr. Guyonne Kalb

This report reviews Appendix E on the ‘Modelling the workforce impacts’. This Appendix describes the model and assumptions used in estimating the likely effects of implementing the National Partnership Agreement on Early Childhood Education (NPAECE) and the National Quality Standards (NQS). The aim of Appendix F is to analyse a number of outcomes for Early Childhood Education and Care (ECEC) if the targets of these two policy reforms were realised. The outcomes considered by type of ECEC service are: service quality of the services as measured by the proportion of staff with Certificate III or above; the number of children attending; average cost per child; average out-of-pocket cost of care; number of workers by qualification; average wage per year; source of expenditure. The services distinguished in the analysis are preschools, long day care, family day care, and occasional and in-home care.

In line with my expertise, the focus in this report is on the micro-economic aspects and assumptions of the model, rather than on the specific choice of model used. The assumptions that need to be made are potentially crucial to this analysis and can often not be made with sufficient certainty. The approach taken here of determining a reasonable range for particular relationships, based on the existing literature or own estimates, and then determining the sensitivity of the results to changes in these parameters within these range is an informative and transparent way of dealing with this uncertainty.

Several assumptions need to be made for the estimation and these are clearly laid out in the appendix. Assumptions are made regarding the following elasticities:

- own price elasticity of demand for ECEC services
- wage elasticity of supply of ECEC services by education level
- elasticity of supply of ECEC with regard to childcare costs (since most ECEC workers are female, childcare costs may potentially be a factor in their labour supply decision)
- elasticity of demand for ECEC workers with regard to output (that is, number of children cared for)

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- elasticity of demand for ECEC capital with regard to its own price
 - elasticity of demand for ECEC capital with regard to output.

Three different values are considered for the first two elasticities, and two different values for the third elasticity. The final three elasticities are fixed at one value. Using all possible combinations, 18 scenarios are constructed. This is then combined with two alternative ways of cost-sharing, current cost-sharing arrangements are maintained or government is bearing the full cost, to create 36 different scenarios for which results are presented.

The calculations start with imposing the targets of the two policy reforms on the model by working out what is needed in terms of reaching the targets. The NPA ECE reform requires access to at least 15 hours of preschool services/programs per week by 95 per cent of children in year before compulsory schooling, which comes down to just over 90 000 extra children in these services. The NQS requires increased staff-to-child ratios and qualification requirements in ECEC services. These can be easily represented in the model by increases in the number of staff by qualification.

Based on the 36 scenarios, a range is obtained for each outcome of interest. This is summarised in table E.12 providing a quick overview of results. Although there is a fair amount of variation between the lowest and highest estimated outcome, the ranges are narrow enough to be informative for policy makers. And this result occurs, despite the fact that the chosen ranges in the analysis allow the lowest and highest values of the own price elasticity of the demand for ECEC services and the wage elasticities of the supply of ECEC workers to be quite far apart. Since the analysis is set up in a transparent manner, it is easy for the reader to determine which scenario they would put most weight on given the assumptions underlying it. Furthermore, alternative sensitivity tests are easily carried out should this be required, making this an excellent framework for exploration of the reform in different circumstances, so that a better understanding of the likely effects of the two reforms can be obtained.

Report from Dr. Anu Rammohan

The Australian government is proposing to implement a National Quality Standards (NQS) framework from January 2012, with the stated objectives of raising the qualification levels of early childhood education and care (ECEC) sector, improving the staff-to-child ratios in long day care and increasing the number of children attending pre-school programs. These reforms have considerable resource

implications, and the aim of this paper is to analyse the potential impact of the proposed policy reforms on the ECEC workforce and on the costs of care.

The mathematical model developed in this paper is a four-sector partial equilibrium model, which is the standard approach used in micro-economic modelling. The model is implemented using aggregate publicly available data from DEEWR and the National Workforce Census (NWC). The variables included in the analysis are the cost of care, the number of children, number of workers and their wages in the ECEC. The paper then uses elasticities from previous Australian studies on childcare to compute household demand for childcare in response to changes in prices. This is relatively straightforward. As acknowledged in the paper, getting a measure of the elasticity of labour supply in response to wage changes is more challenging, because higher educational requirements for workers in this sector mean that, the ECEC sector is effectively competing with other sectors such as nursing or schooling for qualified workers. However, as the authors point out, given the small size of the ECEC sector, these assumptions are easily justified.

To test the sensitivity of the results, thirty-six different scenarios are modelled, reflecting different cost-sharing arrangements between households and government, responsiveness of labour supply to changes in wages, responsiveness of childcare demand to changes in out-of-pocket charges, and for completeness, the authors also model the responsiveness of labour supply to changes in child care costs. They assume that the elasticity of labour supply to changes in childcare costs is zero, since childcare costs are unlikely to directly influence the labour supply decisions of child care workers.

The main results of the analysis presented in tables E.12 and E.16 show that: (i) a relatively inelastic price elasticity of childcare demand will imply that households will bear a higher cost of the reforms, (ii) the wages of childcare workers will increase if labour supply is inelastic, which in other words means that in the face of high demand for childcare, the ECEC sector will need to offer high wages to attract a qualified workforce and (iii) the cost of reforms will be higher if the ECEC worker's labour supply is sensitive to the price of ECEC services.

In my view, the modelling is appropriate and competent, and the results are robust to different scenarios and the results are as expected. The paper reads well and the various assumptions are clearly explained. There are of course other proposed reforms in the higher education sector and intake of skilled migrants that are being considered, and these are likely to have implications for the supply of workers to the ECEC sector. However, these issues are beyond the scope of the current paper.