
E Modelling the workforce impacts of the COAG ECEC reforms

The Commission developed a mathematical model of the early childhood education and care (ECEC) sector as a tool to explore the possible extent of the workforce impacts of the Council of Australian Governments (COAG) ECEC reforms. The model is ‘comparative static’ — it provides a comparison of the ECEC workforce with and without the National Partnership Agreement on Early Childhood Education (NPA ECE) and the National Quality Standard (NQS) reforms (chapter 3). In effect, the model illustrates the potential impacts on the ECEC workforce if the stated targets of these reforms for 2016 were to apply to the ECEC workforce as represented by its composition in 2010. The results are thus indicative of the impact of these reforms in isolation. In reality, this impact would be in addition to changes that occur due to demographic, economic and other trends.

The results therefore cannot be used to identify how the ECEC sector and its workforce would appear in 2016. This would require forecasting a ‘business-as-usual’ trend — that is, how the ECEC sector and its workforce would appear in 2016 in the absence of the reforms. Such a forecast would incorporate demographic and other trends that are not the focus of the model.

The Australian Government agreed to a number of annual payments to be made to state and territory governments, which include the:

- NPA ECE — a payment of \$970 million over five years between 2009 and 2013
- National Partnership Agreement on the National Quality Agenda for Early Childhood Education (NPA NQA ECE) — a payment of \$181 million over five years to train and retain the ECEC workforce
- payments to support and train the ECEC workforce, such as fee waivers, additional university places, the Professional Support Program, and additional support to Indigenous ECEC staff (appendix F).

There is also a provision in the Australian Government Budget for 2011-12 for those NPA ECE and NPA NQA ECE payments to continue after 2013-14 (Treasury 2011b).

These payments were not included in the modelling because they do not affect the magnitude of subsidy rates actually paid to households and ECEC services. They are transfers between governments and do not affect the community's total expenditure on ECEC. However, these payments have been included with some of the results to provide an indication of the relative fiscal commitment of these reforms for governments.

Training subsidies (such as subsidised university places and fee waivers for certain courses in the vocational education and training sector) are also not formally included in the model. They are discussed in chapters 10 and 11.

An early draft of this appendix was circulated for comment to the Department of Education, Employment and Workplace Relations (DEEWR), the Victorian Department of Education and Early Childhood Development, and to two external academic referees. A modelling workshop was subsequently held that was attended by, among others, DEEWR and the South Australian Department for Education and Child Development. One referee attended the modelling workshop, and both referees prepared independent referee reports on the robustness of the model and assumptions (appendix G). The Commission reviewed its initial modelling in light of the valuable input of these participants, but acknowledges there are likely to remain differing views with respect to the assumptions that underpin the final modelling. The Commission has dealt with this by conducting extensive sensitivity analyses and considers its results to be robust.

E.1 Purpose of the model

The purpose of the model is to analyse the possible effects on the ECEC workforce of implementing the NPA ECE and NQS objectives that are to take effect between 2010 and 2016.

The workforce effects of the reforms will reflect not only the additional hours of preschool programs and the qualification and staff-to-child ratio requirements, but will also be influenced by who pays for their implementation. Under existing policy settings, the majority of the costs of the reforms will be paid for by governments — through subsidies to ECEC services and households, and through transfers between governments. Parents of children attending ECEC services will also make a significant contribution to the cost of the reforms under existing policies.

The Commission is aware that a wide range of cost-sharing arrangements could be implemented, and has therefore modelled two scenarios to highlight their different workforce impacts:

- all cost increases are shared between households and governments on the basis of existing subsidy arrangements
- governments fully fund the cost increases so that out-of-pocket fees paid by families do not increase.

Some distinctive features of the model are that it:

- analyses the combined effects of both the NPA ECE and NQS, in contrast to COAG (2009h) which separately models the NPA ECE and NQS reforms
- illustrates how any scarcity of labour, reflected in wage pressures, would feed back to the costs of ECEC services. This in turn would influence the quantity of ECEC services demanded and, therefore, the demand for ECEC workers
- examines how the reforms change the structure of the ECEC workforce in the long run — that is, after a period in which most of the reform policies have been fully implemented.

There are some aspects of the ECEC reforms that are not considered in the model, including:

- the monitoring and enforcement of the regulations, the National Early Years Learning Framework, the Framework for School Age Care and the implementation of integrated services
- the short-run or transitional arrangements that might be necessary to implement the reforms such as the cost of training subsidies
- a number of other ‘feedback mechanisms’, such as the effect of ECEC costs on female labour supply, and the effects that changes in prices for one type of ECEC service might have on the demand for other ECEC services (section E.7).

Also, the model assumes that regulators do not issue additional waivers to those that were in effect in 2010 when the National ECEC Workforce Census was undertaken. (Waivers allow services to continue operating if they cannot fully comply with the NQS, including the staffing requirements it contains.)

Previous studies

The effects of the ECEC reforms were examined in some detail when the reforms were proposed. Analyses were undertaken for COAG (2009h) and by the Victorian

Department of Education and Early Childhood Development (DEECD 2009). COAG (2009h) used a benefit–cost framework to assess the effects of the NQS on the ECEC workforce. COAG concluded that the NQS reforms, apart from those that would otherwise be undertaken by the states and territories without the involvement of the Commonwealth, would increase long day care (LDC) out-of-pocket fees by \$4.20 per child per day in 2016, in present value terms (COAG 2009h). Assuming a weekly out-of-pocket fee of \$285, this is equivalent to a 7 per cent increase in out-of-pocket fees (SCRGSP 2011a).

COAG’s analysis rests on particular assumptions.

1. The baseline to which the NQS reforms are applied includes an assumption that a significant proportion of the reforms would have occurred anyway.
2. The analysis of the impact of the NQS does not take into account the effects of, and interactions with, the simultaneous NPA ECE reforms.
3. Demand for ECEC services is assumed to remain the same despite higher prices (that is, demand for ECEC services is assumed to be perfectly inelastic), despite research which suggests that Australian families would reduce their demand for ECEC if faced with higher prices (section E.3).
4. The ECEC workforce is expected to supply as much labour as needed at existing prices (that is, the supply of labour is assumed to be highly elastic). This is despite growing demand for workers in other community services, such as the disability and aged care sectors (PC 2011a; 2011b).
5. The demand and supply of ECEC workers, as well as their wages, are all assumed to be determined independently of each other. However, supply, demand and wages are inherently linked through labour markets.

A potentially richer representation of the complex interactions between the ECEC sectors and their labour markets can be obtained by employing an equilibrium model. Two examples of equilibrium models that have been used to analyse ECEC policies include those of Rickman and Snead (2007) and Graafland (1998, 2000) (box E.1).

Box E.1 **Equilibrium models used to analyse ECEC policies**

Economic equilibrium models are a class of economic model that estimate how an economy or part of an economy might react to policy, technology or other outside changes. They consist of a group of mathematical equations and actual data that represent some aspect of the behaviour of economic agents (typically consumers, producers, workers and governments). The attraction of such models is that they can account for the potentially complex and simultaneous interactions between economic agents.

Although equilibrium models have been used for policy analysis since the 1970s, they have rarely been used for the assessment of early childhood education and care policies. One exception is Rickman and Snead (2007), who used a computable general equilibrium model of the Oklahoma economy to assess the effects of childcare subsidies on the labour force participation and incomes of households. The model comprised 32 industries, of which one was the childcare sector, two government sectors (the combined state and local governments of Oklahoma, and the US federal government) and a capital market sector. The model also provided for two labour markets — low skilled (low income) and high skilled (high income). The model was constructed around input–output tables to ensure a balance between the intermediate and final demands and supplies of goods and services.

The authors found that a 10.0 per cent increase in childcare subsidies would lead to a 9.6 per cent increase in the labour supply of low-skilled workers and a 5.4 per cent increase in the labour supply of high-skilled workers.

Equilibrium modelling was also undertaken by Graafland (2000), who used the Micro Macro model to analyse the Institutional Context (MIMIC) to analyse the effect of childcare subsidies on the labour market and government budget in the Netherlands. MIMIC was specifically designed by the Dutch *Centraal Planbureau* (Central Planning Bureau) to simulate the effects of government welfare and taxation policies on household behaviour (Graafland 1998). MIMIC contains detailed information on households' occupational characteristics (such as whether they are unskilled, low-skilled or high-skilled workers) and workforce participation (such as whether there are one or two working parents).

Graafland (2000) found that increases to childcare subsidies increased labour force participation and employment. The author also observed a substitution from informal to formal child care because the latter was more affordable, and an increase in the wage of childcare workers due to higher demand.

Understanding the Commission's model

The Commission's model, as noted, is intended to illustrate the possible effects of achieving the NPA ECE and NQS. It differs from previous models of the effects of the ECEC reforms in two ways. First, it is a comparative static analysis. This means

that it analyses the effects of government policies in isolation from other changes that might occur to the ECEC sector and its workforce over time (box E.2).

Box E.2 Interpreting comparative static analysis

Comparative static analysis is the comparison of two (or more) different economic outcomes that exist at the same point in time. Comparative static analysis is used to isolate the effects of changes in parameters or variables, such as policy reforms. It differs from economic forecasts which typically take into consideration changes to a wide variety of parameters and variables that are expected to occur over time.

The difference between an economic forecast and a comparative static analysis is illustrated in figures (a) and (b) below.

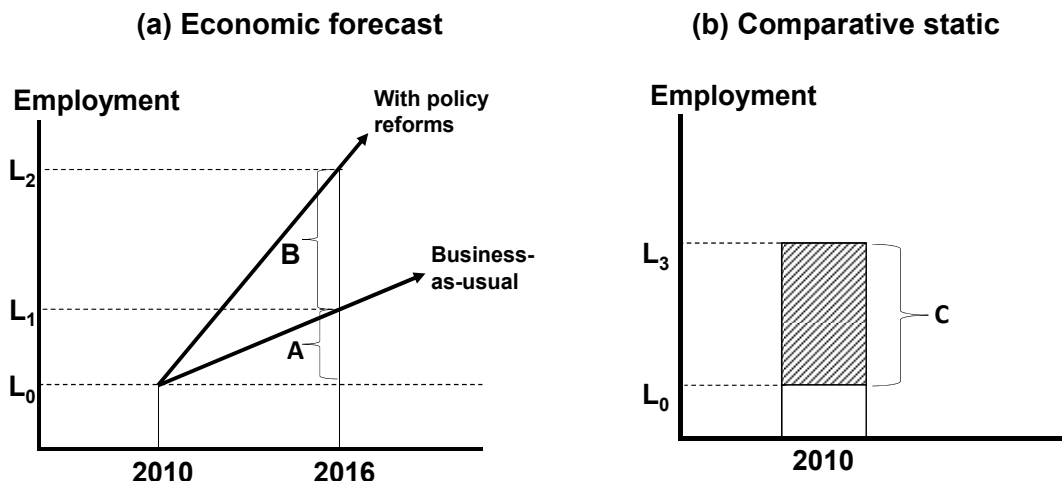


Figure (a) represents an economic forecast of future ECEC employment. The business-as-usual scenario represents the level of ECEC employment that is likely to occur in the absence of changes to government policy. In this hypothetical example, ECEC employment is expected to grow from L_0 in 2010 to L_1 in 2016, or amount A.

The difference between the economic forecast with government policies and the business-as-usual trend gives the employment outcomes that as a result from changes to government policy (the amount B).

The comparative static analysis in figure (b) illustrates the effect of a policy reform on ECEC employment. Unlike economic forecasting, comparative static analysis does not rely on future projections of economic and other trends. Rather, it answers the question: how would the ECEC sector and workforce appear if the reforms that are to be in place in 2016 were in place in 2010? In the above example, employment in the ECEC sector following the introduction of ECEC policies is expected to grow from L_0 to L_3 , or amount C.

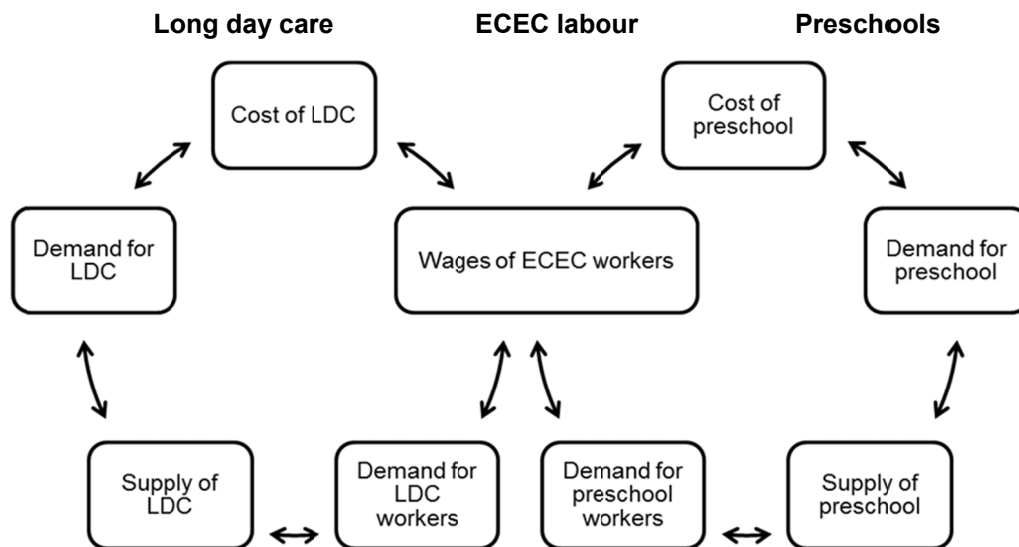
The change in employment in a comparative static analysis (amount C) may be the same, but not necessarily so, as the change in employment in the economic forecast (amount B).

Second, it is an equilibrium model. This means that each of the markets considered in the model (such as the various ECEC sectors and ECEC workforces) are assumed to iterate simultaneously until market equilibriums are re-established. For example, this means that any increases in ECEC salaries, by increasing the costs of ECEC services, would in turn affect the quantity of ECEC services consumed and supplied (box E.3).

Box E.3 Stylistic representation of an equilibrium model

A strength of equilibrium models is that they can address the sometimes complex and often simultaneous interactions that occur between economic agents — such as households, ECEC services and governments.

Modelling approaches will usually follow a logical sequence of events. In COAG (2009h) it was reasoned that an increase in the number of higher-qualified staff in long day care (LDC) will lead to an increase in costs, which in turn will lead to an increase in out-of-pocket fees, which in turn will lead to a reduction in demand for LDC services. In the left-hand figure below, this is represented as a clockwise movement beginning with an increase in the demand for LDC workers.



There are, however, a number of other interactions. One is the interaction that occurs between ECEC sectors, such as LDC and preschools, through the ECEC labour market. For example, increases to the staff-to-child ratios of long day care (LDC) can lead to increases in the wages and salaries not only of LDC workers, but also of workers in the preschool sector (as well as other ECEC sectors that are not the subject of the reforms, such as occasional care and in-home care). As a result, policy reforms in one ECEC sector can influence costs in other ECEC sectors.

Overview of the model

The Commission's model comprises:

- four ECEC sectors (LDC, family day care (FDC), occasional care and in-home care combined, and preschools)¹
- five labour markets (teachers and other degree-qualified workers,² advanced diploma or diploma-qualified ECEC workers, certificate III/IV-qualified ECEC workers, certificate I/II-qualified ECEC workers, and unqualified ECEC workers)³
- a single capital market for each ECEC sector
- the Australian Government sector
- another government sector combining the state, territory and local governments.

A stylistic representation of the model is given in figure E.1. The NPA ECE is represented as an increase in the demand for preschool services from D_0 to D_1 . This increase in demand leads to an increase in the demand for ECEC workers, represented here as a shift of the labour demand schedule from LD_0 to LD_1 (figure E.1(a)).

As illustrated, to induce additional workers to the preschool sector to meet the NPA ECE requirement, wages would need to increase from w_0 to w_1 . The increase in salary costs in turn leads to higher costs of preschools, which is represented as an increase in the price of preschool services from P_0 to P_1 . In the model, it is assumed that these preschool fee increases are paid for by governments because governments have committed to ensuring that costs do not pose a barrier to accessing preschool services (COAG 2009d). It is acknowledged that this may not be the case in practice, especially in jurisdictions where preschool is not currently fully funded by government. (In the subsequent analysis, governments' assurances that costs will not pose a barrier to accessing preschool will be formally modelled.)

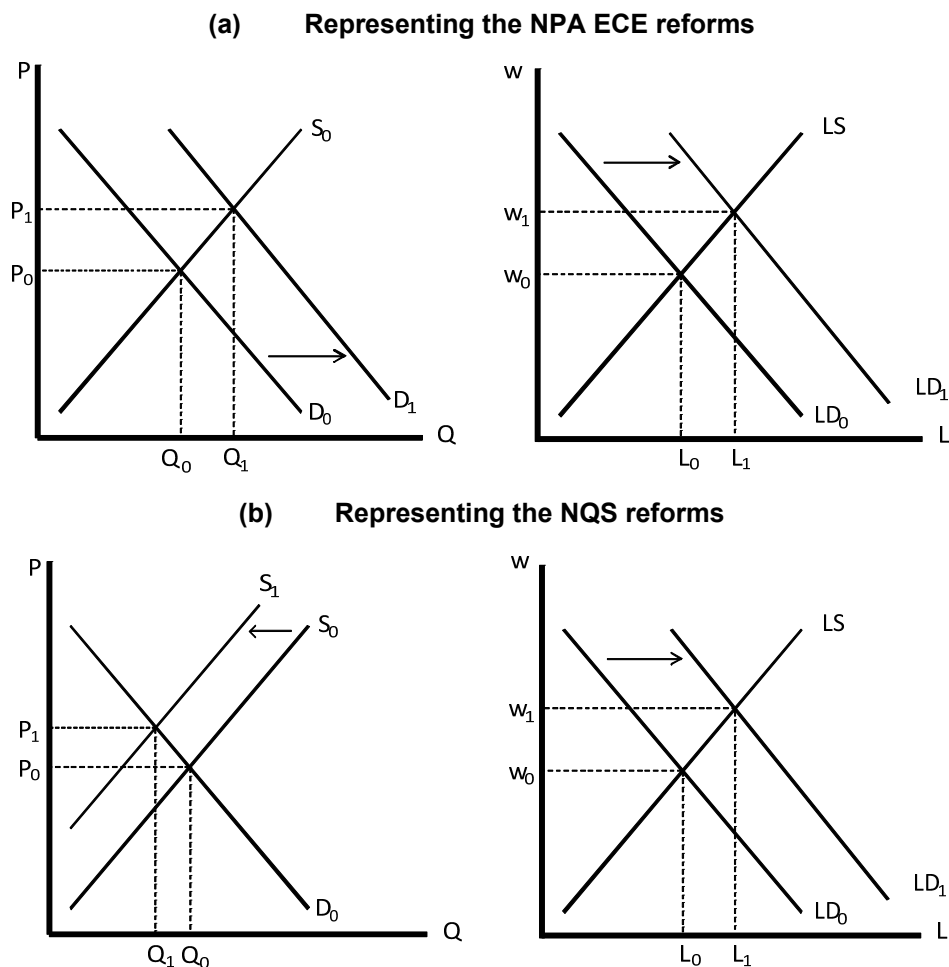
¹ Denoted in the model as L , F , O and P respectively. Even though the occasional and in-home care sectors are not the subject of the ECEC policy reforms, because they share the same labour force as the other ECEC sectors, the reforms are expected to have an indirect effect on these sectors.

² Includes three and four-year degree-qualified early childhood, primary and secondary school teachers, and other health and welfare qualified and related workers. The category also includes a small number of unrelated degree-qualified workers.

³ 'Unqualified' includes 'qualification unknown'. Each of the qualifications are denoted B , D , $C3$, $C1$ and U respectively.

The introduction of the NQS is represented as an increase in the number of workers required to provide a given level of output (figure E.1(b)). The NQS applies to preschools, LDC services and FDC services. The NQS reforms are represented as a shift of the labour demand schedule from LD_0 to LD_1 . As labour demand increases, so do wages. The increases in wages raises the cost of ECEC, which is represented by a leftward shift of the costs of supply, from S_0 to S_1 . This in turn, increases the costs and therefore fees faced by households, from P_0 to P_1 , and as a result, reduces the demand for services from Q_0 to Q_1 .

Figure E.1 **Stylised illustration of the Commission's ECEC model**



E.2 Model detail

The graphical representation of the reforms can be expressed by a mathematical economic model. The model is solved by mathematical programming similar to the techniques described in Takayama and Judge (1971).

The objective function of the model is net welfare (NW), defined here as the sum of consumer and producer surpluses, and across the j ECEC sectors and n labour markets, and is given by:

$$NW = \text{Max}_{q_j^d} \sum_{j=1} \int p_j^d(q_j^d) dq_j^d - \left(\sum_n \left(\int w_n(L_n^s) dL_n^s \right) + \sum_j r_j K_j^s \right) \quad (\text{E.1})$$

where p_j^d is the demand price of the j th service, q_j^d is the quantity demand of the j th service, and $p_j^d(q_j^d)$ is the inverse demand for service j , w_n is the wage of the n th occupation, L_n^s is the labour supply of the n th occupation and $w_n(L_n^s)$ is the inverse labour supply of the n th occupation. Finally, r_j is the rental return (and other costs) of the j th sector and K_j^s is the j th sector's capital stock.

The first term on the right-hand side represents the gross surplus to the community, and the second term represents the total variable cost of providing the services, and includes the costs of labour and capital (and other costs).

The solution to equation (E.1) is to choose the combination of quantities demanded (q^d) that maximises net welfare, subject to the various market-clearing conditions that apply to both the ECEC and input markets.

Output markets

The first set of equations describes the market for ECEC services. These include the inverse demand, producers' price and the market-clearing equations:

$$p_j^d = a_j + b_j q_j^d \quad j = \text{L,F,O,P} \quad (\text{E.2})$$

$$p_j^s = \left(\sum_n w_n L_{nj}^s + r_j k_j^s \right) / q_j^s \quad j = \text{L,F,O,P} \quad n = \text{B,D,C3,C1,U} \quad (\text{E.3})$$

$$q_j^d = q_j^s \quad j = \text{L,F,O,P} \quad (\text{E.4})$$

$$p_j^s \geq 0, p_j^d \geq 0, w_n \geq 0, q_j^s \geq 0, q_j^d \geq 0 \quad (\text{E.5})$$

where p_j^s is the supply (or firm's) price in the j th sector. Household (demand) and ECEC service (producer) prices are governed by the following equations:

$$p_j^s = p_j^d (1 - \sigma_j^S) \quad j = \text{P} \quad (\text{E.6})$$

$$p_j^d = p_j^s (1 - \sigma_j^S) (1 - \sigma_j^A) \quad j = \text{L,F,O} \quad (\text{E.7})$$

$$(0 \leq \sigma_j^S \leq 1), (0 \leq \sigma_j^A \leq 1), S^A \geq 0 \quad (\text{E.8})$$

where σ_j^S is the average and marginal subsidy rate of sector j , σ_j^S is the *ad valorem* subsidy rate provided by state and territory governments to sector j , and σ_j^A is the *ad valorem* subsidy rate paid by the Australian Government. Although many Australian Government subsidies do not vary with price (such as the child care benefit, Jobs Education and Training (JET) payments, and payments to ECEC services receiving sustainability and establishment assistance), these are usually indexed annually, and so are treated as an *ad valorem* rate in this model.

In cases where the governments agree to fully fund any increases to costs as a result of policy reforms, the relevant price equations are:

$$\bar{p}_j^d = p_j^s(1 - \hat{\sigma}_j^S) \quad j = \text{P} \quad (\text{E.7'})$$

$$\bar{p}_j^d = p_j^s(1 - \bar{\sigma}_j^S)(1 - \hat{\sigma}_j^A) \quad j = \text{L,F,O} \quad (\text{E.8'})$$

where \bar{p}_j^d indicates that out-of-pocket fees are held constant, $\hat{\sigma}_j^S$, $\hat{\sigma}_j^A$ indicate that subsidies are allowed to vary, and that $\bar{\sigma}_j^S$ state subsidies are held constant.

Labour market

Each ECEC sector is assumed to demand labour in fixed proportions with its output. This is intended to reflect the extensive regulation of staff-to-child ratios and qualification requirements that effectively limit the scope for substitution between labour inputs unless waivers are obtained from the ECEC service regulator (and, as mentioned above, it is assumed that the number of waivers is fixed at 2010 levels).

The labour demand equation, inverse labour supply and labour market clearing equations are given as:

$$l_{nj}^d = d_{nj} q_j^d \quad n = \text{B,D,C3,C1,U} \quad j = \text{L,F,O,P} \quad (\text{E.9})$$

$$w_n = e_n + f_n L_n^s + \sum_j g_j p_j^d \quad n = \text{B,D,C3,C1,U} \quad j = \text{L,F,O,P} \quad (\text{E.10})$$

$$l_n^s = \sum_j l_{nj}^d \quad n = \text{B,D,C3,C1,U} \quad (\text{E.11})$$

$$w_n^s \geq 0, l_n^s \geq 0, l_{nj}^d \geq 0 \quad (\text{E.12})$$

where w_n is the prevailing wage in the n th labour market, d_{nj} is the staff-to-child ratio prevailing in the sector, and where e_n , f_n and g_j are parameters. There is an extensive literature that indicates that female labour supply decisions are influenced by the costs of child care. Since the ECEC labour force is largely female, several scenarios of the model were tested with and without ECEC costs in the wage equation.

Capital and other costs

It is assumed that each ECEC sector has its own capital stock (k_j^s). Capital represents the total physical stock of an ECEC service — buildings, land, and all fixed equipment (kitchens, swings, sandpits and so on). For simplicity, capital also includes each service's sundry expenses such as repairs and maintenance, rates, utilities and so on.

Since capital is not readily observable, it is assumed that each centre has one unit of capital which corresponds with the centre itself. In the case of the FDC sector, the unit of capital applies to the service rather than the individual worker.

It is assumed that there is a unique capital market for each ECEC sector. Over the long run, it is assumed that the number of ECEC services will adjust so that each of the j sectors will be able to earn their long-run normal rate of return.

The demand for capital, rate of return and market-clearing conditions are given as:

$$k_j^d = h_j + i_j r_j + j_j q_j^s \quad j = L, F, O, P \quad (\text{E.13})$$

$$r_j = \bar{r}_j \quad j = L, F, O, P \quad (\text{E.14})$$

$$k_j^d = k_j^s \quad j = L, F, O, P \quad (\text{E.15})$$

$$r_j \geq 0, k_j^d \geq 0, k_j^s \geq 0 \quad j = L, F, O, P \quad (\text{E.16})$$

where k_j^d is the demand for capital in the j th sector, r_j is the rental paid to capital, \bar{r} is the long-term rental paid to capital, and where h_j , i_j and j_j are parameters.

Government finances

As this is a partial equilibrium model, there is no requirement in this model for governments to maintain balanced budgets and there is no adjustment to the amount

of tax paid by households. The expenditures of the two government sectors are given by:

$$E^A = \sum_j p_j q_j \sigma_j^A + (S_{jCCB}^A + S_{jOTH}^A) q_j \quad (\text{E.17})$$

$$E^S = \sum_j p_j q_j \sigma_j^S \quad (\text{E.18})$$

E^A and E^S are the payments to the ECEC sectors. A range of government payments (such as the family tax benefits payment) and taxes (such as income tax and the Goods and Services Tax) are not included in this model.

E.3 Implementing the model

The model is implemented using the General Algebraic Modeling System™. A copy of the code used to implement the model can be downloaded from the Commission's website.

The model uses two types of data: elasticities and variables. Elasticities are measures of how sensitive one variable is to another. They capture important aspects of consumer and producer behaviour. Elasticities are used determine the parameters used in the model (box E.4).

Box E.4 Using elasticities to calibrate the model

An elasticity is a measure of how sensitive a variable is to a change in another variable. Formally, an elasticity is the ratio of the percentage change in one variable to the percentage change in another variable. For example, the price elasticity of demand is given as:

$$\varepsilon^d = \frac{\partial q^d}{\partial p^d} \frac{p^d}{q^d}$$

where ε^d is the elasticity of demand of quantity (q^d) with respect to demand price (p^d).

The parameters of the model can be calibrated (that is, 'determined') if the underlying elasticities are known. For example, for a demand equation:

$$q_i^d = a_i + b_i p_i^d$$

(Continued next page)

Box E.4 (continued)

The parameter b_j can be found by setting it equal to:

$$b_j = \frac{\varepsilon_j q_j^d}{p_j^d}$$

where ε_j is the elasticity of own-price demand. Since q_j^d , p_j^d and b_j are known, it becomes possible to obtain an estimate of a_j .

Variables are data that describe the prices and quantities of the ECEC sector, and the number of workers and wages in the ECEC workforce. Variables are drawn from publicly available information such as the 2010 National ECEC Workforce Census (NWC) undertaken by DEEWR.

The elasticities used in the model

There are three elasticities in the model whose values can significantly influence the results:

- own-price elasticity of ECEC demand
- own-wage elasticity of labour supply
- elasticity of labour supply with respect to ECEC costs.

Own-price elasticity of ECEC demand

The own-price elasticity of ECEC demand is a measure of the willingness of households to use formal ECEC services in response to changes in the ECEC price. Australian studies that have sought to estimate price elasticities of demand for child care include Doiron and Kalb (2002, 2005), Kalb and Lee (2008), and Gong, Breunig and King (2010b) among others. Other authors, such as Rammohan and Whelan (2007, 2008) have estimated cost of child care equations that were subsequently used to estimate their labour supply equations.

A review of Gong, Breunig and King (2010b), Kalb and Lee (2008), Powell (2002) and Ribar (1995) indicates that the range of own-price elasticities of demand vary between -6.639 and $+8.848$. Elasticities were found to vary according to the age of children, and whether families have one or two parents. Among the Australian studies, Doiron and Kalb (2005) found that the own-price elasticity of childcare demand ranged between -0.343 and -0.644 for couples, and between -0.044 and -3.430 for lone parents, depending on the age of the children. Gong, Breunig and

King (2010b), after addressing problems of measurement error prevalent in other Australian studies, found that the elasticities of demand for child care for children aged under 13 years to be between -0.64 and -0.65 .

It is acknowledged that elasticities of demand can also vary according to whether they were estimated with or without the presence of subsidies, such as the child care benefit (CCB) and child care rebate (CCR). The Commission's modelling seeks to gauge potential consumer (household) responses to changes in out-of-pocket fees. Accordingly, given that Gong, Breunig and King (2010b) provided the most robust methodology, the model's mid-point elasticity is set at -0.65 , which is consistent with consumers of ECEC services not being highly responsive to price changes. Nonetheless, given views presented at the workshop that the demand elasticity could be even lower, an alternative estimate of -0.25 was modelled in sensitivity testing. A more elastic alternative (-1.00) was also modelled.

All childcare demand elasticities were applied to the after-subsidy price of an ECEC service.

Own-wage elasticity of labour supply

The own-wage elasticity of labour supply is a measure of the willingness of a worker to supply their labour in response to changes in their wages (or income).

Measurement issues

There are three issues that affect the measurement of the long-run elasticity of labour supply into the ECEC workforce. First, the elasticity of labour supply in this study is the response of the workforce participation response of (largely) female workers into the ECEC sector. Elasticities of labour supply are normally defined for a group of people (such as married women), or professionals (such as teachers or nurses), to either enter the workforce or to supply hours of work. However, the ECEC sector competes with other sectors for the same workers and the relevant labour supply elasticity will need to take into account the size of the ECEC sector relative to the economy's workforce.

Following Cronin (1979), the elasticity of labour supply into ECEC for each class of worker can be given as:

$$\gamma_n^s = \eta_n \frac{L_n^s}{L_{nj}^d} \quad (\text{E.19})$$

where η_n is the elasticity of labour supply into ECEC for occupation n and is defined in box E.2. L_{nj}^d is the employment of type n qualified worker in the j th ECEC sector, and L_n^s is the total supply of n qualified workers in the economy. (Similar problems of aggregation are considered by Keane and Rogerson (2011).)

The elasticity of labour supply into ECEC depends upon the share of total employment that the ECEC sector provides. This means that in the model, the relevant elasticities of labour supply will be larger (more elastic) than those commonly estimated in the economic literature on labour supply, which do not distinguish between subsectors of employment.

For example, according to the Australian Bureau of Statistics (ABS), there were approximately 1.56 million women aged between 20 and 64 years in the labour force that did not hold any post-school qualifications (ABS 2006). This group is likely to be a close substitute for many of the unqualified workers in the ECEC sector. The ECEC sector is a ‘small’ employer of unqualified workers since it accounts for less than two per cent of these workers (31 000 workers, table E.5). As a result, the elasticity of labour supply for the ECEC sector can be thought to be highly elastic.

Data needed to calculate L_n^s and L_{nj}^d can be obtained from sources such as the ABS Census of Population and Housing (see table B.3 in appendix B). Data for the labour supply of women (η_n) can be obtained from empirical studies from Australia and overseas.

The second issue is that the elasticities need to account for the long-run adjustments of the ECEC workforce. Over relatively short periods, it is expected that the elasticity of supply for most occupations would be relatively low. For example, since it takes four years to complete a degree in ECEC, it is reasonable to expect that in a three-year period the supply of degree-qualified workers will be comparatively rigid. Over a longer time span, the supply response is expected to be larger (more elastic).

Unfortunately, to the Commission’s knowledge, there is only one study that estimated the long-run elasticity of labour supply for ECEC workers. Blau (2001) estimated these elasticities to be between 1.2 and 1.9. There are several studies that examined the short and long-run labour supplies of teachers, nurses and other professions. Falch (2011) found that the long-run elasticity of supply for Norwegian teachers (0.70) is five times that of the estimated short-run elasticity of labour supply (0.14). Burkett (2005) used data for 1987 to 2002 and found that the long-run labour supply elasticity of US nurses was 1.06, which was between three and five times the estimate commonly found with nurses (section E.7, table E.13).

Burkett also found that nurses' aides, who are not degree qualified, had long-run elasticities of approximately 1.9. Finally, Freeman (1988) found that the long-run elasticity of supply of degree-qualified workers was between 2.0 and 3.0. This is between four and six times the short-run labour supply of physicians, which is regularly estimated to be less than 0.5 (Fortin, Jacquement and Shearer 2010) and almost always below 1.00 (Freeman 1988).

On this basis, the long-run elasticity of labour supply for each of the qualifications is assumed to be five times the magnitude of the short-run elasticity.

The third issue is that the pay and conditions of degree-qualified workers in the ECEC sector are, on average, less favourable than those in the schools sector (chapter 5). For this reason, the elasticity of labour supply is in two parts. Initially, it is assumed that pay and conditions in ECEC would need to increase in order to encourage degree-qualified workers to remain in the sector and, more specifically, discourage them from moving to the schools sector. Once pay and conditions in ECEC are broadly comparable, it is assumed that the sector will have little difficulty attracting and retaining degree-qualified workers.⁴

Estimates of the own-wage elasticities of labour supply

A large number of studies have sought to estimate the elasticities of labour supply for the workforce and for particular occupations (the variable η_n in equation F.19).⁵ Dandie and Mercante (2007) reviewed Australian and overseas literature extensively and concluded that the wage elasticities of labour supply for women in Australia were somewhere between -0.19 and 1.30 — and on average, between 0.30 and 0.34. Gong, Breunig and King (2010b) provided similar estimates of about 0.35.

Elasticities of labour supply also vary according to a worker's level of education. A strong body of evidence shows that female labour supply is less elastic the more educated the worker, suggesting that the degree of attachment to the workforce depends upon the level of education (Jaumotte 2003). A selection of estimated labour supply elasticities for nurses and teachers (the closest benchmarks to degree-qualified ECEC teachers as women are also heavily represented in both

⁴ In the modelling that follows, the wage ceiling on degree-qualified salaries in ECEC was not formally imposed because, in practical terms, the final salary costs ended up approximating the salary band of degree-qualified teachers in the government schools sector.

⁵ Some authors have estimated the labour supply of women after accounting for the cost of child care. See for example Gong, Breunig and King (2010b), Rammohan and Whelan (2006), Ribar (1992) and Ribar (1995).

occupations) suggest that the average elasticity was between 0.20 and 0.25, which is less than the overall Australian average of 0.35 (section E.7, table E.14).

For this model, the mid-point estimates of wage elasticities of labour supply into ECEC were all assumed to be elastic but differed with respect to qualification level: 1.5 for degree-qualified workers, 2.5 for diploma-qualified workers, 5.0 for certificate III/IV workers, and 7.5 for workers with certificate I/II and unqualified workers.

Some of these elasticity values were considered by workshop participants to be too low and others too high. While it is acknowledged that generally they are larger than those commonly estimated in economic studies, in the Commission's assessment this appropriately reflects the relatively small size of the sector. On the other hand, the elasticity of labour supply for degree-qualified workers, considered particularly low by some participants, reflects likely need of the sector to offer wages and conditions broadly comparable with competing sectors to attract significantly more workers with such qualifications (chapter 5).

Elasticity of labour supply with respect to ECEC costs

The elasticity of labour supply with respect to ECEC costs is a measure of the willingness of workers to supply their labour in response to changes in the cost of ECEC services. If ECEC services are prohibitively expensive, some workers may choose not to enter or remain in the workforce. Gong, Breunig and King (2010b) reviewed the literature regarding the estimated elasticities of childcare costs with respect to the labour supply decision of married women (table E.14). They found that the mean elasticity of childcare costs for married women and lone parents with respect to employment was -0.27 and -0.23 respectively. For the same groups, the mean elasticity with respect to hours worked was -0.20 and -0.12 respectively. This implies that workforce participation and hours worked are not very sensitive to changes in ECEC prices.

Kalb (2009) and Buckingham (2008) also undertook extensive reviews of the labour supply decisions of married and single mothers (section E.7, table E.15). The results of these reviews suggest that the mean elasticity of labour force participation (hours worked) with respect to childcare costs was approximately -0.35 , and the mean elasticity with respect to hours worked was -0.20 .

Although it is possible that ECEC workers will not send their children to child care while they work to educate and care for the children of others, two groups of scenarios are considered — one in which the childcare cost elasticity of labour supply is equal to zero (indicating that ECEC costs have no effect on labour supply)

and another in which the elasticities are set to -0.10 for preschool services and -0.15 for other ECEC services (table E.1). Differences in these elasticities are intended to reflect that LDC and FDC rather than preschools are more likely to be used by mothers to access the workforce. The ECEC-cost elasticity of labour supply is set below those reported by Kalb (2009) and Buckingham (2008) because not all women in the ECEC workforce have children of their own.

The elasticities used in the model are summarised in table E.1.

Table E.1 Summary of elasticities used in the model

	<i>Relatively less elastic estimates</i>	<i>Mid-point elasticity estimates</i>	<i>Relatively more elastic estimates</i>
Demand for ECEC services			
Own-price elasticity	-0.25	-0.65	-1.00
Supply of ECEC workers			
Own-price (wage) elasticity			
Bachelor degree	+1.00	+1.50	+2.00
Advanced diploma, diploma	+1.50	+2.50	+3.00
Certificate III/IV	+2.50	+5.00	+7.50
Certificate I/II	+5.00	+7.50	+10.00
Unqualified	+5.00	+7.50	+10.00
ECEC-cost elasticity			
Preschools	0.00	..	-0.10
Other forms of ECEC	0.00	..	-0.15
Demand for ECEC workers			
Elasticity with respect to output	+1.00	+1.00	+1.00
Demand for ECEC capital			
Own-price elasticity	-1.00	-1.00	-1.00
Elasticity with respect to output	+1.00	+1.00	+1.00

.. Not applicable.

Variables used in the model

This section summarises some of the key variables used in the model. All prices, revenues and costs are in 2010 dollars. The number of children in formal care is used as the quantity of output of ECEC services (table E.2). No account is made for the double counting of children attending more than one ECEC service in an average week, or for the number of ECEC staff employed in more than one service.

The ABS estimated that there were approximately 25 000 children receiving occasional care services in 2008 (ABS 2009c). According to the 2010 National ECEC Workforce Census, in that year approximately 6400 children attended

occasional care services approved by the Australian Government to receive the CCB in 2010. This suggests that approximately 18 600 children are likely to have attended occasional care services that were not approved to receive the CCB but were licensed by state authorities.

Table E.2 Number of children attending formal ECEC arrangements, 2010^a

	<i>Number</i>
Preschools (q_{PRE}^d)	213 446
Long day care (q_L^d)	543 539
Family day care (q_F^d)	93 738
Occasional care and in-home care (q_O^d) ^b	28 515
All formal ECEC ^c	879 238

^a No account has been made for children attending more than one type of care arrangement. Data on the number of children are drawn from the NWC. These estimates differ from those given by administrative records. ^b Includes services approved by the Australian Government and services licensed by state authorities. ^c Excluding outside school hours care.

Sources: Productivity Commission estimates based on ABS (2008b), SCRGSP (2011) and unpublished DEEWR data from the 2010 National ECEC Workforce Census.

Data from the Report on Government Services (SCRGSP 2011a) and the ABS Childhood Education and Care Survey (ABS 2009c) are used to identify the total outlays on preschools, childcare services and other services in 2008-09 (table E.3). Total outlays were extrapolated to 2009-10 using the number of children in ECEC services. These extrapolated outlays, however, are estimates only.

The Australian Government's projected expenditure on ECEC in 2009-10, including outside school hours care (OSHC), was \$3.8 billion. This forms the Australian Government's expenditure (E^A). Similarly, total state, territory and local government expenditure on ECEC, including OSHC, was \$0.9 billion. The total expenditure per child in 2009-10 is therefore the gross unit cost of \$5841 per year (p^g). For all ECEC services including OSHC, net household out-of-pocket expenditures (p^d) in 2009-10 were \$2077 per child (table E.3).

The 'childcare' and 'other' outlays identified in table E.3 were apportioned to each of the ECEC services (LDC, FDC, occasional and in-home care services approved by the Australian Government) on a pro-rata basis given by the relative number of staff and children in these services. This provides estimates of the average gross and out-of-pocket costs of each of the ECEC sectors (table E.4). These are estimates only, and form the basis for identifying demand and supply prices of ECEC services.

Table E.3 Outlays on ECEC services, 2008-09 and 2009-10^a

	<i>Preschools</i>	<i>Child care</i>	<i>Other^b</i>	<i>Total</i>
2008-09, actual (\$m)				
Australian Government (E^A)	–	3 815	–	3 815
State and local governments (E^S)	635	112	11	758
Households	150	2 310	–	2 460
<i>Total^c</i>	<i>785</i>	<i>6 237</i>	<i>11</i>	<i>7 033</i>
2009-10, estimates (\$m)				
Australian Government (E^A)	–	3 797	–	3 797
State and local governments (E^S)	762	134	12	908
Households	158	2 438	–	2 597
<i>Total^c</i>	<i>920</i>	<i>6 369</i>	<i>12</i>	<i>7 302</i>
2009-10 estimates, \$ per child in ECEC				
Australian Government	–	3 663	–	3 663
State and local governments	3 570	129	10	726
Households (p^d)	742	2 552	–	2 077
<i>Total (p^s)</i>	<i>4 312</i>	<i>6 144</i>	<i>10</i>	<i>5 841</i>

^a Includes estimates of expenditure on OSHC, although this sector is not formally included in the subsequent analysis. ^c 'Other' is a residual that is observed between aggregate expenditure and the expenditures reported for preschools and child care. Subsequently treated as childcare expenditure. ^c Totals may not add due to rounding. ^d – Nil or rounded to zero.

Source: Productivity Commission estimates based on ABS (2008b), SCRGSP (2011) and unpublished DEEWR data from the 2010 National ECEC Workforce Census.

Table E.4 Estimates of the average gross and out-of-pocket costs of attending ECEC services, 2010^a

	<i>Outlays</i>	<i>Average annual cost^b</i>	<i>Out-of-pocket cost to families</i>
		<i>(p_i^s)</i>	<i>(p_i^d)</i>
	\$m/year	\$/child/year	\$/child/year
Preschools ^c	920	4 312	742
Long day care	4 603	8 469	3 250
Family day care	613	6 538	2 530
Occasional care and in-home care	143	5 011	3 109

^a OSHC is included in the budget estimates for the purpose of calibration, although this sector is not formally included in the model. ^b Average annual cost is the average price received by the ECEC service provider, per child per year in 2010. The difference between it and the out-of-pocket cost to families is the average subsidy paid per child. ^c Stand-alone preschools identified in the 2010 National ECEC Workforce Census.

Sources: ABS (2008b); Productivity Commission estimates based on unpublished DEEWR data from the 2010 National ECEC Workforce Census; SCRGSP (2011a).

Employment data were obtained from the NWC (table E.5). The number of workers in occasional care services not covered by the census were estimated on the basis of

the number of children in approved occasional care services relative to the number of children in non-approved occasional care services. The number of workers is the actual number of workers, and no adjustment has been made for the part and full-time mix of the workforce because there was insufficient information to distinguish the extent to which ECEC workers were employed on a part- and full-time basis.

Table E.5 Number of workers in the ECEC sector, 2010^a

	<i>Preschools</i>	<i>LDC</i>	<i>FDC</i>	<i>Occasional care and IHC</i>	<i>All ECEC^b</i>
Degree qualified or above (l_B^d) ^c	7 936	6 680	655	123	15 393
Advanced diploma, diploma (l_D^d)	3 671	21 299	2 189	411	27 570
Certificate III/IV (l_{C3}^d)	3 640	21 262	4 488	1 239	30 629
Certificate I/II (l_{C1}^d)	612	1 339	430	196	2 578
Unqualified (l_U^d) ^d	5 782	17 217	5 778	2 336	31 113
All qualifications (l^d)	21 640	67 797	13 539	4 306	107 282

^a Totals may not add due to rounding. ^b Excludes outside school hours care. ^c Includes all degree-qualified teachers in early childhood or a related qualification. ^d Includes qualification not known.

Source: Productivity Commission estimates based on ABS (2009c) and unpublished DEEWR data from the 2010 National ECEC Workforce Census.

Salary data were also obtained from the NWC (table E.6). These are the averages across part- and full-time workers. A cursory examination of the data suggests that the salaries for degree-qualified workers in ECEC are generally lower than those reported for ECEC teachers employed in the government school sector, after accounting for differences in the mix of part- and full-time work.

Table E.6 Average annual salary in the ECEC sector, 2010^a

<i>Staff by highest level of qualification attainment</i>	<i>Average salary in model</i>	<i>Average salary with labour on-costs^b</i>
	<i>\$/year</i>	<i>\$/year</i>
Degree qualified or above (w_B) ^c	39 000	46 020
Diploma, or advanced diploma (w_D)	34 500	40 710
Certificate III or IV (w_{C3})	27 100	31 978
Certificate I or II (w_{C1})	26 000	30 680
Unqualified or qual. not known (w_U)	26 000	30 680

^a Based on wages observed in the NWC, and are averages between part- and full-time workers. ^b Includes a loading of 18 per cent for staff on-costs. ^c These salaries are lower than those reported for teachers in the government schools sector (chapter 5).

Sources: Productivity Commission estimates based on unpublished DEEWR data from the 2010 National ECEC Workforce Census.

The Commission then compared the total wage costs (implied by tables E.5 and E.6) with the total outlays (and costs) (reported in table E.4). The unaccounted costs were assumed to include a mixture of operating costs (such as repairs and maintenance, supplies, utilities, and so on) and payments to capital (including rent). These were allocated to capital and other costs (table E.7).

Table E.7 Estimates of non-salary costs, 2010^a

<i>ECEC sector</i>	<i>Average cost per service</i>
	(\$/service/year)
Preschools	19 374
Long day care	377 021
Family day care ^b	485 684
Occasional care and in-home care	10 638

^a Includes non-labour and non-rental costs such as repairs and maintenance, equipment and supplies, and energy costs. Discrepancies in the data mean that caution should be exercised when interpreting these cost items. ^b The non-salary costs are averaged across coordination units, not across individual workers.

Source: Productivity Commission estimates based on unpublished DEEWR data from the 2010 National ECEC Workforce Census.

From the total outlays and out-of-pocket expenses in table E.4, it was possible to obtain estimates of the average expenditure shares of Australian, state and territory governments. These were used to infer the average subsidy rate. For example, \$134 million of expenditure by state and territory governments to non-preschool ECEC services, when pro-rated between services, implied an average subsidy rate of 0.0226 (2.26 per cent) (table E.8). These subsidy rates are assumed to be marginal rates.

The subsidy rates in table E.8 do not include \$955 million of expenditures made by the Australian Government to the states and territories under the NPA ECE and the \$61 million of expenditure made under the NPA NQA ECE. These payments are transfers between governments and do not change the total government expenditure on ECEC. Rather, they serve to redistribute expenditures between the two levels of government. As a result, they were not formally included in the model because they do not directly affect the subsidy rates faced by families and ECEC services (table E.8). However, they have been included in the estimates of each level of government's expenditure (section E.5, table E.12).

Table E.8 Implied average subsidy rates paid by governments to ECEC services and families, 2010^a

		<i>Preschools</i>	<i>LDC</i>	<i>FDC</i>	<i>Occasional care</i>
Expenditure shares					
Australian Government	rate	–	0.5952	0.5952	0.3429
State, territory and local government	rate	0.8280	0.0226	0.0226	0.0366
Households	rate	0.1720	0.3823	0.3823	0.6205
Australian Government subsidies					
Average rate ^b	σ^A rate	–	0.6089	0.6089	0.3559 ^c
State and local government subsidies					
Subsidy rates	(σ_j^B) rate	0.8280	0.0226	0.0226	0.0366

^a Does not include Australian Government funding for additional university places, fee waivers, and additional commitments for vocational education and training (including waiving of fees). ^b Includes the CCB and a CCR of 50 per cent. For simplicity, the CCB is assumed to be indexed to the cost of child care. ^c The relatively low subsidy rates for occasional care and in-home care services reflects that most occasional care providers do not qualify for the CCB and CCR. – Nil.

Sources: Productivity Commission estimates based on unpublished DEEWR data from the 2010 National ECEC Workforce Census; SCRGSP (2011a); ABS (2009c).

The subsidies described in table E.8 do not include subsidies provided for training workers — such as additional university places and fee waivers for certain courses in the vocational education and training sector. These subsidies are discussed in chapters 10 and 11.

E.4 Policy scenarios

As noted earlier, the purpose of the model is to provide some insight into the consequences of the COAG ECEC reforms on the sector, its workforce, households and government expenditures. It does this by considering what the ECEC sector and workforce might have looked like had the reform targets (scheduled for 2016) been in place in 2010. As noted, the modelling is not intended to be a detailed projection of the state of the ECEC sector and its workforce in 2016.

Thirty-six scenarios were modelled. Each scenario examined some aspect of the way the costs of the reforms are shared between households and governments, how responsive labour markets are to changes in wages, how responsive ECEC demand is to changes in out-of-pocket fees, and how responsive labour supply is to changes in ECEC costs (table E.9).

The NPA ECE and NQS targets, and the cost-sharing arrangements, are discussed below. The various elasticities used in the scenarios were described in section E.3 and summarised in table E.1.

Table E.9 Summary of key elements of scenarios

		Scenarios																																								
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36					
<i>NPA ECE and NQS policy targets</i>		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
NPA ECE		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
NQS		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
<i>Elasticity of child care demand</i>																																										
Relatively low elasticity		✓						✓																																		
Moderately elasticity		✓						✓																																		
Relatively high elasticity		✓						✓																																		
<i>Own wage elasticity of labour supply</i>																																										
Inelastic		✓	✓																																							
Moderately elastic		✓						✓																																		
Elastic		✓						✓																																		
<i>Child care cost elasticity of labour supply</i>																																										
Effect		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
No effect		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
<i>Cost sharing</i>																																										
Current cost sharing		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Cost increases borne by governments		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

The NPA ECE and NQS policy reforms

The two policy reforms under consideration are the NPA ECE and the NQS. The NPA ECE target is that 95 per cent of children have access to 15 hours of preschool programs per week in the year before formal schooling. As illustrated in figure E.1, this policy is equivalent to raising the demand for preschool services.

The objective of the NQS is to raise the quality of education and care delivered to children. It raises the qualification requirements for ECEC workers, and the staff-to-child ratios in ECEC services. As illustrated in figure E.1, this policy can be represented as an increase in the number of ECEC workers in specific employment categories that must be employed in the sector.

NPA ECE reforms

The NPA ECE reforms target children in the year before formal schooling. Since the model does not distinguish between the different types of services provided to children by a single organisation (for example, many LDCs provide both preschool programs and child care), it has been assumed that:

- both preschools and LDCs will increase the number of hours of preschool programs delivered to preschool-aged children currently attending those services
- all children not currently attending a preschool program will attend a government or community-run preschool service.

The effect of this assumption is that it overstates the number of children (or children-equivalents, as defined later) that will attend the preschool sector since it does not allow for the possibility of LDCs taking on additional preschool-aged children.

This assumption may affect how costs are shared between households, the Australian Government and state and territory governments. It is likely to slightly overstate household expenditure since preschool-aged children in LDCs may now qualify for some state and territory government assistance. State and territory government expenditure is not likely to be affected greatly, since they are expected to continue to fund preschool programs irrespective of whether children are accessing those programs in preschools or LDCs. The Australian Government's CCB and CCR payments may be overstated because eligible children in LDCs are likely to be attending government-subsidised preschool programs.

This assumption, however, is not likely to affect the robustness of the modelling results. This approach means that the effects on the ‘preschool sector’ can be re-interpreted to be represent the effects on all preschool programs. LDC costs are not likely to be greatly over-stated by this assumption, because it is the NQS, not the NPA ECE, that is the major cost driver for LDCs.

Data for calculating the additional number of preschool services were provided by DEEWR. These indicate that there were about 268 000 preschool-age children in Australia in 2009 (table E.10). The NPA ECE reform requires that 95 per cent of children have access to 15 hours of preschool services or programs per week in the year before formal schooling. Given the number of four-year olds, this implies that the NPA ECE is intend to result in the provision of approximately 3.82 million hours of preschool programs per week.

Table E.10 Estimates of the number of children required to attend preschool programs

		<i>Number</i>
NPA ECE reform		
Number of preschool-age children in Australia (2009)	Number of children	268 102
NPA ECE target number	Number of children	254 697
NPA ECE target hours	Hours per week	3 820 454
Preschool programs in 2009		
Children who attended preschool programs ^a	Number of children	204 822
Hours of preschool programs delivered ^b	Hours per week	2 656 446
Number of additional hours of preschool required to meet NQS	Hours per week	1 164 008
Number of additional hours of preschool, expressed as a number of children ^c	Number of children	90 817

^a Includes children attending government, community-run and privately operated preschools, as well as preschool programs in privately operated LDC centres. This estimate was based on data from SCRGSP (2011a) augmented by data provided by DEEWR for NSW and Victoria following the modelling roundtable. These data are for 2009 and so differ from the 2010 National ECEC Workforce Census estimates reported in table E.2. The DEEWR estimate is used to calculate the number of additional children required to meet the NPA ECE targets. The 2010 ECEC National Workforce Census estimates are used as the main variables in the model to maintain consistency within the model. ^b Estimate based on average preschool hours of attendance in each jurisdiction (chapter 5). ^c Equal to the number of additional hours per week, divided by the current (2009) hours of attendance.

Sources: Productivity Commission calculations based on SCRGSP (2011a); National ECEC Workforce Census (2010); NPA ECE annual reports.

For the purpose of calculating the effect of the NPA ECE, it is assumed that there were 204 000 children attending preschool programs in the year before formal schooling in 2009-10. They attended 2.66 million hours of preschool programs per week on average. Since the NPA ECE target is 3.82 million hours per week, an additional 1.16 million hours of preschool per week needs to be provided to meet

this gap. This is equivalent to providing services to an additional 90 817 children (when measured in terms of their current hours of attendance).

NQS reforms

Most of the net growth in the demand for ECEC workers will arise from the growth in the number of children attending ECEC services (equation E.9). The relative rate of growth in demand for workers within each employment category, initially, depends on the prevailing staff-to-child ratios in each jurisdiction.

A number of adjustments were undertaken to ensure that the number of staff providing the services reflected the nationally agreed staff-to-child ratios and minimum qualification requirements.

A summary of these adjustments are given in table E.11. The two sets of NQS reforms are represented by two types of modifications to the data in the model. The first is the number of staff that are regarded to have completed their ‘working towards’ requirements towards a certificate III or diploma qualification. All of the current unqualified and certificate I/II staff are treated as having completed their ‘working towards’, except for those that are in non-contact roles. In the model this is represented as a change to both the demand and supply of those workers. For example, as a result of the reforms there will be 601 fewer certificate I/II and 5771 fewer unqualified workers in the preschool sector. Between them, there will be 6372 educators that will have worked towards a certificate III qualification.

Only after staff were reallocated on this basis were the additional labour requirements estimated. Following discussions at the modelling roundtable, it was agreed that the preschool sector is well served by the existing stock of degree-qualified educators. However, in a few jurisdictions, the NQS requires an increase in the number of suitably qualified educators that cannot be met by existing working towards provisions or numbers of degree-qualified teachers. The Commission has estimated that an additional 663 diploma-qualified educators are required. (This represents a 12 per cent increase in the estimated future workforce of preschool diploma-qualified educators.)

The increase in staffing requirements implied in table E.10 and in table E.11 does not indicate the ‘final’ staffing requirements. Rather, these are the ‘first round’ or ‘direct’ effects of the reforms. The eventual size of the ECEC workforce will depend upon the effect that higher wages have on the costs and fees of ECEC services as illustrated in figure E.1.

Table E.11 **Adjustments for staff requirements arising from staff-to-child ratios and qualification requirements^a**

<i>ECEC qualifications</i>	<i>Preschools</i>	<i>LDC</i>	<i>FDC</i>	<i>Total</i>
Existing staff who attain a higher level of qualification				
Diploma	–	–	132	132
Certificate III/IV	6 372	15 124	5 978	27 474
Certificate I/II ^b	–601	– 1 133	–415	–2 149
Unqualified ^b	–5 771	–13 991	–5 695	–25 457
Additional staff				
Degree-qualified ^c	–	1 250	–	1 250
Advanced diploma, diploma	663	9 116	–	9 779
Certificate III/IV	–	3 594	–	3 594

^a Totals may not sum due to rounding. ^b The negative number of educators represents a reduction in the number of educators with these qualifications in the sector. ^c Assumes one degree-qualified teacher per 60 preschool-aged children.

Source: Productivity Commission calculations based on the 2010 National ECEC Workforce Census and state and territory government data.

Cost-sharing arrangements

The cost-sharing arrangements between households and the Australian, state, territory and local governments are represented in two ways.

In the first case, it is assumed for simplicity that costs continue to be shared according to the pattern in which they were shared in 2010. This means that the Australian Government funds the ECEC sector chiefly through the CCB and CCR. CCB payments are indexed to the consumer price index (CPI). The CCR is an *ad valorem* subsidy which increases proportionally with the cost of service provision and is set at 50 per cent.⁶ For simplicity, the CCB is assumed to be indexed to the cost of ECEC services in the model. The effect of this assumption is to convert the CCB and CCR into a slightly more generous subsidy comprising a single *ad valorem* rate of 60.89 per cent (table E.8). In the case of the preschool sector, state and territory governments (and local governments in some jurisdictions) are assumed to bear all unit cost increases to reflect governments' commitments under the NPA ECE that cost should not pose a barrier to access to preschool. In this instance, the relevant price equations are E.6 and E.7.

Additional payments by the Australian Government to state and territory governments are treated as transfers between governments. This redistributes the

⁶ The CCR is capped at \$7500 and only a relatively small number of families reach this cap. The cap is not explicitly included in this model.

costs of ECEC services between the two levels of governments but, in the context of the model, does not change the cost burden on households.

In the second case, all cost increases are borne by governments — the Australian Government in the case of LDC, FDC and occasional care, and state and territory governments in the case of preschools. Here the relevant price equations are E.7' and E.8' respectively. This is a stylistic cost-sharing arrangement under which there would be no out-of-pocket fee increase for parents (although parents of children who had not previously accessed preschool services are assumed to pay for the additional preschool services they demand). This cost-sharing arrangement is presented here for illustrative purposes only — it indicates the possible implications of governments increasing their relative contribution to the ECEC sector. This is not currently agreed policy of Australian governments. The inclusion of this scenario is not meant in any way to imply that the Commission supports this as a future policy option.

E.5 Results

The effect of the policy reforms, including the extent to which they affect demand for ECEC services, increase wages and raise employment levels, depends on the cost-sharing arrangements between households and governments. The greater the share of cost borne by governments, the less likely it is that the reforms would crowd out some demand for ECEC services. Table E.12 shows the key results for both cost-sharing arrangements.

Results under the current cost-sharing approach

Under existing cost-sharing arrangements and assuming no additional waivers, the number of hours offered by preschools (as represented by children-equivalents) is assumed to increase by around 40 per cent.⁷ This increase comprises a combination of additional children attending stand-alone preschool services, additional hours provided to children attending those services and additional hours to children attending preschool programs in LDCs.

In line with reform objectives, the proportion of the workforce holding certificate III or higher qualifications is also assumed to increase substantially, from 71 per cent

⁷ The number of additional children-equivalents is defined as the number of children-hours provided by preschool services divided by the average pre-reform level of preschool attendance (table E.10).

to almost 100 per cent in preschools, from 73 per cent to 96 per cent in LDC, and from 54 per cent to over 99 per cent in FDC.

Table E.12 Key results

	2010 Base case	Current cost-sharing arrangements		Governments bearing the cost of the reforms	
		Mid-point ^a	Range ^b	Mid-point ^c	Range ^d
<i>Share of staff with certificate III or greater (per cent)</i>					
Preschools	70.5	99.9	–	99.9	–
LDC	72.6	95.5	–	95.5	–
FDC	54.2	99.3	–	99.3	–
Occasional care & IHC	41.2	41.2	–	41.2	–
<i>Average cost per child (\$/child/year)</i>					
Preschools	4 312	4 876	4 747–5 200	5 008	4 879–5 325
LDC	8 469	9 915	9 782–10 323	10 094	9 970–10 494
FDC	6 538	6 850	6 771–7 100	6 971	6 890–7 224
Occasional care & IHC	5 011	5 107	5 065–5 241	5 191	5 149–5 321
<i>Average out-of-pocket expense (\$/child/year)</i>					
Preschools	742	742	742	742	–
LDC	3 237	3 790	3 739–3 946	3 237	–
FDC	2 499	2 618	2 588–2 714	2 499	–
Occasional care & IHC	3 109	3 169	3 143–3 252	3 109	–
<i>Children attending ECEC services (number)</i>					
Preschools	213 446	305 499	304 738–306 164	305 499	304 738–306 164
LDC	543 539	484 977	448 293–521 007	545 040	544 116–545 847
FDC	93 738	91 763	90 449–92 959	94 628	94 081–95 107
Occasional care & IHC	28 515	28 160	27 996–28 353	28 515	28 515
Total	879 238	910 399	872 971–947 057	973 682	971 450–975 633
<i>Average annual salary (including on-costs, \$/year)</i>					
Degree-qualified workers ^e	46 020	53 599	51 240–58 599	55 389	52 978–60 192
Diploma or advanced diploma	40 710	45 599	44 160–50 470	47 619	46 428–52 295
Certificate III/IV	31 978	32 349	32 099–33 198	32 872	32 562–33 798
Certificate I/II	30 680	30 488	30 181–30 644	30 733	30 717–30 766
Unqualified ^f	30 680	30 410	30 029–30 602	30 690	30 684–30 701
<i>ECEC workers (number)</i>					
Preschools	21 641	31 922	31 842–31 991	31 922	31 842–31 991
LDC	67 797	72 947	67 429–78 368	81 982	81 843–82 103
FDC	13 540	13 254	13 064–13 428	13 668	13 589–13 738
Occasional care & IHC	4 305	4 253	4 228–4 281	4 305	4 305
All ECEC workers	107 283	122 376	116 721–127 919	131 877	131 579–132 137

(Continued next page)

Table E.12 (continued)

	2010 Base Case	Current cost-sharing arrangements		Governments bearing the cost of the reforms	
		Mid-point ^a	Range ^b	Mid-point ^c	Range ^d
<i>Expenditure (\$m/year)</i>					
Households	2 241	2 394	2 266–2 598	2 316	2 311–2 321
Australian Government	3 154	3 285	3 086–3 601	4 075	3 992–4 323
with NPA ECE and NPA NQA ECE ^g	3 154	3 765	3 566–4 081	4 555	4 472–4 803
State, territory & local govts.	885	1 391	1 348–1 499	1 448	1 403–1 553
with NPA ECE and NPA NQA ECE ^h	885	911	868–1 019	968	923–1 073
Total	6 279	7 070	6 737–7 698	7 839	7 707–8 197

^a Scenario 14 includes mid-point estimates for the elasticities of child care demand and own-wage supply of labour. It also assumes that ECEC costs do not influence ECEC worker labour supply decisions. ^b Scenarios 10 to 18 include a range of elasticities for child care demand and own-wage supply of labour. It assumes that ECEC costs do not influence ECEC worker labour supply decisions. ^c Scenario 32 includes mid-point estimates for the elasticities of child care demand and own-wage supply of labour. It assumes that ECEC costs do not influence ECEC worker labour supply decisions. ^d Scenarios 28 to 36 include a range of elasticities for child care demand and own-wage supply of labour. It also assumes that ECEC costs do not influence ECEC worker labour supply decisions. ^e Includes three- and four-year degree-qualified teachers. ^f Includes educational attainment not known. ^g Australian Government expenditure includes \$479.5 million worth of NPA ECE and NPA NQA ECE payments to the states and territories in 2016. ^h State and territory government expenditure is reduced by \$479.5 million worth of NPA ECE and NPA NQA ECE payments from the Australian Government in 2016.

Source: Productivity Commission calculations; Treasury (2011b).

These expected changes are estimated to have a number of consequences. There is a cost to implement these reforms. The average (gross) cost per child is estimated to increase by between 10 and 21 per cent for preschool (from \$4312), 16 and 22 per cent for LDC (from \$8469), 4 and 9 per cent for FDC (from \$6538), and 1 and 5 per cent for occasional and in-home care services (from \$5011).

The cost increases are least for occasional and in-home care services because these services are not subject to any policy reforms, but nonetheless compete with the other sectors for the same workers. The FDC sector is estimated to experience a slightly higher cost increase because it is expected to recruit staff with higher qualifications, and accordingly pay slightly higher wages. LDC cost increases are higher still because the sector is expected to employ relatively more degree-qualified and diploma-qualified workers.

The modelling suggests that the preschool sector would also experience the highest unit cost increase because it expands more than other sectors due to government bearing the full cost increases.

In each of the other sectors (LDC, FDC, and occasional and in-home care combined), part of the cost increases are assumed to be passed to households in the form of higher out-of-pocket fees. All else given, increased out-of-pocket fees

would be expected to lead to a reduction in the demand for ECEC services and hence the quantity supplied. Depending on the assumed elasticity of demand, modelling indicates that the number of children attending LDC will decline by between 4 and 17 per cent (from about 543 000 children), by between 1 and 3 per cent for FDC (from about 94 000 children), and by zero to 2 per cent for occasional care and in-home care services (from about 28 500 children). (As discussed below, the modelling does not allow for any positive response to the quality of ECEC services. Any such effect would moderate demand responses to higher fees.)

Declines in the LDC, FDC and occasional care and in-home care sectors partly offset the increased number of children attending the preschool sector. The number of children attending all ECEC services is estimated to change by between -1 and +8 per cent (from about 879 000 children).

Cost increases reflect increases in wages and salaries needed to attract and retain appropriately qualified workers to the ECEC sector, and to compensate them for the costs of training (privately paid tuition fees and income forgone). For example, under the modelling assumptions, the wage paid to degree-qualified early childhood teachers would need to increase by between 11 and 27 per cent (from \$46 020). Essentially this means that these workers would be paid wages broadly comparable to those of degree-qualified teachers in the government schools sector. (The starting salaries here for early childhood teachers are an average of those paid to part- and full-time workers and include labour on-costs, and in the case of degree-qualified teachers, are noticeably lower than the salaries of teachers in the schools sector). The salary costs of diploma-qualified workers are estimated to increase by between 8 and 24 per cent (from \$40 710).

The modelling results presented here can be reconciled with those of the COAG regulation impact statement (RIS) (2009h). As noted, it was estimated in the RIS that LDC out-of-pocket fees would increase by \$4.20 per day by 2016, which is equivalent to about a 7 per cent increase. This is lower than the 17 per cent increase estimated in this study. However, some of the difference is attributable to the scope of the reforms being analysed. The COAG estimate does not take into account the NPA ECE and is based only on part of the NQS (it does not include those reforms that would have been undertaken by the states and territories even in the absence of the NQS). This study incorporates both the NPA ECE and the full range of NQS reforms up until 2016.

The differences can also be explained in part by the labour market linking the ECEC sectors (as illustrated in box E.2). The additional staffing requirements for LDC (table E.11) place upward pressure on salary costs, not just for LDC but for

the other ECEC sectors. This is particularly the case for degree-qualified workers. Not only is the ECEC sector expected to recruit additional degree-qualified workers but it has to pay extra to attract these workers from other sectors, such as the schools sector.

Effects of policy reforms when governments bear the costs

Table E.12 also shows the results for the case where all levels of government are assumed to bear all the costs of implementing the reforms. (As noted, this cost-sharing arrangement is not agreed policy of Australian governments and the Commission does not in any way propose that it become so.) The reforms are assumed to achieve their objectives of substantially raising the qualification standards of ECEC educators. A substantial increase in the number of children attending preschool programs is also assumed. The main difference, however, is that there is no reduction in the number of children attending LDC and FDC. Approximately 970 000 children would be able to access ECEC services under this approach, compared to about 910 000 children if costs are partly met by parents.

The unit cost of supplying services is estimated to rise more when governments fully fund the cost of the reforms. For example, the cost per child is estimated to rise by between 13 and 23 per cent in preschools (from \$4312) and between 18 and 24 per cent in LDCs (from \$8469). This contrasts with increases of between 10 and 21 per cent for preschools and between 16 and 22 per cent for LDC under current cost-sharing arrangements.

This is because the demand for ECEC workers will be higher when governments are paying for the reforms than when consumers pay higher out-of-pocket fees. Assuming a less than perfectly elastic labour supply means wages would be higher than would otherwise be the case. For example, the wages of degree-qualified teachers are estimated to rise by between 15 and 30 per cent (from \$46 020) if governments fund the reforms, compared to between 11 and 27 per cent under current cost-sharing arrangements.

Sensitivities of results

Table E.16 summarises detailed results for each of the 36 scenarios. Variations in the results highlight the importance of assumptions about elasticities of demand for childcare and the elasticities of labour supply. In essence, the cost of the reforms is estimated to be higher when the own-price elasticity of child care demand and own-wage elasticity of labour supply are each relatively inelastic. Similarly, the cost

of the reforms is estimated to be greater the more sensitive is the supply of ECEC workers to the price of ECEC services.

Elasticities of demand for ECEC services

The assumption about the magnitude of the elasticity of child care demand for ECEC services has an influence on a number of aspects of the ECEC sector and its workforce. The results of scenarios 13 and 14 are compared, as they are similar in all respects except that the elasticity of demand for ECEC is assumed to be lower in scenario 13 (tables E.1 and E.9).

The increase in the total number of children attending ECEC services is larger when the demand for ECEC services is assumed to be relatively insensitive to fee increases (8 per cent in scenario 13) than when the demand is moderately sensitive (4 per cent in scenario 14). Since households do not reduce their demand for ECEC services when their demands are relatively inelastic, out-of-pocket fees will rise proportionally more. At the same time, the NPA ECE and NQS targets are estimated to increase out-of-pocket fees by relatively *more* when the elasticity of demand is low.

Employment is estimated to increase more in scenario 13 (19 per cent) than under scenario 14 (14 per cent). This is because the higher number of children attending ECEC services in scenario 13 is estimated to increase the number of ECEC workers employed.

The reform targets would also tend to increase the wages of ECEC workers by more, the more price inelastic is ECEC demand. For example, the wages of degree-qualified workers are estimated to increase by about 19 per cent (scenario 13) compared with a 17 per cent increase in scenario 14.

Elasticities of labour supply

The magnitude of the own-wage elasticity of labour supply is a key influence on the estimated effect of the reforms, as highlighted by a comparison of scenarios 11 and 14. These scenarios are similar in all respects except that the own-wage elasticities of labour supply are lower in scenario 11 than in scenario 14 (tables E.1 and E.9).

All else given, the less elastic is labour supply, the greater will be the wage increase needed to attract workers to the ECEC sector. For example, the model suggests that salary costs of degree-qualified ECEC workers would need to increase by 24 per cent in scenario 11 compared with a 17 per cent increase in scenario 14.

Higher salary costs leading to higher childcare fees would mean that household demand for child care decreases somewhat, moderating the overall expansion in childcare services resulting from the reforms. For example, the increase in the number of children accessing ECEC services is estimated to be about 2 per cent in scenario 11, compared with 4 per cent in scenario 14.

As a result, it is estimated that there will be slightly lower employment growth in scenario 13 (13 per cent) compared to scenario 14 (14 per cent).

Elasticities of ECEC costs on labour supply

The magnitude of the elasticity of child care cost on the labour supply of ECEC workers will also influence the modelled impact of the reforms. The results of scenarios 5 and 14 are compared as they are similar in all respects except that scenario 5 assumes that ECEC workers are sensitive to the costs of ECEC services and that this affects their labour supply (tables E.1 and E.9).

The more sensitive the supply of ECEC workers to the costs of child care, the smaller the increase in the number of children attending ECEC services under the reforms. For example, the number of children attending ECEC services is expected to increase by 3 per cent in scenario 5, compared with 4 per cent in scenario 14. This is because to attract the necessary staff to meet the NPA ECE and NQS targets, wages would need to rise proportionally more to compensate for the increased cost of ECEC services. For example, wages for degree-qualified workers are estimated to rise by 20 per cent in scenario 5 compared with 17 per cent in scenario 14.

Higher wages mean that ECEC services will recruit fewer ECEC workers than otherwise. For example, in scenario 5, employment is estimated to increase by almost 14 per cent compared with just over 14 per cent in scenario 14.

Moreover, the average cost per child is projected to be higher the more sensitive ECEC workers are assumed to be to ECEC service costs. For example, the unit costs of LDC are estimated to increase by 18 per cent in scenario 5 compared with 17 per cent in scenario 14. The reforms are estimated to raise costs by 13.1 per cent in scenario 5 compared with 12.6 per cent in scenario 14.

Histogram of selected results

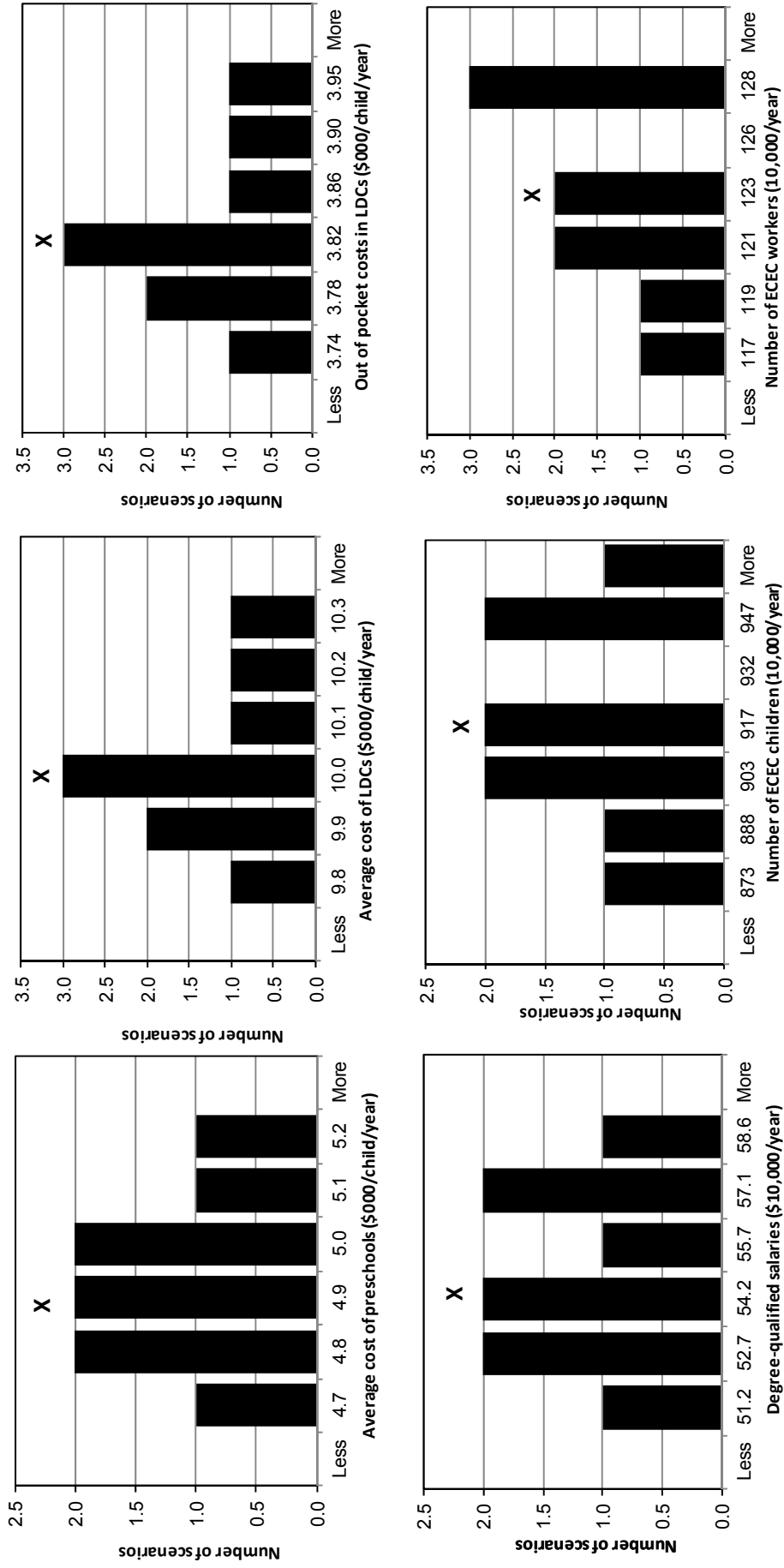
The sensitivity of the model to its assumptions can be determined by examining the range and distribution of the key results. For example, under current cost-sharing arrangements, the size of the ECEC sector is likely to grow by –1 to +8 per cent.

Similarly, under current cost-sharing arrangements, the increase in the average cost per child for LDC is estimated to vary between 17 and 22 per cent.

Additional information about the distribution can be found by examining histograms of the key results (figure E.2). The 'X' indicates the result for the 'mid-point' elasticity assumption (scenario 14).

The results in figure E.2 suggest that the distributions are symmetric. For example, the mid-point estimate of the average cost of preschool is \$4876 per child per year (table E.12). This estimate sits near the middle of the distribution of preschool costs. Similarly, the mid-point estimates of the average cost and out-of-pocket fees of LDC are also within the middle of their respective distributions.

Figure E.2 Histograms of selected results: current cost-sharing arrangements^a



^a Histograms based on scenarios 10 to 18. X corresponds with the result for scenario 14, the mid-point elasticity estimates. Source: Productivity Commission calculations.

E.6 Scope for further work

The purpose of the model is to demonstrate how the various ECEC policy reforms could affect the ECEC workforce, particularly through the mechanism of wages and ECEC service costs and fees.

There is scope to broaden the model to examine other aspects of government policy. First, LDC, FDC, and occasional and in-home care services are imperfect substitutes. That is, increases in the price for one service relative to others will influence the demand for the other services. The Commission has not incorporated cross-price elasticities of demand between these sectors because of complexities that would be introduced to the underlying net welfare function (equation E.1). Incorporating substitution would likely lead to greater expansion of those sectors where fee increases are expected to be lower. For example, a number of households would be expected to switch their demand from LDC to the relatively lower cost FDC, occasional and in-home care.

Second, household demand for formal ECEC services also depends upon the quality of those services. Input quality, such as the proportion of staff that are qualified with certificate III or higher and the proportion of staff with two or more years of experience, were found by Kalb and Lee (2008) to be determinants of the demand for ECEC services. These input variables, however, were not included in the model because the current structural form of the model does not lend itself to measures of input quality. Including an input measure of quality of care could lead to an increase in demand for ECEC services, although the extent of the increase will depend on the relevant elasticity.

Finally, the wages of degree-qualified workers are averaged across the ECEC sector in the model. As noted in chapter 5, many government-run preschools already pay wages to ECEC teachers that are commensurate with the wages paid to similarly-qualified workers in the school sector. Accommodating these wage differences would be likely to influence the results, by reducing the required wage increases for teachers in preschools and pushing up wage increases for LDC services.

E.7 Attachment tables

Table E.13 **Estimates of labour supply elasticities with respect to own wages, for nurses and school teachers**

<i>Authors (year)</i>	<i>Study group</i>	<i>Elasticity</i>	<i>Estimate of elasticity</i>
Nurses			
Phillips (1995)	UK female nurses, 1980	Hours of work	0.15
Ahlburg and Brown Mahoney (1996)	Registered Nurses in Minnesota, 1988	Participation rate	0.2
Staiger, Spetz and Phibbs (1999)	US nurses, 1990, 1992	Hours of work	0.0 to 0.2
Askildsen, Baltagi and Holmas (2003)	Norwegian nurses, 1993–1998	Hours of work	0.2
Rice (2003)	UK nurses, 1991–1999	Hours of work	0.29 to 0.38
Skatun et al. (2005)	UK married or cohabiting female nurses in public and private sectors, 1999–2000	Hours of work	0.00, 0.61
Kankaanranta and Rissanen (2009)	Part-time, full-time Finnish registered nurses, 2005	Hours of work	0.59,
	Finnish registered nurses	Participation rate	0.01
Teachers			
Waterreus and Dobbelsteen (2001)	Dutch male teachers, female teachers, 1998	Hours of work	0.2, 0.4
Falch (2011)	Norwegian teachers, 1993–2003	Participation rate, short and long run	0.13, 0.70
Ransom and Sims (2010)	Missouri (US) elementary and secondary teachers, 1988–1990	Participation rate	0.37
Hanushek, Kain and Rivkin (2004)	Texas (US) teachers. Males and females with up to 3, 3–5, 6–10, 11–20 and 20 or more years of experience, 1993–1996	Participation rate	0.26, 0.34, 0.24, 0.14, 0.05, 0.12, 0.11, 0.07, 0.03, 0.00
Currie (1991)	Ontario (Canada) public school teachers, 1975–1983	Participation rate	0.18 to 0.27
Dahlby (1981)	English and Welsh teachers, 1948–1973	Participation rate	0.20 to 0.75

Table E.14 **Estimates of labour supply elasticities with respect to gross childcare price from Australian and international literature a,b**

	<i>No. of studies</i>	<i>No. of estimates around zero</i>	<i>Estimated elasticity</i>		
			<i>Mean</i>	<i>Minimum</i>	<i>Maximum</i>
Elasticity of employment					
Married mothers					
International	10 ^c	0	-0.34	-0.92	-0.04
Australian	3	2	-0.01	-0.02	0
All	13	2	-0.27	-0.92	0
Sole parents					
International	4 ^c	1	-0.29	-0.58	-0.12
Australian	2	0	-0.12	-0.19	0
All	6	1	-0.23	-0.58	0
Elasticity of hours worked					
Married mothers					
International	4	0	-0.34	-0.74	-0.12
Australian	3	2	-0.01	-0.02	0
All	7	1	-0.20	-0.74	0
Sole parents					
International	1	0	-0.16	-0.16	-0.16
Australian	2	0	-0.11	-0.16	-0.05
All	3	0	-0.12	-0.16	-0.05

^aThe elasticity of employment refers to the percentage change in the employment rate. The elasticity of hours worked refers to the percentage change in hours worked, including employment changes covered by the elasticity of employment. ^b The elasticities from one study, the Australian estimates by Rammohan and Whelan (2005), are not strictly gross price elasticities, rather somewhere between gross and net price elasticities. ^c In one study, the elasticities for two subgroups are reported.

Source: Gong, Breunig and King (2010b).

Table E.15 Estimates of labour supply elasticities with respect to the price of child care

<i>Author(s) (Year)</i>	<i>Country</i>	<i>Sample</i>	<i>Estimated elasticity</i>
Blau and Robins (1988)	US	Married mothers	Labour force participation (LFP) -0.38
Blau and Robins (1989)	US	Married mothers	LFP -0.77
Gustaffson and Stafford (1992)	Sweden	Married mothers	LFP (all mothers) -0.063 LFP (mothers who face no childcare rationing) -1.88
Connelly (1992)	US	Married mothers	LFP -0.6371 to -0.7045
Ribar (1992)	US	Married mothers	LFP -0.74
Ribar (1995)	US	Married mothers	LFP -0.088
Powell (1997)	Canada	Married mothers	LFP -0.38; Hours -0.32
Averett, Peters and Waldman (1997)	US	Married mothers	LFP <0; Hours -0.78
Blau and Hagy (1998)	US	Married and single mothers	LFP -0.20
Kimmel (1998)	US	Married mothers Single mothers	LFP -0.92 LFP -0.22
Powell (1998)	Canada	Married mothers	LFP (part time) -0.0178 LFP (full time) -0.1054
Anderson and Levine (1999)	US	Married mothers Unmarried mothers	LFP -0.303 LFP -0.473
Michalopoulos and Robins (2000)	Canada	Married mothers	LFP -0.156
Blundell et al (2000)	UK	Married mothers	LFP (employed partner) -0.075 LFP (unemployed partner) -0.066 Hours (employed partner) -0.084 Hours (unemployed partner) -0.048
Michalopoulos and Robins (2002)	Canada	Single mothers	LFP -0.259
Oishi (2002)	Japan	Partnered mothers	LFP -0.6
Powell (2002)	Canada	Married mothers	LFP -0.16
Chone et al. (2003)	France	Partnered mothers	LFP -0.04
Connelly and Kimmel (2003)	US	Married mothers Single mothers	LFP -0.433 LFP -1.030
Lokshin (2004)	Russia	All mothers	LFP -0.12
Del Boca, Locatelli and Vuri, (2004)	Italy	Partnered mothers	Hours -0.194
Parera-Nicolau and Mumford (2005)	UK	Partnered mothers	+1.99

(Continued next page)

Table E.15 (continued)

<i>Author(s) (Year)</i>	<i>Country</i>	<i>Sample</i>	<i>Estimated elasticity</i>
Doiron and Kalb (2005)	Australia	Partnered mothers	LFP (Total) -0.02 (Low wages) -0.023 or -0.047 (Preschool aged child) -0.05 (Preschool and low wages) -0.031 or -0.061. Hours (Total) -0.021 or -0.034 (Low wages) -0.027 or -0.045 (Preschool aged child) -0.048 or -0.066 (Preschool and low wages) -0.053 or -0.079.
		Lone parents	LFP (Total) -0.05 or -0.10 (Low wages) -0.038 or -0.189 (Preschool aged child) -0.136 (Preschool and low wages) -0.126 or -0.000. Hours (Total) -0.053 or -0.15 (Low wages) -0.062 or -0.263 (Preschool aged child) -0.175 or -0.280 (Preschool and low wages) -0.216 or -0.054.
Rammohan and Whelan (2006)	Australia	Married mothers	LFP -0.28 (-0.06 part time, -0.21 full time)
Wrohlich (2006)	Germany	Partnered mothers	LFP -0.02 Hours -0.08
Kornstad and Thoresen (2007)	Norway	Partnered mothers	LFP -0.12 Hours -0.14
Kalb and Lee (2008)	Australia	Partnered mothers	Hours -0.0 to -0.028 Hours -0.137 to -0.164
		Single mothers	
Rammohan and Whelan (2007)	Australia	Married mothers	LFP part-time -0.06 LFP full-time -0.21

Source: Adapted from Kalb (2009) and Buckingham (2008).

Table E.16 Detailed results of the effects of reforms on ECEC services, costs and prices

	Base case	Scenario 1		Scenario 2		Scenario 3		Scenario 4		Scenario 5		Scenario 6		
		Low	Low	Moderate	Low	High	Low	Low	Moderate	Moderate	Moderate	High	Moderate	Effect
		Effect	Current	Effect	Current	Effect	Current	Effect	Current	Effect	Current	Effect	Current	Per cent change
<i>Service quality (Per cent of staff with cert. III or greater)</i>														
Preschools	70.5	99.9	41.8	99.9	41.8	99.9	41.8	99.9	41.8	99.9	41.8	99.9	41.8	41.8
Long day care	72.6	95.8	31.9	95.8	31.9	95.8	31.9	95.8	31.9	95.8	31.9	95.8	31.9	31.9
Family day care	54.2	99.3	83.3	99.3	83.3	99.3	83.3	99.3	83.3	99.3	83.3	99.3	83.3	83.3
Occasional & in-home care	41.2	41.2	-	41.2	-	41.2	-	41.2	-	41.2	-	41.2	-	-
<i>Number of children in:</i>														
Preschools	213 446	304 738	42.8	305 499	43.1	306 164	43.4	304 738	42.8	305 499	43.1	306 164	43.4	43.4
Long day care	543 539	510 435	-6.1	468 560	-13.8	439 629	-19.1	517 772	-4.7	481 536	-11.4	453 909	-16.5	-16.5
Family day care	93 738	91 405	-2.5	89 449	-4.6	88 961	-5.1	92 479	-1.3	91 213	-2.7	90 714	-3.2	-3.2
Occasional & in-home care	28 515	27 995	-1.8	27 640	-3.1	27 650	-3.0	28 232	-1.0	27 993	-1.8	27 955	-2.0	-2.0
Total no. of children in care	879 238	934 573	6.3	891 148	1.4	862 404	-1.9	943 221	7.3	906 241	3.1	878 742	-0.1	-0.1
<i>Average cost per child (\$ per year)</i>														
Preschools	4 312	5 434	26.0	5 236	21.4	5 104	18.4	5 048	17.1	4 957	15.0	4 890	13.4	13.4
Long day care	8 469	10 577	24.9	10 310	21.7	10 131	19.6	10 118	19.5	9 998	18.1	9 908	17.0	17.0
Family day care	6 538	7 296	11.6	7 102	8.6	6 973	6.7	6 992	6.9	6 910	5.7	6 849	4.8	4.8
Occasional & in-home care	5 011	5 376	7.3	5 247	4.7	5 163	3.0	5 210	4.0	5 152	2.8	5 109	2.0	2.0
<i>Out-of-pocket cost of care (\$ per year)</i>														
Preschools	742	742	-	742	-	742	-	742	-	742	-	742	-	-
Long day care	3 237	4 043	24.9	3 941	21.7	3 873	19.6	3 868	19.5	3 822	18.1	3 787	17.0	17.0
Family day care	2 499	2 789	11.6	2 715	8.6	2 666	6.7	2 673	7.0	2 641	5.7	2 618	4.8	4.8
Occasional & in-home care	3 109	3 336	7.3	3 256	4.7	3 204	3.1	3 233	4.0	3 197	2.8	3 170	2.0	2.0

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Table E.16 (continued)

	Base case	Scenario 1		Scenario 2		Scenario 3		Scenario 4		Scenario 5		Scenario 6	
		Low	Low	Moderate	Low	High	Low	Moderate	Low	Moderate	Moderate	High	Moderate
Elasticity of ECEC demand		Effect	Current	Effect	Current	Effect	Current	Effect	Current	Effect	Current	Effect	Current
Elasticity of labour supply		Effect	Current	Effect	Current	Effect	Current	Effect	Current	Effect	Current	Effect	Current
ECEC costs on labour supply		Effect	Current	Effect	Current	Effect	Current	Effect	Current	Effect	Current	Effect	Current
Cost-sharing arrangements		Effect	Current	Effect	Current	Effect	Current	Effect	Current	Effect	Current	Effect	Current
		Per cent change		Per cent change		Per cent change		Per cent change		Per cent change		Per cent change	
<i>Number of workers by qualification by sector:</i>													
Preschools													
Degree	7 936	11 330	42.8	11 358	43.1	11 383	43.4	11 330	42.8	11 358	43.1	11 383	43.4
Diploma or adv. diploma	3 671	6 187	68.5	6 203	69.0	6 216	69.3	6 187	68.5	6 203	69.0	6 216	69.3
Certificate III or IV	3 640	14 294	292.7	14 330	293.7	14 361	294.5	14 294	292.7	14 330	293.7	14 361	294.5
Certificate I or II	612	16	-97.4	16	-97.4	16	-97.4	16	-97.4	16	-97.4	16	-97.4
Unqualified (or unknown)	5 782	15	-99.7	15	-99.7	15	-99.7	15	-99.7	15	-99.7	15	-99.7
Total	21 641	31 842	47.1	31 922	47.5	31 991	47.8	31 842	47.1	31 922	47.5	31 991	47.8
Long day care													
Degree	6 680	7 447	11.5	6 836	2.3	6 414	-4.0	7 554	13.1	7 025	5.2	6 622	-0.9
Diploma or adv. diploma	21 299	28 563	34.1	26 219	23.1	24 600	15.5	28 973	36.0	26 945	26.5	25 400	19.3
Certificate III or IV	21 262	37 545	76.6	34 465	62.1	32 337	52.1	38 085	79.1	35 419	66.6	33 387	57.0
Certificate I or II	1 339	194	-85.5	178	-86.7	167	-87.5	197	-85.3	183	-86.3	172	-87.2
Unqualified (or unknown)	17 217	3 029	-82.4	2 781	-83.8	2 609	-84.8	3 073	-82.2	2 858	-83.4	2 694	-84.4
Total	67 797	76 778	13.2	70 479	4.0	66 127	-2.5	77 882	14.9	72 430	6.8	68 275	0.7
Family day care													
Degree	655	638	-2.6	625	-4.6	621	-5.2	646	-1.4	637	-2.7	633	-3.4
Diploma or adv. diploma	2 189	2 263	3.4	2 215	1.2	2 203	0.6	2 290	4.6	2 258	3.2	2 246	2.6
Certificate III or IV	4 488	10 205	127.4	9 987	122.5	9 932	121.3	10 325	130.1	10 184	126.9	10 128	125.7
Certificate I or II	430	14	-96.7	14	-96.7	14	-96.7	15	-96.5	14	-96.7	14	-96.7
Unqualified (or unknown)	5 778	81	-98.6	80	-98.6	79	-98.6	82	-98.6	81	-98.6	81	-98.6
Total	13 539	13 201	-2.5	12 921	-4.6	12 849	-5.1	13 358	-1.3	13 174	-2.7	13 102	-3.2

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Table E.16 (continued)

	Base case		Scenario 1		Scenario 2		Scenario 3		Scenario 4		Scenario 5		Scenario 6	
			Low	Low	Moderate	Low	High	Low	Moderate	Low	Moderate	Moderate	High	Moderate
			Effect	Effect	Effect	Effect	Effect	Effect	Effect	Effect	Effect	Effect	Effect	Effect
			Current	Current	Current	Current	Current	Current	Current	Current	Current	Current	Current	Current
			Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent
			change	change	change	change	change	change	change	change	change	change	change	change
Elasticity of ECEC demand														
Elasticity of labour supply														
ECEC costs on labour supply														
Cost-sharing arrangements														
Occasional & in-home care														
Degree	123	121	-1.6	120	-2.4	120	-2.4	122	-0.8	121	-1.6	121	-1.6	121
Diploma or adv. diploma	411	403	-1.9	398	-3.2	398	-3.2	407	-1.0	403	-1.9	403	-1.9	403
Certificate III or IV	1 239	1 217	-1.8	1 201	-3.1	1 202	-3.0	1 227	-1.0	1 217	-1.8	1 215	-1.9	1 215
Certificate I or II	196	193	-1.5	190	-3.1	190	-3.1	194	-1.0	193	-1.5	192	-2.0	192
Unqualified (or unknown)	2 336	2 294	-1.8	2 264	-3.1	2 265	-3.0	2 313	-1.0	2 293	-1.8	2 290	-2.0	2 290
Total	4 305	4 228	-1.8	4 173	-3.1	4 175	-3.0	4 263	-1.0	4 227	-1.8	4 221	-2.0	4 221
All ECEC														
Degree	15 394	19 536	26.9	18 939	23.0	18 538	20.4	19 652	27.7	19 141	24.3	18 759	21.9	18 759
Diploma or adv. diploma	27 570	37 416	35.7	35 035	27.1	33 417	21.2	37 857	37.3	35 809	29.9	34 265	24.3	34 265
Certificate III or IV	30 629	63 261	106.5	59 983	95.8	57 832	88.8	63 931	108.7	61 150	99.6	59 091	92.9	59 091
Certificate I or II	2 577	417	-83.8	398	-84.6	387	-85.0	422	-83.6	406	-84.2	394	-84.7	394
Unqualified (or unknown)	31 113	5 419	-82.6	5 140	-83.5	4 968	-84.0	5 483	-82.4	5 247	-83.1	5 080	-83.7	5 080
Total	107 283	126 049	17.5	119 495	11.4	115 142	7.3	127 345	18.7	121 753	13.5	117 589	9.6	117 589
Average wage/salary (\$/year)														
Degree	46 020	62 424	35.6	59 831	30.0	58 098	26.2	56 301	22.3	55 046	19.6	54 106	17.6	54 106
Diploma or adv. diploma	40 710	52 598	29.2	49 790	22.3	47 890	17.6	47 632	17.0	46 302	13.7	45 299	11.3	45 299
Certificate III or IV	31 978	34 230	7.0	33 285	4.1	32 663	2.1	32 994	3.2	32 638	2.1	32 374	1.2	32 374
Certificate I or II	30 680	31 048	1.2	30 675	0.0	30 446	-0.8	30 851	0.6	30 671	0.0	30 544	-0.4	30 544
Unqualified (or unknown)	30 680	30 959	0.9	30 549	-0.4	30 292	-1.3	30 794	0.4	30 592	-0.3	30 447	-0.8	30 447
Source of expenditure (\$m/year)														
Households	2 241	2 638	17.7	2 406	7.4	2 255	0.6	2 567	14.6	2 397	7.0	2 272	1.4	2 272
Australian Government	3 154	3 662	16.1	3 303	4.7	3 069	-2.7	3 553	12.7	3 290	4.3	3 095	-1.8	3 095
State & local govts.	885	1 572	77.7	1 502	69.7	1 455	64.4	1 450	63.9	1 416	60.0	1 391	57.1	1 391
Total	6 279	7 872	25.4	7 211	14.8	6 780	8.0	7 571	20.6	7 103	13.1	6 758	7.6	6 758

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Table E.16 (continued)

	Base case	Scenario 7		Scenario 8		Scenario 9		Scenario 10		Scenario 11		Scenario 12	
Elasticity of ECEC demand		Low	High	Moderate	High	High	High	Low	Low	Moderate	Low	High	High
Elasticity of labour supply		Effect	Effect	Effect	Effect	Effect	Effect	Low	Low	Low	Low	Low	Low
ECEC costs on labour supply		Current	Current	Current	Current	Current	Current	No effect	No effect	No effect	No effect	No effect	No effect
Cost-sharing arrangements		Current	Current	Current	Current	Current	Current	Current	Current	Current	Current	Current	Current
		Per cent change		Per cent change		Per cent change		Per cent change		Per cent change		Per cent change	
<i>Service quality (Per cent of staff with cert. III or greater)</i>													
Preschools	70.5	99.9	41.8	99.9	41.8	99.9	41.8	99.9	41.8	99.9	41.8	99.9	41.8
Long day care	72.6	95.8	31.9	95.8	31.9	95.8	31.9	95.8	31.9	95.8	31.9	95.8	31.9
Family day care	54.1	99.3	83.3	99.3	83.3	99.3	83.3	99.3	83.3	99.3	83.3	99.3	83.3
Occasional & in-home care	41.2	41.2	-	41.2	-	41.2	-	41.2	-	41.2	-	41.2	-
<i>Number of children in:</i>													
Preschools	213 446	304 738	42.8	305 499	43.1	306 164	43.4	304 738	42.8	305 499	43.1	306 164	43.4
Long day care	543 539	519 926	-4.3	485 705	-10.6	458 816	-15.6	514 492	-5.3	476 010	-12.4	448 293	-17.5
Family day care	93 738	92 796	-1.0	91 793	-2.1	91 347	-2.6	92 094	-1.8	90 722	-3.2	90 449	-3.5
Occasional & in-home care	28 515	28 302	-0.7	28 108	-1.4	28 061	-1.6	28 188	-1.1	27 996	-1.8	28 065	-1.6
Total no. of children in care	879 238	945 762	7.6	911 105	3.6	884 388	0.6	939 512	6.9	900 227	2.4	872 971	-0.7
<i>Average cost per child (\$ per year)</i>													
Preschools	4 312	4 904	13.7	4 843	12.3	4 795	11.2	5 200	20.6	5 066	17.5	4 972	15.3
Long day care	8 469	9 983	17.9	9 897	16.9	9 831	16.1	10 323	21.9	10 131	19.6	9 996	18.0
Family day care	6 538	6 902	5.6	6 847	4.7	6 804	4.1	7 100	8.6	6 963	6.5	6 868	5.0
Occasional & in-home care	5 011	5 160	3.0	5 121	2.2	5 091	1.6	5 241	4.6	5 151	2.8	5 090	1.6
<i>Out-of-pocket cost of care (\$ per year)</i>													
Preschools	742	742	-	742	-	742	-	742	-	742	-	742	-
Long day care	3 237	3 816	17.9	3 783	16.9	3 758	16.1	3 946	21.9	3 873	19.6	3 821	18.0
Family day care	2 499	2 638	5.6	2 617	4.7	2 601	4.1	2 714	8.6	2 662	6.5	2 625	5.0
Occasional & in-home care	3 109	3 202	3.0	3 178	2.2	3 159	1.6	3 252	4.6	3 196	2.8	3 158	1.6

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Table E.16 (continued)

	Base case	Scenario 7		Scenario 8		Scenario 9		Scenario 10		Scenario 11		Scenario 12		
		Low	High	Moderate	High	High	High	Low	Low	Moderate	Low	High	Low	High
Elasticity of ECEC demand														
Elasticity of labour supply														
ECEC costs on labour supply														
Cost-sharing arrangements														
		Per cent change		Per cent change		Per cent change		Per cent change		Per cent change		Per cent change		
		Current	Effect	Current	Effect	Current	Effect	Current	Effect	Current	Effect	Current	Effect	Current
<i>Number of workers by qualification by sector:</i>														
Preschools														
Degree	7 936	11 330	42.8	11 358	43.1	11 383	43.4	11 330	42.8	11 358	43.1	11 383	43.4	
Diploma or adv. diploma	3 671	6 187	68.5	6 203	69.0	6 216	69.3	6 187	68.5	6 203	69.0	6 216	69.3	
Certificate III or IV	3 640	14 294	292.7	14 330	293.7	14 361	294.5	14 294	292.7	14 330	293.7	14 361	294.5	
Certificate I or II	612	16	-97.4	16	-97.4	16	-97.4	16	-97.4	16	-97.4	16	-97.4	
Unqualified (or unknown)	5 782	15	-99.7	15	-99.7	15	-99.7	15	-99.7	15	-99.7	15	-99.7	
Total	21 641	31 842	47.1	31 922	47.5	31 991	47.8	31 842	47.1	31 922	47.5	31 991	47.8	
Long day care														
Degree	6 680	7 585	13.5	7 086	6.1	6 694	0.2	7 506	12.4	6 944	4.0	6 540	-2.1	
Diploma or adv. diploma	21 299	29 094	36.6	27 179	27.6	25 674	20.5	28 790	35.2	26 636	25.1	25 085	17.8	
Certificate III or IV	21 262	38 243	79.9	35 726	68.0	33 748	58.7	37 843	78.0	35 013	64.7	32 974	55.1	
Certificate I or II	1 339	197	-85.3	184	-86.3	174	-87.0	195	-85.4	181	-86.5	170	-87.3	
Unqualified (or unknown)	17 217	3 085	-82.1	2 882	-83.3	2 723	-84.2	3 053	-82.3	2 825	-83.6	2 660	-84.6	
Total	67 797	78 204	15.4	73 057	7.8	69 013	1.8	77 387	14.1	71 599	5.6	67 429	-0.5	
Family day care														
Degree	655	648	-1.1	641	-2.1	638	-2.6	643	-1.8	633	-3.4	632	-3.5	
Diploma or adv. diploma	2 189	2 298	5.0	2 273	3.8	2 262	3.3	2 280	4.2	2 246	2.6	2 239	2.3	
Certificate III or IV	4 488	10 360	130.8	10 248	128.3	10 199	127.3	10 282	129.1	10 129	125.7	10 098	125.0	
Certificate I or II	430	15	-96.5	14	-96.7	14	-96.7	15	-96.5	14	-96.7	14	-96.7	
Unqualified (or unknown)	5 778	83	-98.6	82	-98.6	81	-98.6	82	-98.6	81	-98.6	81	-98.6	
Total	13 540	13 404	-1.0	13 258	-2.1	13 194	-2.6	13 302	-1.8	13 103	-3.2	13 064	-3.5	

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Table E.16 (continued)

	Base case	Scenario 13	Scenario 14	Scenario 15	Scenario 16	Scenario 17	Scenario 18
Elasticity of ECEC demand		Low	Moderate	High	Low	Moderate	High
Elasticity of labour supply		Moderate	Moderate	Moderate	High	High	High
ECEC costs on labour supply		No effect	No effect	No effect	No effect	No effect	No effect
Cost-sharing arrangements		Current	Current	Current	Current	Current	Current
		Per cent change	Per cent change	Per cent change	Per cent change	Per cent change	Per cent change
<i>Service quality (Per cent of staff with cert. III or greater)</i>							
Preschools	70.5	99.9	99.9	99.9	99.9	99.9	99.9
Long day care	72.6	95.8	95.8	95.8	95.8	95.8	95.8
Family day care	54.1	99.3	99.3	99.3	99.3	99.3	99.3
Occasional & in-home care	41.2	41.2	41.2	41.2	41.2	41.2	41.2
<i>Number of children in:</i>							
Preschools	213 446	304 738	305 499	306 164	304 738	305 499	306 164
Long day care	543 539	519 419	484 977	458 314	521 007	488 063	461 941
Family day care	93 738	92 741	91 763	91 421	92 959	92 150	91 822
Occasional & in-home care	28 515	28 312	28 160	28 169	28 353	28 219	28 208
Total no. of children in care	879 238	945 210	910 399	884 068	947 057	913 931	888 135
<i>Average cost per child (\$/year)</i>							
Preschools	4 312	4 948	4 876	4 821	4 841	4 788	4 747
Long day care	8 469	10 015	9 915	9 839	9 915	9 841	9 782
Family day care	6 538	6 917	6 850	6 799	6 856	6 808	6 771
Occasional & in-home care	5 011	5 154	5 107	5 072	5 125	5 091	5 065
<i>Out-of-pocket cost of care (\$ per year)</i>							
Preschools	742	742	742	742	742	742	742
Long day care	3 237	3 828	3 790	3 761	3 790	3 762	3 739
Family day care	2 499	2 644	2 618	2 599	2 621	2 602	2 588
Occasional & in-home care	3 109	3 198	3 169	3 147	3 180	3 159	3 143

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Table E.16 (continued)

	Base case	Scenario 13		Scenario 14		Scenario 15		Scenario 16		Scenario 17		Scenario 18	
		Low	Moderate	Moderate	High	Low	High	Moderate	High	Moderate	High	High	High
Elasticity of ECEC demand													
Elasticity of labour supply													
ECEC costs on labour supply													
Cost-sharing arrangements													
<i>Number of workers by qualification by sector:</i>													
Preschools													
Degree	7 936	11 330	42.8	11 358	43.1	11 383	43.4	11 330	42.8	11 358	43.1	11 383	43.4
Diploma or adv. diploma	3 671	6 187	68.5	6 203	69.0	6 216	69.3	6 187	68.5	6 203	69.0	6 216	69.3
Certificate III or IV	3 640	14 294	292.7	14 330	293.7	14 361	294.5	14 294	292.7	14 330	293.7	14 361	294.5
Certificate I or II	612	16	-97.4	16	-97.4	16	-97.4	16	-97.4	16	-97.4	16	-97.4
Unqualified (or unknown)	5 782	15	-99.7	15	-99.7	15	-99.7	15	-99.7	15	-99.7	15	-99.7
Total	21 641	31 842	47.1	31 922	47.5	31 991	47.8	31 842	47.1	31 922	47.5	31 991	47.8
Long day care													
Degree	6 680	7 578	13.4	7 075	5.9	6 686	0.1	7 601	13.8	7 120	6.6	6 739	0.9
Diploma or adv. diploma	21 299	29 065	36.5	27 138	27.4	25 646	20.4	29 154	36.9	27 311	28.2	25 849	21.4
Certificate III or IV	21 262	38 206	79.7	35 672	67.8	33 711	58.6	38 323	80.2	35 899	68.8	33 978	59.8
Certificate I or II	1 339	197	-85.3	184	-86.3	174	-87.0	198	-85.2	185	-86.2	175	-86.9
Unqualified (or unknown)	17 217	3 082	-82.1	2 878	-83.3	2 720	-84.2	3 092	-82.0	2 896	-83.2	2 741	-84.1
Total	67 797	78 128	15.2	72 947	7.6	68 937	1.7	78 368	15.6	73 411	8.3	69 482	2.5
Family day care													
Degree	655	648	-1.1	641	-2.1	638	-2.6	649	-0.9	643	-1.8	641	-2.1
Diploma or adv. diploma	2 189	2 296	4.9	2 272	3.8	2 264	3.4	2 302	5.2	2 282	4.2	2 273	3.8
Certificate III or IV	4 488	10 354	130.7	10 245	128.3	10 207	127.4	10 379	131.3	10 288	129.2	10 252	128.4
Certificate I or II	430	15	-96.5	14	-96.7	14	-96.7	15	-96.5	15	-96.5	14	-96.7
Unqualified (or unknown)	5 778	83	-98.6	82	-98.6	81	-98.6	83	-98.6	82	-98.6	82	-98.6
Total	13 540	13 396	-1.1	13 254	-2.1	13 204	-2.5	13 428	-0.8	13 310	-1.7	13 262	-2.1

(Continued next page)

Table E.16 (continued)

	Base case	Scenario 13		Scenario 14		Scenario 15		Scenario 16		Scenario 17		Scenario 18	
		Low	Moderate	Moderate	Moderate	High	Moderate	Low	High	Moderate	High	High	High
		Per cent change	Per cent change	Per cent change	Per cent change	Per cent change	Per cent change	Per cent change	Per cent change	Per cent change	Per cent change	Per cent change	Per cent change
Elasticity of ECEC demand													
Elasticity of labour supply													
ECEC costs on labour supply													
Cost-sharing arrangements													
Occasional & in-home care													
Degree	123	122	122	122	122	122	122	123	123	122	122	122	122
Diploma or adv. diploma	411	408	406	406	406	406	406	408	408	407	407	406	406
Certificate III or IV	1 239	1 230	1 224	1 224	1 224	1 224	1 224	1 232	1 232	1 226	1 226	1 226	1 226
Certificate I or II	196	195	194	194	194	194	194	195	195	194	194	194	194
Unqualified (or unknown)	2 336	2 320	2 307	2 307	2 308	2 308	2 308	2 323	2 323	2 312	2 312	2 311	2 311
Total	4 305	4 275	4 253	4 253	4 254	4 254	4 254	4 281	4 281	4 261	4 261	4 259	4 259
All ECEC													
Degree	15 394	19 678	19 196	19 196	18 829	18 829	18 829	19 703	19 703	19 243	19 243	18 885	18 885
Diploma or adv. diploma	27 570	37 956	36 019	36 019	34 532	34 532	34 532	38 051	38 051	36 203	36 203	34 744	34 744
Certificate III or IV	30 629	64 084	61 471	61 471	59 503	59 503	59 503	64 228	64 228	61 743	61 743	59 817	59 817
Certificate I or II	2 577	423	408	408	398	398	398	424	424	410	410	399	399
Unqualified (or unknown)	31 113	5 500	5 282	5 282	5 124	5 124	5 124	5 513	5 513	5 305	5 305	5 149	5 149
Total	107 283	127 641	122 376	122 376	118 386	118 386	118 386	127 919	127 919	122 904	122 904	118 994	118 994
Average wage/salary (\$/year)													
Degree	46 020	54 559	53 599	53 599	52 869	52 869	52 869	52 462	52 462	51 776	51 776	51 240	51 240
Diploma or adv. diploma	40 710	46 738	45 599	45 599	44 725	44 725	44 725	45 780	45 780	44 874	44 874	44 160	44 160
Certificate III or IV	31 978	32 636	32 349	32 349	32 132	32 132	32 132	32 427	32 427	32 245	32 245	32 104	32 104
Certificate I or II	30 680	30 624	30 488	30 488	30 392	30 392	30 392	30 644	30 644	30 548	30 548	30 476	30 476
Unqualified (or unknown)	30 680	30 567	30 410	30 410	30 296	30 296	30 296	30 602	30 602	30 490	30 490	30 405	30 405
Source of expenditure (\$m/year)													
Households	2 241	2 550	2 394	2 394	2 277	2 277	2 277	2 535	2 535	2 391	2 391	2 281	2 281
Australian Government	3 154	3 528	3 285	3 285	3 103	3 103	3 103	3 504	3 504	3 281	3 281	3 108	3 108
State & local govts.	885	1 419	1 391	1 391	1 370	1 370	1 370	1 385	1 385	1 364	1 364	1 348	1 348
Total	6 279	7 497	7 070	7 070	6 750	6 750	6 750	7 424	7 424	7 037	7 037	6 737	6 737

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Table E.16 (continued)

	Base case	Scenario 19		Scenario 20		Scenario 21		Scenario 22		Scenario 23		Scenario 24	
		Low	Low	Moderate	Low	High	Low	Low	Moderate	Moderate	Moderate	High	Moderate
Elasticity of ECEC demand													
Elasticity of labour supply													
ECEC costs on labour supply													
Cost-sharing arrangements													
		Per cent change	Per cent change	Per cent change	Per cent change	Per cent change	Per cent change	Per cent change	Per cent change	Per cent change	Per cent change	Per cent change	Per cent change
<i>Service quality (Per cent of staff with cert. III or greater)</i>													
Preschools	70.5	99.9	41.8	99.9	41.8	99.9	41.8	99.9	41.8	99.9	41.8	99.9	41.8
Long day care	72.6	95.8	31.9	95.8	31.9	95.8	31.9	95.8	31.9	95.8	31.9	95.8	31.9
Family day care	54.1	99.3	83.3	99.3	83.3	99.3	83.3	99.3	83.3	99.3	83.3	99.3	83.3
Occasional & in-home care	41.2	41.2	—	41.2	—	41.2	—	41.2	—	41.2	—	41.2	—
<i>Number of children in:</i>													
Preschools	213 446	304 738	42.8	305 499	43.1	306 164	43.4	304 738	42.8	305 499	43.1	306 164	43.4
Long day care	543 539	544 116	0.1	545 040	0.3	545 847	0.4	544 116	0.1	545 040	0.3	545 847	0.4
Family day care	93 738	94 081	0.4	94 628	0.9	95 107	1.5	94 081	0.4	94 628	0.9	95 107	1.5
Occasional & in-home care	28 515	28 515	—	28 515	—	28 515	—	28 515	—	28 515	—	28 515	—
Total no. of children in care	879 238	971 450	10.5	973 682	10.7	975 633	11.0	971 450	43	973 682	44.4	975 633	45.3
<i>Average cost per child (\$/year)</i>													
Preschools	4 312	5 601	29.9	5 612	30.1	5 621	30.4	5 117	18.7	5 123	18.8	5 128	18.9
Long day care	8 469	10 801	27.5	10 812	27.7	10 823	27.8	10 208	20.5	10 215	20.6	10 220	20.7
Family day care	6 538	7 459	14.1	7 468	14.2	7 475	14.3	7 053	7.9	7 058	8.0	7 062	8.0
Occasional & in-home care	5 011	5 486	9.5	5 491	9.6	5 496	9.7	5 254	4.8	5 256	4.9	5 259	4.9
<i>Out-of-pocket cost of care (\$ per year)</i>													
Preschools	742	742	—	742	—	742	—	742	—	742	—	742	—
Long day care	3 237	3 237	—	3 237	—	3 237	—	3 237	—	3 237	—	3 237	—
Family day care	2 499	2 499	—	2 499	—	2 499	—	2 499	—	2 499	—	2 499	—
Occasional & in-home care	3 109	3 109	—	3 109	—	3 109	—	3 109	—	3 109	—	3 109	—

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Table E.16 (continued)

Base case	Scenario 19		Scenario 20		Scenario 21		Scenario 22		Scenario 23		Scenario 24	
	Low	Low	Moderate	Low	High	Low	Moderate	Low	Moderate	Moderate	High	High
	Effect	Effect	Effect	Effect	Effect	Effect	Effect	Effect	Effect	Effect	Effect	Effect
Cost-sharing arrangements	Govt.	Govt.	Govt.	Govt.	Govt.	Govt.	Govt.	Govt.	Govt.	Govt.	Govt.	Govt.
	Per cent change		Per cent change		Per cent change		Per cent change		Per cent change		Per cent change	
<i>Number of workers by qualification by sector:</i>												
Preschools												
Degree	7 936	11 330	42.8	11 358	43.1	11 383	43.4	11 330	42.8	11 358	43.1	11 383
Diploma or adv. diploma	3 671	6 187	68.5	6 203	69.0	6 216	69.3	6 187	68.5	6 203	69.0	6 216
Certificate III or IV	3 640	14 294	292.7	14 330	293.7	14 361	294.5	14 294	292.7	14 330	293.7	14 361
Certificate I or II	612	16	-97.4	16	-97.4	16	-97.4	16	-97.4	16	-97.4	16
Unqualified (or unknown)	5 782	15	-99.7	15	-99.7	15	-99.7	15	-99.7	15	-99.7	15
Total	21 641	31 842	47.1	31 922	47.5	31 991	47.8	31 842	47.1	31 922	47.5	31 991
Long day care												
Degree	6 680	7 938	18.8	7 952	19.0	7 963	19.2	7 938	18.8	7 952	19.0	7 963
Diploma or adv. diploma	21 299	30 447	43.0	30 499	43.2	30 544	43.4	30 447	43.0	30 499	43.2	30 544
Certificate III or IV	21 262	40 022	88.2	40 090	88.6	40 150	88.8	40 022	88.2	40 090	88.6	40 150
Certificate I or II	1 339	207	-84.5	207	-84.5	207	-84.5	207	-84.5	207	-84.5	207
Unqualified (or unknown)	17 217	3 229	-81.2	3 234	-81.2	3 239	-81.2	3 229	-81.2	3 234	-81.2	3 239
Total	67 797	81 843	20.7	81 982	20.9	82 103	21.1	81 843	20.7	81 982	20.9	82 103
Family day care												
Degree	655	657	0.3	661	0.9	664	1.4	657	0.3	661	0.9	664
Diploma or adv. diploma	2 189	2 329	6.4	2 343	7.0	2 355	7.6	2 329	6.4	2 343	7.0	2 355
Certificate III or IV	4 488	10 504	134.0	10 565	135.4	10 619	136.6	10 504	134.0	10 565	135.4	10 619
Certificate I or II	430	15	-96.5	15	-96.5	15	-96.5	15	-96.5	15	-96.5	15
Unqualified (or unknown)	5 778	84	-98.5	84	-98.5	85	-98.5	84	-98.5	84	-98.5	85
Total	13 540	13 589	0.4	13 668	0.9	13 738	1.5	13 589	0.4	13 668	0.9	13 738

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Table E.16 (continued)

	Base case	Scenario 19		Scenario 20		Scenario 21		Scenario 22		Scenario 23		Scenario 24	
		Low	Low	Moderate	High	Low	Moderate	Low	Moderate	Moderate	High	Moderate	High
Elasticity of ECEC demand		Effect	Govt.	Effect	Govt.	Effect	Govt.	Effect	Govt.	Effect	Govt.	Effect	Govt.
Elasticity of labour supply		Per cent change	Per cent change	Per cent change	Per cent change	Per cent change	Per cent change	Per cent change	Per cent change	Per cent change	Per cent change	Per cent change	Per cent change
ECEC costs on labour supply													
Cost-sharing arrangements													
Occasional & in-home care													
Degree	123	123	123	123	123	123	123	123	123	123	123	123	123
Diploma or adv. diploma	411	411	411	411	411	411	411	411	411	411	411	411	411
Certificate III or IV	1 239	1 239	1 239	1 239	1 239	1 239	1 239	1 239	1 239	1 239	1 239	1 239	1 239
Certificate I or II	196	196	196	196	196	196	196	196	196	196	196	196	196
Unqualified (or unknown)	2 336	2 336	2 336	2 336	2 336	2 336	2 336	2 336	2 336	2 336	2 336	2 336	2 336
Total	4 305	4 305	4 305	4 305	4 305	4 305	4 305	4 305	4 305	4 305	4 305	4 305	4 305
All ECEC													
Degree	15 394	20 048	20 094	20 094	20 094	20 133	20 133	20 048	20 048	20 094	20 094	20 133	20 133
Diploma or adv. diploma	27 570	39 374	39 456	39 456	39 456	39 526	39 526	39 374	39 374	39 456	39 456	39 526	39 526
Certificate III or IV	30 629	66 059	66 224	66 224	66 224	66 369	66 369	66 059	66 059	66 224	66 224	66 369	66 369
Certificate I or II	2 577	434	434	434	434	434	434	434	434	434	434	434	434
Unqualified (or unknown)	31 113	5 664	5 669	5 669	5 669	5 675	5 675	5 664	5 664	5 669	5 669	5 675	5 675
Total	107 283	131 579	131 877	131 877	131 877	132 137	132 137	131 579	131 579	131 877	131 877	132 137	132 137
Average wage/salary (\$/year)													
Degree	46 020	64 634	64 807	64 807	64 807	64 959	64 959	64 634	64 634	64 807	64 807	64 959	64 959
Diploma or adv. diploma	40 710	54 917	55 018	55 018	55 018	55 106	55 106	54 917	54 917	55 018	55 018	55 106	55 106
Certificate III or IV	31 978	35 035	35 082	35 082	35 082	35 123	35 123	35 035	35 035	35 082	35 082	35 123	35 123
Certificate I or II	30 680	31 379	31 391	31 391	31 391	31 401	31 401	31 379	31 379	31 391	31 391	31 401	31 401
Unqualified (or unknown)	30 680	31 315	31 327	31 327	31 327	31 337	31 337	31 315	31 315	31 327	31 327	31 337	31 337
Source of expenditure (\$m/year)													
Households	2 241	2 311	2 316	2 316	2 316	2 321	2 321	2 311	2 311	2 316	2 316	2 321	2 321
Australian Government	3 154	4 496	4 512	4 512	4 512	4 527	4 527	4 496	4 496	4 512	4 512	4 527	4 527
State & local govts.	885	1 635	1 642	1 642	1 642	1 649	1 649	1 635	1 635	1 642	1 642	1 649	1 649
Total	6 279	8 442	8 471	8 471	8 471	8 496	8 496	8 442	8 442	8 471	8 471	8 496	8 496

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Table E.16 (continued)

	Base case	Scenario 25	Scenario 26	Scenario 27	Scenario 28	Scenario 29	Scenario 30
Elasticity of ECEC demand		Inelastic	Moderate	Elastic	Inelastic	Moderate	Elastic
Elasticity of labour supply		Elastic	Elastic	Elastic	Inelastic	Inelastic	Inelastic
ECEC costs on labour supply		Effect	Effect	Effect	No effect	No effect	No effect
Cost-sharing arrangements		Govt.	Govt.	Govt.	Govt.	Govt.	Govt.
		Per cent change	Per cent change	Per cent change	Per cent change	Per cent change	Per cent change
<i>Service quality (Per cent of staff with cert. III or greater)</i>							
Preschools	70.5	99.9	41.8	99.9	41.8	99.9	41.8
Long day care	72.6	95.8	31.9	95.8	31.9	95.8	31.9
Family day care	54.1	99.3	83.3	99.3	83.3	99.3	83.3
Occasional & in-home care	41.2	41.2	—	41.2	—	41.2	—
<i>Number of children in:</i>							
Preschools	213 446	304 738	43.4	306 164	43.4	305 499	43.1
Long day care	543 539	544 116	0.1	545 847	0.4	545 040	0.3
Family day care	93 738	94 081	0.4	95 107	1.5	94 628	0.9
Occasional & in-home care	28 515	28 515	—	28 515	—	28 515	—
Total no. of children in care	879 238	971 450	43.2	975 633	45.3	973 682	44.4
<i>Average cost per child (\$/year)</i>							
Preschools	4 312	4 950	14.8	4 958	15.0	5 317	23.3
Long day care	8 469	10 046	18.6	10 054	18.7	10 486	23.8
Family day care	6 538	6 942	6.2	6 948	6.3	7 218	10.4
Occasional & in-home care	5 011	5 189	3.6	5 193	3.6	5 317	6.1
<i>Out-of-pocket cost of care (\$ per year)</i>							
Preschools	742	742	—	742	—	742	—
Long day care	3 237	3 237	—	3 237	—	3 237	—
Family day care	2 499	2 499	—	2 499	—	2 499	—
Occasional & in-home care	3 109	3 109	—	3 109	—	3 109	—

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Table E.16 (continued)

	Base case	Scenario 25		Scenario 26		Scenario 27		Scenario 28		Scenario 29		Scenario 30	
		Low	High	Moderate	High	High	High	Low	Low	Moderate	Low	High	Low
Elasticity of ECEC demand													
Elasticity of labour supply													
ECEC costs on labour supply													
Cost-sharing arrangements													
		Per cent change		Per cent change		Per cent change		Per cent change		Per cent change		Per cent change	
<i>Number of workers by qualification by sector:</i>													
Preschools													
Degree	7 936	11 330	42.8	11 358	43.1	11 383	43.4	11 330	42.8	11 358	43.1	11 383	43.4
Diploma or adv. diploma	3 671	6 187	68.5	6 203	69.0	6 216	69.3	6 187	68.5	6 203	69.0	6 216	69.3
Certificate III or IV	3 640	14 294	292.7	14 330	293.7	14 361	294.5	14 294	292.7	14 330	293.7	14 361	294.5
Certificate I or II	612	16	-97.4	16	-97.4	16	-97.4	16	-97.4	16	-97.4	16	-97.4
Unqualified (or unknown)	5 782	15	-99.7	15	-99.7	15	-99.7	15	-99.7	15	-99.7	15	-99.7
Total	21 641	31 842	47.1	31 922	47.5	31 991	47.8	31 842	47.1	31 922	47.5	31 991	47.8
Long day care													
Degree	6 680	7 938	18.8	7 952	19.0	7 963	19.2	7 938	18.8	7 952	19.0	7 963	19.2
Diploma or adv. diploma	21 299	30 447	43.0	30 499	43.2	30 544	43.4	30 447	43.0	30 499	43.2	30 544	43.4
Certificate III or IV	21 262	40 022	88.2	40 090	88.6	40 150	88.8	40 022	88.2	40 090	88.6	40 150	88.8
Certificate I or II	1 339	207	-84.5	207	-84.5	207	-84.5	207	-84.5	207	-84.5	207	-84.5
Unqualified (or unknown)	17 217	3 229	-81.2	3 234	-81.2	3 239	-81.2	3 229	-81.2	3 234	-81.2	3 239	-81.2
Total	67 797	81 843	20.7	81 982	20.9	82 103	21.1	81 843	20.7	81 982	20.9	82 103	21.1
Family day care													
Degree	655	657	0.3	661	0.9	664	1.4	657	0.3	661	0.9	664	1.4
Diploma or adv. diploma	2 189	2 329	6.4	2 343	7.0	2 355	7.6	2 329	6.4	2 343	7.0	2 355	7.6
Certificate III or IV	4 488	10 504	134.0	10 565	135.4	10 619	136.6	10 504	134.0	10 565	135.4	10 619	136.6
Certificate I or II	430	15	-96.5	15	-96.5	15	-96.5	15	-96.5	15	-96.5	15	-96.5
Unqualified (or unknown)	5 778	84	-98.5	84	-98.5	85	-98.5	84	-98.5	84	-98.5	85	-98.5
Total	13 540	13 589	0.4	13 668	0.9	13 738	1.5	13 589	0.4	13 668	0.9	13 738	1.5

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Table E.16 (continued)

	Base case	Scenario 25		Scenario 26		Scenario 27		Scenario 28		Scenario 29		Scenario 30	
		Low	High	Moderate	High	Low	Low	Moderate	Low	No effect	High	Low	No effect
Cost-sharing arrangements		Govt.	Effect	Govt.	Effect	Govt.	Effect	Govt.	No effect	Govt.	Govt.	Govt.	Govt.
		Per cent change		Per cent change		Per cent change		Per cent change		Per cent change		Per cent change	
Occasional & in-home care													
Degree	123	123	-	123	-	123	-	123	-	123	-	123	-
Diploma or adv. diploma	411	411	-	411	-	411	-	411	-	411	-	411	-
Certificate III or IV	1 239	1 239	-	1 239	-	1 239	-	1 239	-	1 239	-	1 239	-
Certificate I or II	196	196	-	196	-	196	-	196	-	196	-	196	-
Unqualified (or unknown)	2 336	2 336	-	2 336	-	2 336	-	2 336	-	2 336	-	2 336	-
Total	4 305	4 305	-	4 305	-	4 305	-	4 305	-	4 305	-	4 305	-
All ECEC													
Degree	15 394	20 048	30.2	20 094	30.5	20 133	30.8	20 048	30.2	20 094	30.5	20 133	30.8
Diploma or adv. diploma	27 570	39 374	42.8	39 456	43.1	39 526	43.4	39 374	42.8	39 456	43.1	39 526	43.4
Certificate III or IV	30 629	66 059	115.7	66 224	116.2	66 369	116.7	66 059	115.7	66 224	116.2	66 369	116.7
Certificate I or II	2 577	434	-83.2	434	-83.2	434	-83.2	434	-83.2	434	-83.2	434	-83.2
Unqualified (or unknown)	31 113	5 664	-81.8	5 669	-81.8	5 675	-81.8	5 664	-81.8	5 669	-81.8	5 675	-81.8
Total	107 283	131 579	22.6	131 877	22.9	132 137	23.2	131 579	22.6	131 877	22.9	132 137	23.2
Average wage/salary (\$/year)													
Degree	46 020	54 203	17.8	54 279	17.9	54 344	18.1	59 937	30.2	60 073	30.5	60 192	30.8
Diploma or adv. diploma	40 710	47 151	15.8	47 195	15.9	47 233	16.0	52 147	28.1	52 226	28.3	52 295	28.5
Certificate III or IV	31 978	32 789	2.5	32 802	2.6	32 814	2.6	33 730	5.5	33 766	5.6	33 798	5.7
Certificate I or II	30 680	30 880	0.7	30 884	0.7	30 888	0.7	30 753	0.2	30 760	0.3	30 766	0.3
Unqualified (or unknown)	30 680	30 848	0.5	30 852	0.6	30 856	0.6	30 689	0.0	30 695	0.0	30 701	0.1
Source of expenditure (\$m/year)													
Households	2 241	2 311	3.1	2 316	3.4	2 321	3.6	2 311	3.1	2 316	3.4	2 321	3.6
Australian Government	3 154	4 038	28.1	4 050	28.4	4 059	28.7	4 296	36.2	4 311	36.7	4 323	37.1
State & local govts.	885	1 426	61.1	1 431	61.7	1 435	62.2	1 541	74.2	1 548	74.9	1 553	75.5
Total	6 279	7 776	23.8	7 797	24.2	7 815	24.5	8 149	29.8	8 174	30.2	8 197	30.5

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Table E.16 (continued)

	Base case	Scenario 31	Scenario 32	Scenario 33	Scenario 34	Scenario 35	Scenario 36
Elasticity of ECEC demand		Low	Moderate	High	Low	Moderate	High
Elasticity of labour supply		Moderate	Moderate	Moderate	High	High	High
ECEC costs on labour supply		No effect	No effect	No effect	No effect	No effect	No effect
Cost-sharing arrangements		Govt.	Govt.	Govt.	Govt.	Govt.	Govt.
		Per cent change	Per cent change	Per cent change	Per cent change	Per cent change	Per cent change
<i>Service quality (Per cent of staff with cert. III or greater)</i>							
Preschools	70.5	99.9	41.8	99.9	41.8	99.9	41.8
Long day care	72.6	95.8	31.9	95.8	31.9	95.8	31.9
Family day care	54.1	99.3	83.3	99.3	83.3	99.3	83.3
Occasional & in-home care	41.2	41.2	—	41.2	—	41.2	—
<i>Number of children in:</i>							
Preschools	213 446	304 738	42.8	306 164	43.4	305 499	43.1
Long day care	543 539	544 116	0.1	545 847	0.4	545 040	0.3
Family day care	93 738	94 081	0.4	95 107	1.5	94 628	0.9
Occasional & in-home care	28 515	28 515	0.0	28 515	0.0	28 515	0.0
Total no. of children in care	879 238	971 450	43.2	975 633	45.3	973 682	44.4
<i>Average cost per child (\$/year)</i>							
Preschools	4 312	5 003	16.0	5 012	16.2	4 883	13.2
Long day care	8 469	10 089	19.1	10 099	19.2	9 974	17.8
Family day care	6 538	6 967	6.6	6 975	6.7	6 893	5.4
Occasional & in-home care	5 011	5 189	3.6	5 193	3.6	5 151	2.8
<i>Out-of-pocket cost of care (\$ per year)</i>							
Preschools	742	742	—	742	—	742	—
Long day care	3 237	3 237	—	3 237	—	3 237	—
Family day care	2 499	2 499	—	2 499	—	2 499	—
Occasional & in-home care	3 109	3 109	—	3 109	—	3 109	—

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Table E.16 (continued)

	Base case	Scenario 31		Scenario 32		Scenario 33		Scenario 34		Scenario 35		Scenario 36	
		Low	Moderate	Moderate	High	Low	High	Moderate	High	Moderate	High	High	High
Elasticity of ECEC demand													
Elasticity of labour supply													
ECEC costs on labour supply													
Cost-sharing arrangements													
<i>Number of workers by qualification by sector:</i>													
Preschools													
Degree	7 936	11 330	42.8	11 358	43.1	11 383	43.4	11 330	42.8	11 358	43.1	11 383	43.4
Diploma or adv. diploma	3 671	6 187	68.5	6 203	69.0	6 216	69.3	6 187	68.5	6 203	69.0	6 216	69.3
Certificate III or IV	3 640	14 294	292.7	14 330	293.7	14 361	294.5	14 294	292.7	14 330	293.7	14 361	294.5
Certificate I or II	612	16	-97.4	16	-97.4	16	-97.4	16	-97.4	16	-97.4	16	-97.4
Unqualified (or unknown)	5 782	15	-99.7	15	-99.7	15	-99.7	15	-99.7	15	-99.7	15	-99.7
Total	21 641	31 842	47.1	31 922	47.5	31 991	47.8	31 842	47.1	31 922	47.5	31 991	47.8
Long day care													
Degree	6 680	7 938	18.8	7 952	19.0	7 963	19.2	7 938	18.8	7 952	19.0	7 963	19.2
Diploma or adv. diploma	21 299	30 447	43.0	30 499	43.2	30 544	43.4	30 447	43.0	30 499	43.2	30 544	43.4
Certificate III or IV	21 262	40 022	88.2	40 090	88.6	40 150	88.8	40 022	88.2	40 090	88.6	40 150	88.8
Certificate I or II	1 339	207	-84.5	207	-84.5	207	-84.5	207	-84.5	207	-84.5	207	-84.5
Unqualified (or unknown)	17 217	3 229	-81.2	3 234	-81.2	3 239	-81.2	3 229	-81.2	3 234	-81.2	3 239	-81.2
Total	67 797	81 843	20.7	81 982	20.9	82 103	21.1	81 843	20.7	81 982	20.9	82 103	21.1
Family day care													
Degree	655	657	0.3	661	0.9	664	1.4	657	0.3	661	0.9	664	1.4
Diploma or adv. diploma	2 189	2 329	6.4	2 343	7.0	2 355	7.6	2 329	6.4	2 343	7.0	2 355	7.6
Certificate III or IV	4 488	10 504	134.0	10 565	135.4	10 619	136.6	10 504	134.0	10 565	135.4	10 619	136.6
Certificate I or II	430	15	-96.5	15	-96.5	15	-96.5	15	-96.5	15	-96.5	15	-96.5
Unqualified (or unknown)	5 778	84	-98.5	84	-98.5	85	-98.5	84	-98.5	84	-98.5	85	-98.5
Total	13 540	13 589	0.4	13 668	0.9	13 738	1.5	13 589	0.4	13 668	0.9	13 738	1.5

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Table E.16 (continued)

	Base case	Scenario 31		Scenario 32		Scenario 33		Scenario 34		Scenario 35		Scenario 36	
		Low	Moderate	Moderate	Moderate	High	Low	High	Moderate	High	No effect	High	No effect
		Govt.	Govt.	Govt.	Govt.	Govt.	Govt.	Govt.	Govt.	Govt.	Govt.	Govt.	Govt.
		Per cent change	Per cent change	Per cent change	Per cent change	Per cent change	Per cent change	Per cent change	Per cent change	Per cent change	Per cent change	Per cent change	Per cent change
Occasional & in-home care													
Degree	123	123	123	123	123	123	123	123	123	123	123	123	123
Diploma or adv. diploma	411	411	411	411	411	411	411	411	411	411	411	411	411
Certificate III or IV	1 239	1 239	1 239	1 239	1 239	1 239	1 239	1 239	1 239	1 239	1 239	1 239	1 239
Certificate I or II	196	196	196	196	196	196	196	196	196	196	196	196	196
Unqualified (or unknown)	2 336	2 336	2 336	2 336	2 336	2 336	2 336	2 336	2 336	2 336	2 336	2 336	2 336
Total	4 305	4 305	4 305	4 305	4 305	4 305	4 305	4 305	4 305	4 305	4 305	4 305	4 305
All ECEC													
Degree	15 394	20 048	20 094	20 094	30.5	20 133	20 133	20 048	30.2	20 094	20 094	20 133	30.8
Diploma or adv. diploma	27 570	39 374	39 456	39 456	43.1	39 526	39 526	39 374	42.8	39 456	39 456	39 526	43.4
Certificate III or IV	30 629	66 059	66 224	66 224	116.2	66 369	66 369	66 059	115.7	66 224	66 224	66 369	116.7
Certificate I or II	2 577	434	434	434	-83.2	434	434	434	-83.2	434	434	434	-83.2
Unqualified (or unknown)	31 113	5 664	5 669	5 669	-81.8	5 675	5 675	5 664	-81.8	5 669	5 669	5 675	-81.8
Total	107 283	131 579	131 877	131 877	22.9	132 137	132 137	131 579	22.6	131 877	131 877	132 137	23.2
Average wage/salary (\$/year)													
Degree	46 020	55 298	55 389	55 389	20.4	55 468	55 468	52 978	15.1	53 046	53 046	53 106	15.4
Diploma or adv. diploma	40 710	47 572	47 619	47 619	17.0	47 661	47 661	46 428	14.0	46 468	46 468	46 502	14.2
Certificate III or IV	31 978	32 854	32 872	32 872	2.8	32 888	32 888	32 562	1.8	32 574	32 574	32 585	1.9
Certificate I or II	30 680	30 729	30 733	30 733	0.2	30 737	30 737	30 717	0.1	30 720	30 720	30 723	0.1
Unqualified (or unknown)	30 680	30 686	30 690	30 690	0.0	30 694	30 694	30 684	0.0	30 688	30 688	30 691	0.0
Source of expenditure (\$m/year)													
Households	2 241	2 311	2 316	2 316	3.4	2 321	2 321	2 311	3.1	2 316	2 316	2 321	3.6
Australian Government	3 154	4 064	4 075	4 075	29.2	4 086	4 086	3 992	26.6	4 003	4 003	4 012	27.2
State & local govts.	885	1 442	1 448	1 448	63.6	1 452	1 452	1 403	58.6	1 408	1 408	1 412	59.6
Total	6 279	7 818	7 839	7 839	24.8	7 859	7 859	7 707	22.7	7 727	7 727	7 745	23.3