F Foundation skills attainment

The *National Agreement for Skills and Workforce Development* (NASWD) includes four outcomes for the Council of Australian Government (COAG) vocational education and training (VET) reforms. The first outcome relates to foundation skills attainment — 'the working age population has gaps in foundation skills levels reduced to enable effective educational, labour market and social participation' (COAG 2008b, p. 5).

The framework used to assess the impacts and benefits of COAG initiatives is described in chapter 2. To assess the impacts of foundation skills-related reforms on employment, productivity, and broader economic, social and fiscal outcomes, the Commission has:

- projected the profile of language, literacy and numeracy (LLN) skills in the 25–64 year old population for the years 2011, 2015 and 2022, as a baseline for what might occur without the policy initiatives
- estimated the impacts of changes in the LLN skills profile of the 25–64 year old population as a result of the policy initiatives
- applied results from Shomos (2010) on the links between literacy and numeracy skills and labour market outcomes to estimate the effects that changes in the LLN skills profile of people aged 25–64 years might have on employment and productivity
- estimated and discussed the broader social impacts of changes in the profile of LLN skills
- estimated and discussed the potential occupation and partial fiscal effects of reforms.

An overview of foundation skills in the Australian population, including what they are, the current profile of these skills in the Australian working-age population, and a summary of foundation skills course delivery in presented in section F.1. Why governments might want to intervene to improve foundation skills is then discussed (section F.2), and foundation skills-related policy initiatives associated with the COAG reform agenda that are being assessed are summarised (section F.3). The baseline (section F.4) presents a skills profile and estimates of employment and productivity in the absence of the foundation skills policy initiatives considered.

This then provides a benchmark against which the effects of the policy initiatives can be measured. The realised, prospective and potential estimates of the impacts of reforms are then presented (sections F.5 and F.6). Section F.7 concludes.

The Commission has made many assumptions in estimating the impacts of the COAG reform agenda. These are detailed throughout the report. Sensitivity analysis undertaken indicates that those assumptions are critical. When the assumptions change, so do estimated changes in employment, productivity and broader economic activity, often quite markedly. The results, therefore, should be regarded as only broadly indicative of the possible impacts of the policy initiatives assessed. The estimates and analysis are intended to advance understanding of the scale of benefits that might accrue. The estimates presented are not forecasts of the economic or fiscal impacts of the reforms. Rather, they are illustrative projections, relative to a baseline, of the effects of the policy initiatives modelled.

F.1 Foundation skills in Australia

What are foundation skills?

There is no universally accepted definition of foundation skills. The Department of Education, Employment and Workplace Relations (DEEWR) is currently developing the *National Foundation Skills Strategy for Adults* (NFSS) (discussed below). It is anticipated that the definition adopted by this strategy will include two components.

- Skills described by the Australian Core Skills Framework[1] — learning, reading, writing, oral communication and numeracy. These are often referred to as LLN skills.
- Employability skills, such as communication, teamwork, problem solving, initiative and enterprise, planning and organising, self-management, learning and technology (Roberts and Wignall 2010).

Consistent with the direction of the relevant NASWD outcome, this analysis will focus on 'LLN skills'. The term LLN skills will be primarily used in place of foundation skills, unless discussion is focused on the broader definition, or others' definitions of foundation skills.

[1] The Australian Core Skills Framework provides a structure for measuring a person's LLN skills (DEEWR 2008).

Australians' LLN skills

The most recent data on the Australian population's LLN skills comes from the *Adult Literacy and Life Skills Survey* (ALLS), conducted by the Australian Bureau of Statistics (ABS) in 2006. This was the second survey of its type in Australia. The first was the 1996 *Survey of Aspects of Literacy* (SAL), also conducted by the ABS. The ALLS was part of a wider international study undertaken by Statistics Canada and the Organisation for Economic Co-operation and Development (OECD). The Australian survey covered almost 10 000 people aged 15–74 years (ABS 2008a).

The survey measured LLN skills in five 'domains' (box F.1). Skills were measured on a continuous scale, with each individual being assigned a score between 0 and 500 for each domain. Higher scores indicated better skills. These scores were then grouped into five levels[2], with level 1 being the lowest level of literacy. Level 3 is regarded as the 'minimum required for individuals to meet the complex demands of everyday life and work in the emerging knowledge-based economy' (ABS 2008a, p. 5).

Box F.1 **ALLS skill domains**

Prose literacy — ability to understand and use information from various kinds of narrative texts, including texts from newspapers, magazines and brochures.

Document literacy — knowledge and skills required to locate and use information contained in various formats, including job applications, payroll forms, transportation schedules, maps, tables and charts.

Numeracy — knowledge and skills required to effectively manage and respond to the mathematical demands of diverse situations.

Problem solving — goal-directed thinking and action in situations for which no routine solution is available.

Health literacy — knowledge and skills required to understand and use information relating to health issues such as drugs and alcohol, disease prevention and treatment, safety and accident prevention, first aid, emergencies and staying healthy.

Source: ABS (2008a, p. 4).

LLN skill levels in 2006

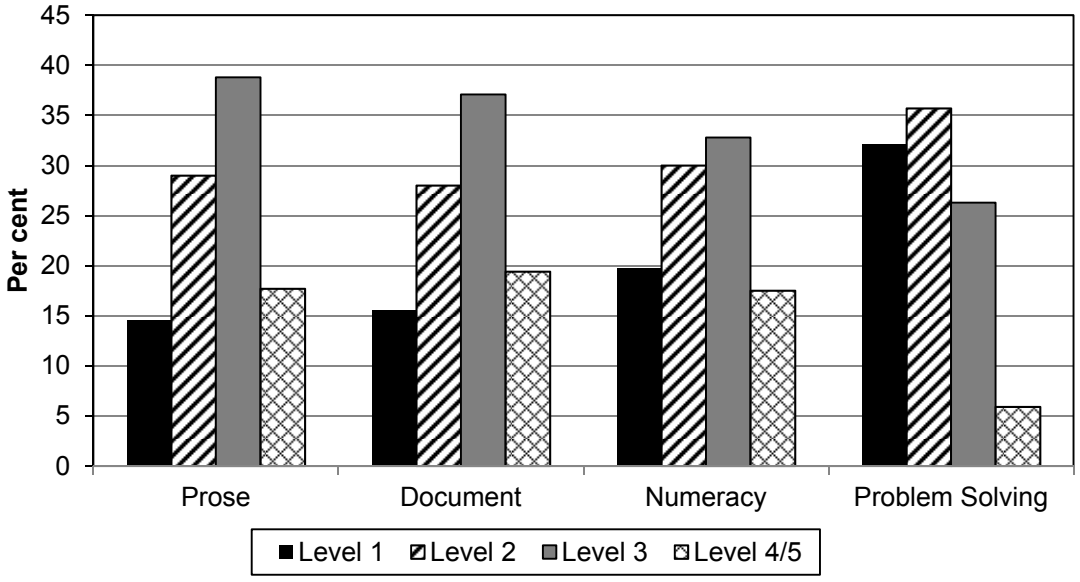
In 2006, the proportion of the working-age population (15–64 years) who had LLN skills at levels 1 or 2, supposedly lower than the minimum required, was 44 per cent

2 Except the problem solving scale, which had four levels.

for prose literacy and document literacy, and 50 per cent for numeracy (figure F.1). The proportion at level 3 was 39 per cent for prose literacy, 37 per cent for document literacy and 33 per cent for numeracy.

This contrasts with other measures of LLN skills. The proportion of 15–19 year olds that achieve levels 1 or 2 in the ALLS ranges from about 47 per cent for document literacy to about 57 per cent for numeracy (ABS 2008a). However, the 2009 *National Assessment Program — Literacy and Numeracy* (NAPLAN), which measured students' LLN skills at years 3, 5, 7 and 9, found that about 90 per cent of students achieved the national minimum standard in reading, writing and numeracy (CRC 2009). In addition, the 2009 *Programme for International Student Assessment* (PISA), which assessed 15 year old students' reading, mathematical and scientific literacy, found that about 86 per cent achieved level 2 in reading, considered the minimum level at which people can 'actively participate in real life situations' (Thomson et al. 2010, p. iv).

Figure F.1 **Proportion of 15–64 year olds at each skill level[a]**



a Levels 4 and 5 are grouped together due to the relatively small proportion of people at level 5, which results in unreliable estimates of the number of people at this level.

Source: ABS (2008a).

The different results could be due to the different age groups tested and performance benchmarks employed in each survey. While the ALLS measures the proportion of the working-age population with a 'proficient standard' of literacy and numeracy to effectively participate in society, the NAPLAN measures student performance in meeting the 'minimum standards' of literacy and numeracy (CRC 2009). The PISA defines level 2 as the level at which 'students begin to demonstrate

the reading literacy competencies that will enable them to actively participate in real life situations'(Thomson et al. 2010, p. iv).

Many individuals with low measured LLN skills already have good labour market outcomes. For example, about 40 per cent of people who achieve level 1 or 2 in prose literacy are employed. And as discussed in section F.2, improving LLN skills can improve labour market outcomes.

How have Australians' LLN skills changed over time?

Australians' LLN skills appear to have improved over time. Two domains in the 2006 ALLS, prose and document literacy, are directly comparable with results from the 1996 SAL. Between 1996 and 2006 there was a small, statistically significant decrease in the proportion of people aged 15–74 years at level 1 in prose literacy (from 20 per cent to 17 per cent) and document literacy (from 20 per cent to 18 per cent). While the proportions of individuals at other document literacy levels did not significantly change, the proportion of individuals at levels 2 and 3 in prose literacy increased.

LLN skill levels are correlated

The performance of individuals in different LLN skill domains was highly correlated. For example, about 70 per cent of the population recorded the same level of document literacy and numeracy skills (table F.1).

Table F.1 **Correlation between document literacy and numeracy**
Per cent of population

	Numeracy				
Document literacy	Level 1	Level 2	Level 3	Level 4/5	Total
Level 1	**14.78**	1.67	0.05	0.00	16.50
Level 2	5.36	**19.39**	3.72	0.00	28.48
Level 3	0.17	9.78	**24.19**	3.93	38.07
Level 4/5	0.00	0.07	5.19	**11.70**	16.95
Total	20.31	30.91	33.15	15.63	100.00

Source: Shomos (2010).

Correlates of LLN skills

LLN skill levels differed between males and females in the ALLS. Males did better on the numeracy and document literacy domains, while females did better on the prose literacy domain (ABS 2008a).

LLN skills generally decreased with age. A higher proportion of people in older age groups attained scores below level 3. The exception to this was the 15–19 years age group, which tended to achieve lower scores than the 20–24 years age group. This could be due to a large proportion of the younger age group still studying and potentially improving their LLN skills. The decline in skill levels with age could reflect labour force withdrawal, differences in the quality of education over time, or higher education levels among younger cohorts (Shomos 2010).

A strong association existed between educational attainment and LLN levels. This held for both the years of formal education completed, and the level of education attained. This association increased at a decreasing rate, indicating that the returns to education in terms of LLN skills developed are relatively higher at lower levels, and less years, of education (Shomos 2010).

Foundation skills courses and delivery

Post-school foundation skills training is delivered through the VET and Adult Community Education sectors, and through Australian Government-funded projects. Training delivered through the VET sector can be either stand-alone, where the courses focus solely on foundation skills, or embedded in other vocational training. Box F.2 provides examples of foundation skills-related courses. This analysis will focus on the impacts of reforms that affect engagement in courses that are foundation skills-focused.

Foundation skills delivery appears to comprise a significant proportion of publicly funded VET activity. In 2008, students undertaking general education programs (which include language, literacy and learning programs and school equivalence qualifications for adults) accounted for 12 per cent of students undertaking publicly funded VET studies nationally, ranging from 4 per cent in Tasmania to 21 per cent in Queensland (Roberts and Wignall 2010). However, it is unclear what proportion of this relates specifically to LLN training. In Victoria, foundation level training accounted for about 7 per cent of total government funded VET enrolments in 2010 (Skills Victoria 2011c).

Along with the current VET reform activity in many States and Territories, there are two projects underway that could significantly change foundation skills training delivery: the development of the NFSS and the development of a foundation skills training package.

Box F.2 **Examples of foundation skills courses**

Adult Community Education sector courses

- Speaking English clearly
- Statements of attainment in foundation and vocational education
- Numeracy and literacy for special needs clients

Australian Government-funded programs

- Language, Literacy and Numeracy Program
- Workplace English Language and Literacy program
- Adult Migrant English Program

VET sector courses

- Course in Initial General Education for Adults
- Course in Language, Literacy and Numeracy
- Course in Foundation Studies
- Certificate I in Initial Adult Literacy and Numeracy
- Certificates I–II in Introduction to Vocational Education
- Certificates I–IV in Spoken and Written English
- Certificates I–III in General Education for Adults

Sources: National Centre for Vocational Education Research (NCVER) (sub. V1); Roberts and Wignall (2010).

The development of the NFSS is in response to the ALLS finding that a relatively high proportion of the population have poor LLN skills. The Australian Government, working with State and Territory governments, is developing the strategy for implementation in early 2012. It will include a target 'that by 2022, two thirds of working age Australians will have literacy and numeracy skills at Level 3 or above' (SCOTESE 2011, p.1).

Innovation and Business Skills Australia has commissioned TAFE NSW and TAFE SA to develop a foundation skills training package containing qualifications at the Australian Qualifications Framework Certificate I and II levels. This is expected to be completed in June 2012 (IBSA 2011).

F.2 Why might governments intervene to improve LLN skills?

Improving LLN skills can have a range of benefits, both for the individual and external benefits for others, such as employers. The potential benefits, and whether or not governments should intervene to improve skills, are discussed below.

Benefits of increasing LLN skills

Benefits to individuals

Higher-level LLN skills are associated with better employment outcomes. Shomos (2010), using ALLS data, estimated that an improvement in literacy and numeracy skills from level 1 to 3 would:

- increase the likelihood of labour force participation by about 15 percentage points for women and 5 percentage points for men
- increase hourly wages by about 25 and 30 per cent for women and men, respectively.

Barrett (2012), using the same data as Shomos (2010), estimated the mean return to an additional year of education to be 6.2 per cent, with almost one third of this possibly being attributable to the acquisition of cognitive skills.

As mentioned in section F.1, LLN skills also appear to be linked to educational attainment.

LLN skills are linked to social inclusion. A study of the social capital outcomes attained from undertaking literacy and numeracy courses found that about one third of participants reported that the training improved their ability to engage or interact with a social network (Balatti, Black and Falk 2006).

Better LLN skills have also been linked with improved health outcomes. Bynner and Parsons (2006) reported a correlation between poor basic skills and poor physical health and mental wellbeing. Poor skills were related to poor health-related practices, such as lack of exercise and smoking. It was also concluded that improving literacy levels might lead to better health literacy.

Benefits to others

Improving parents' LLN skills might significantly impact their children's outcomes. Canadian research has shown that parents who undertake LLN training become more active in their children's education (The Conference Board of Canada 2002, 2005, cited in Skills Australia 2010). Studies have also found that students' test performance is related to their parents' employment and educational attainment, and that a person's wage is linked to his or her parents' wage levels. This relationship could be partly due to LLN skills (DEEWR 2011c).

Improving the LLN skills of employees could also benefit businesses. The Australian Industry Group (2008, 2010) found that a large proportion of employees do not have adequate LLN skills to effectively operate in the workplace. This impacted negatively on productivity, workplace safety and competitiveness.

The relationship between LLN skills and social inclusion has benefits for others. UK studies have found those with poor LLN skills were significantly less interested in politics, less likely to vote and less likely to trust people in their area. Those with good LLN skills were four times more likely to be a member of a social or community organisation (Dugdale and Clark 2008). Studies have also found that people with poor literacy skills are disproportionately represented in prisons (Dawe 2007; KPMG 2006).

Why should government intervene?

Although there are benefits from increasing LLN skills, this is not a sufficient reason for governments to intervene. Governments might intervene for equity reasons, or if a substantial distortion exists (such as a market failure or a distortion due to previous government intervention). To maximise net social welfare, the intervention chosen must address the distortion, have the largest net social benefit of all possible interventions, and the benefits of intervening must outweigh the costs. More information on arguments for government intervention in the VET sector can be found in chapter 2.

There is an equity argument for government intervention in education markets to support LLN skills attainment. People with low LLN skills are more likely to come from disadvantaged backgrounds than those with good skills, and are less likely to be employed (ABS 2008a).

There also appear to be positive externalities associated with increasing LLN skills. As discussed above, increasing foundation skills might confer benefits on children, businesses and other employees, and the broader community.

Incomplete information could be a greater problem for potential LLN students relative to VET students more broadly. People who might benefit from foundation skills courses are likely to have, on average, lower ability than the average VET student. As a result, they might be more vulnerable to misleading information, or have less understanding of the long-term benefits of undertaking LLN training.

F.3 Foundation skills reforms assessed

As identified in the terms of reference and the letter of direction, the focus of this study is on reforms to the VET and youth transitions areas under the COAG reform agenda. This includes the Victorian reforms under *Securing Jobs for Your Future* (Victorian Government 2008) and the South Australian reforms under *Skills for All* (Government of South Australia 2011). In addition, as mentioned in chapter 1, the Commission has also assessed funding in the 2010-11 and 2011-12 budgets for the Language, Literacy and Numeracy Program (LLNP) and Workplace English Language and Literacy (WELL) program as they are measures that support the COAG reforms. The potential effects of the forthcoming NFSS are also assessed.

Securing Jobs for Your Future

The reforms to the Victorian VET system that directly influence foundation skills training include:

- the Victorian Training Guarantee
- changes to the tuition fees structure.

Under the Victorian Training Guarantee, access to foundation skills courses is unlimited, regardless of age or previous qualifications (Skills Victoria 2011b). The training guarantee for foundation skills courses was first implemented in January 2010 for students aged 15–24 years, and was extended to all age groups in January 2011.

The tuition fee structure for foundation skills courses changed in July 2009. The Victorian Government contribution increased and now averages 90 per cent of total fees. The minimum and maximum yearly fees were reduced to $50 and $500, respectively (Victorian Government 2008).

Since these reforms have been implemented, the number of people undertaking government-funded foundation skills training has increased. For example, government-subsidised foundation level enrolments increased 67 per cent between the third quarter of 2010 and the third quarter of 2011 (Skills Victoria 2011c).

Skills for All

The reforms to the South Australian VET system that directly influence foundation skills training include:

- access to a government funded training place for people aged 16 years or over. The subsidy amount will be linked to the level and type of qualification sought. Certificate I and II qualifications, including many of the foundation skills courses, are fully funded
- investment of $6.4 million over six years in the Adult Community Education sector for an additional 6000 foundation skills-related training places (Government of South Australia 2011).

These reforms are to be implemented from mid-2012. They are expected to result in 100 000 additional training places over six years. Of these, 11 000 are expected to be at foundation and Certificate I levels (Department of Further Education, Employment, Science and Technology, South Australia, sub. DR-V7).

Language, Literacy and Numeracy Program

The LLNP is an Australian Government funded program overseen by DEEWR. The program aims to improve unemployed people's LLN skills, with the expectation this will help them participate in training and employment. The program provides up to 800 hours (in blocks of 200 hours) of free training for job seekers whose LLN skills are below those considered necessary to participate in employment, education or training (DEEWR 2011a). It is estimated that about 390 000 unemployed people have LLN skills below the level required in the workplace (Skills Australia 2010).

The LLNP is targeted at disadvantaged client groups, such as Indigenous people, young males, people with disabilities, isolated female job seekers and those excluded from the workforce based on their age (NCVER 2011d). Participants must be referred to an LLNP provider by Centrelink, a Job Services Australia provider or a Disability Employment Services provider (DEEWR 2011a). LLNP providers then assess the LLN skills of clients against the Australian Core Skills Framework to determine their needs and suitability for the LLNP (DHS 2011). Training is generally undertaken in certificate-level courses such as those listed in box F.2 (Roberts and Wignall 2010).

As of 2010, the program was assisting about 18 500 jobseekers annually (Roberts and Wignall 2010). Funding for the provision of more LLNP places was provided in the 2010-11 and 2011-12 Australian Government budgets.

- 2010-11: the Government allocated $67.0 million over four years to fund approximately 13 570 additional places (Australian Government 2010a).
- 2011-12: the Government allocated $143.1 million over four years to fund approximately 30 000 additional places (Australian Government 2011).

Workplace English Language and Literacy program

The WELL program is an Australian Government funded program overseen by DEEWR. The program aims to assist employers with training workers in English language, literacy and numeracy skills. Funding is allocated on a competitive grants basis (DEEWR 2011e). Businesses are required to contribute at least 25 per cent in the first year, and 50 per cent in the second and third years, to the cost of WELL provision (NCVER 2011d). As of 2010, about 12 000 employees were undertaking the WELL program annually (Roberts and Wignall 2010). Funding for the provision of more WELL program places was provided in the 2010-11 and 2011-12 Australian Government budgets.

- 2010-11: the Government allocated $15.7 million over four years to fund approximately 9500 additional places (Australian Government 2010a).
- 2011-12: the Government allocated $20.0 million over four years to fund approximately 13 000 additional places (Australian Government 2011).

National Foundation Skills Strategy for Adults

The Australian Government announced the development of the NFSS in the 2010-11 Budget (Australian Government 2010a). As discussed in section F.1, this includes a target of two thirds of working age Australians having LLN skills at level 3 or above by 2022 (SCOTESE 2011).

F.4 Baseline

Even without policy initiatives designed to improve foundation skills, the LLN skills profile of the population is expected to improve due to increases in educational attainment (chapter 3). This section presents the skills profile, employment and productivity under the baseline, from which changes resulting from policy initiatives can be measured.

LLN skills profile

To project the profile of LLN skills in the population over time without reform, it is assumed that changes in LLN skills in the adult population are primarily driven by changes in education, age and gender composition. This approach is supported by the results of the ALLS (section F.1).

Projections of the education profile of 25–64 year olds for 2015 and 2030, by gender and age group, are taken from the Commission research paper *Potential Benefits of the National Reform Agenda* (PC 2006), which used 2005 as its base year. Education profiles for 2008, 2011 and 2022 are derived from these projections using average yearly changes in the profiles between 2005 and 2015, and 2015 and 2030, respectively.

These estimates, along with population projections from the Commission's Modified Demographic and Economic Model (MoDEM 2.0), and the distribution of LLN skills in 2006 by gender, age and educational attainment from the ALLS, are used to project the future LLN skills profiles. The variable used to measure LLN skills is a combination of document literacy, prose literacy and numeracy skills, as used by Shomos (2010). The projected LLN skills profiles are for people aged 25–64 years, which is also consistent with Shomos (2010).

The LLN skills profile of the population is expected to improve over time, even without reform (table F.2 and figure F.2). This is due to large expected increases in educational attainment. For example, the Commission projected that over the period 2005 to 2022, the proportion of females aged 25–34 years who have a degree would increase from 29 per cent to 46 per cent.

Table F.2 **Projected baseline LLN skills profile of 25–64 year olds[a]**

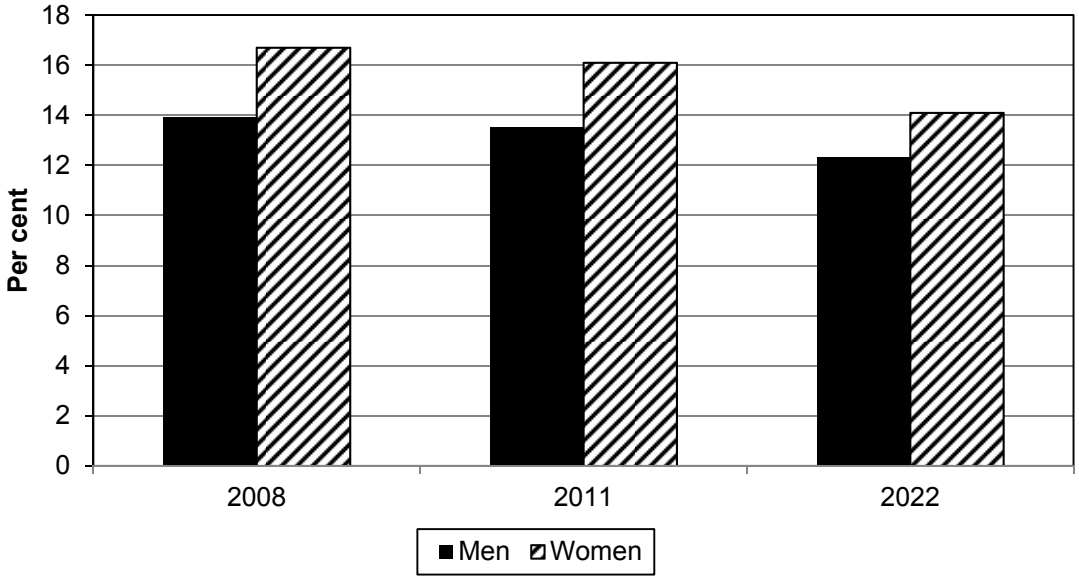
Per cent

	Men			*Women*		
	2008	*2011*	*2022*	*2008*	*2011*	*2022*
Level 1	13.9	13.5	12.3	16.7	16.1	14.1
Level 2	27.8	27.2	25.8	29.0	28.4	26.9
Level 3	38.3	38.3	38.7	39.6	39.9	41.0
Level 4/5	20.0	21.0	23.2	14.7	15.6	18.0

a The LLN skills measure is a combination of document literacy, prose literacy and numeracy skills.

Source: Productivity Commission estimates based on ALLS, MoDEM 2.0 and PC (2006).

Figure F.2 **Proportion of 25–64 year olds at LLN skill level 1 over time**
Baseline projections



Source: Productivity Commission estimates based on ALLS, MoDEM 2.0 and PC (2006).

Changes in employment and productivity in the baseline

Results from Shomos (2010) are used to estimate the impact of changes in the LLN skills of 25–64 year olds on employment and productivity. Shomos used ALLS data and multivariate econometric models to estimate the effect of improving literacy and numeracy skills on the probability of labour force participation and on wages.

As mentioned earlier, the LLN variable used by Shomos (2010) is the combination of document literacy, prose literacy and numeracy. Participation in the labour force is measured as those employed or unemployed, and wages are the hourly wage in a person's main job. Wages are used as a measure of productivity, based on the assumption that workers are paid the value of their marginal product (chapter 2).

Table F.3 presents the marginal effects of increasing literacy and numeracy skills on participation and wages, relative to level 1, as estimated by Shomos (2010). These results suggest, for example, that if the skill level of a man increased from level 1 to level 2, his probability of participating in the workforce would increase by 3.7 percentage points and his wage would increase by 17.9 per cent, on average.

Table F.3 Marginal effects of increasing literacy and numeracy skills on participation and wages relative to level 1

	Participation		*Wages*	
	Men	*Women*	*Men*	*Women*
	ppt	ppt	%	%
Level 2	3.69***	11.03***	17.92***	13.82**
Level 3	4.67***	15.17***	32.13***	23.19***
Level 4/5	6.16***	15.25***	54.25***	34.97***

a ppt is percentage points. *** Significant at 1 per cent. ** Significant at 5 per cent.

Source: Shomos (2010).

These marginal effects are used along with the 2008, 2011 and 2022 LLN skills profiles to estimate employment rates (table F.4) and average hourly wages (table F.5) in the baseline for 2011 and 2022. As Shomos' (2010) marginal effects relate to participation, not employment, the baseline participation rates are first predicted. This is adjusted using estimates of the average monthly seasonally-adjusted participation rate and unemployment rate for 2011 to get the baseline employment rates (ABS 2012).

Table F.4 Baseline level and change in employment rate, 25–64 year olds

Per cent

	Employment rate			*Change in employment from 2008*	
	2008	*2011*	*2022*	*2011*	*2022*
Men	84.71	84.75	84.85	0.04	0.16
Women	68.33	68.43	68.79	0.15	0.64

Source: Productivity Commission estimates based on ABS (2012), ALLS, MoDEM 2.0, PC (2006) and Shomos (2010).

Table F.5 Baseline level and change in average hourly wages, 25–64 year olds

	Average hourly wage[a]			*Change in average hourly wage over 2008*	
	2008	*2011*	*2022*	*2011*	*2022*
	$	$	$	%	%
Men	26.98	27.07	27.29	0.33	1.17
Women	20.24	20.29	20.43	0.24	0.95

a 2006 dollars.

Source: Productivity Commission estimates based on ALLS, MoDEM 2.0, PC (2006) and Shomos (2010).

Shomos' (2010) marginal effects for wages relate to members of the population aged 25–64 years who are employed. In order to be as consistent as possible, the LLN skills profile of the labour force, rather than the population, is used to project the average hourly wage.[3] The projected increase in LLN skills over time, all else being equal, increases employment and productivity.

F.5 Realised and prospective impacts of policy initiatives

The realised and prospective impacts of the LLNP, the WELL program, the Victorian reforms and the South Australian reforms are discussed below.

Language, Literacy and Numeracy Program

The total additional LLNP places funded in the 2010-11 and 2011-12 Australian Government budgets is 43 570. A number of assumptions are made in translating these places into estimated changes in the profile of LLN skills in the population aged 25–64 years.

According to unpublished DEEWR figures, about 50 per cent of people who commence the LLNP program complete it. Of those who complete the program, about 90 per cent are over 25 years of age, and about 70 per cent are female (DEEWR, pers. comm., 24 October 2011). Therefore, 19 607 people aged 25–64 years are assumed to complete LLNP training each year due to the additional budget expenditure.

There is no publicly available evidence on the effectiveness of the LLNP. The Commission has assumed that 70 per cent of LLNP students who complete the program achieve a skill level gain on the combined measure of prose literacy, document literacy and numeracy. Sensitivity analysis of this assumption is presented in tables F.11 and F.12.

Of the people who experience a skill level increase, it is assumed that two thirds will move from level 1 to 2 and one third from level 2 to 3. This program is likely to attract people with relatively poor skills, and it is reasonable to assume that an improvement in skill is more likely to occur from a lower, rather than higher, level. It is also assumed that the effectiveness of the program does not differ by gender.

[3] The LLN skills profile of the labour force rather than of those employed is used to facilitate estimation. It is not expected that this will substantially affect the overall results.

Overall, 13 725 people are assumed to achieve a skill level increase by 2015 (table F.6).

Table F.6 **Number of people achieving a skill level gain due to additional LLNP places, up to and including 2015**

Additional places, of which:	**43 570**
50% of people complete the program, of which:	21 875
90% are aged 25–64, of which:	19 607
70% achieve a skill level gain	13 725
Men achieving a skill level gain:	**4 117**
Two thirds move from level 1 to 2	2 745
One third move from level 2 to 3	1 372
Women achieving a skill level gain:	**9 607**
Two thirds move from level 1 to 2	6 405
One third move from level 2 to 3	3 202

Source: Productivity Commission estimates based on Australian Government (2010a, 2011) and unpublished DEEWR figures.

The expansion of the LLNP is estimated to result in very small changes in the projected skills profile of the population in both 2011 and 2015 (table F.7). This is not surprising given the small number of additional LLNP places and completions relative to the size of the population.

Table F.7 **Realised and prospective changes in the LLN skills profile of 25–64 year olds due to the LLNP**

Relative to the baseline

	Men			*Women*		
	2008	*2011 (realised)*	*2015 (prospective)*	*2008*	*2011 (realised)*	*2015 (prospective)*
	%	ppt	ppt	%	ppt	ppt
Level 1	13.9	-0.010	-0.046	16.7	-0.022	-0.106
Level 2	27.8	0.005	0.023	29.0	0.011	0.053
Level 3	38.3	0.005	0.023	39.6	0.011	0.053
Level 4/5	20.0	0.000	0.000	14.7	0.000	0.000

Source: Productivity Commission estimates based on ALLS, Australian Government (2010a, 2011), MoDEM 2.0, PC (2006), Shomos (2010) and unpublished DEEWR figures.

It is likely that, on average, people who move to a higher skill level as a result of LLN training will have lower unobserved ability — such as lower non-cognitive skills — than people who were at that skill level already. As a result, the wage for a person who moves to a higher skill level could be lower on average than that received by those already at that level. This will partly depend on the number of people moving to a higher skill level. The marginal payoff is likely to be lower as more people move. When estimating the effect of the NFSS, this is taken into

account and the NFSS is discounted for this 'marginal ability effect'. However, due to the small number of additional LLNP places, relative to the population, the marginal effect on employment and productivity of moving up a LLN skill level is not discounted for the marginal ability effect. Sensitivity analysis of this assumption is presented later (tables F.13 and F.14).

The impact of improved LLN skills due to the additional investment in the LLNP on employment and productivity is presented in table F.8. Consistent with the small changes in LLN attainment, the labour market effects are very small.

Table F.8 **Realised and prospective employment and productivity impacts from improved LLN skills among 25–64 year olds**

Per cent

	Employment		*Productivity*	
	2011 (realised)	*2015 (prospective)*	*2011 (realised)*	*2015 (prospective)*
Men	..	0.002	0.002	0.009
Women	0.004	0.019	0.003	0.018

.. Between -0.001 and 0.001.

Source: Productivity Commission estimates based on ABS (2012), ALLS, Australian Government (2010a, 2011), MoDEM 2.0, PC (2006), Shomos (2010) and unpublished DEEWR figures.

Social inclusion impacts

As discussed in chapter 2, the Commission uses LLN skills and employment as indicators of social inclusion. LLN skills have been shown to be linked to social inclusion (section F.2), and the Australian Government has included adult literacy and numeracy, and employment indicators, as headline indicators for its social inclusion agenda (Australian Government 2009b).

The LLNP increases LLN skills as well as employment, thereby improving social inclusion. However, due to the very small magnitude of the changes, the resulting social inclusion improvement will likely be similarly small.

Sensitivity analysis

Sensitivity analysis is undertaken for the assumption that 70 per cent of people who complete the course and are aged 25–64 achieve a skill level increase, and for the assumption of no discount for the marginal ability effect. The sensitivity of the 70 per cent assumption is tested by comparing it with 58 per cent and 82 per cent. Tables F.9 and F.10 present a comparison of the realised and prospective changes in

the LLN skill profile of the population under the different scenarios. Overall the results remain small under each scenario.

Table F.9 **Realised and prospective changes in the LLN skills profile of men aged 25–64 years under each skill level increase scenario**

Relative to the baseline

	2008	*2011 (realised)*			*2015 (prospective)*		
		58%	*70%*	*82%*	*58%*	*70%*	*82%*
	%	ppt	ppt	ppt	ppt	ppt	ppt
Level 1	13.9	-0.008	-0.010	-0.011	-0.038	-0.046	-0.054
Level 2	27.8	0.004	0.005	0.006	0.019	0.023	0.027
Level 3	38.3	0.004	0.005	0.006	0.019	0.023	0.027
Level 4/5	20.0	0.000	0.000	0.000	0.000	0.000	0.000

Source: Productivity Commission estimates based on ALLS, Australian Government (2010a, 2011), MoDEM 2.0, PC (2006), Shomos (2010) and unpublished DEEWR figures.

Table F.10 **Realised and prospective changes in the LLN skills profile of women aged 25–64 years under each skill level increase scenario**

Relative to the baseline

	2008	*2011 (realised)*			*2015 (prospective)*		
		58%	*70%*	*82%*	*58%*	*70%*	*82%*
	%	ppt	ppt	ppt	ppt	ppt	ppt
Level 1	16.7	-0.018	-0.022	-0.026	-0.088	-0.106	-0.125
Level 2	29.0	0.009	0.011	0.013	0.044	0.053	0.062
Level 3	39.6	0.009	0.011	0.013	0.044	0.053	0.062
Level 4/5	14.7	0.000	0.000	0.000	0.000	0.000	0.000

Source: Productivity Commission estimates based on ALLS, Australian Government (2010a, 2011), MoDEM 2.0, PC (2006), Shomos (2010) and unpublished DEEWR figures.

Varying the assumed effectiveness of the program does not change the typical result of a very small increase in employment and productivity (tables F.11 and F.12).

Table F.11 **Realised and prospective employment impacts from improved foundation skills among 25–64 year olds under each skill level increase scenario**

Relative to the baseline, per cent

	58% scenario		*70% scenario*		*82% scenario*	
	2011	*2015*	*2011*	*2015*	*2011*	*2015*
Men	..	0.002	..	0.002	0.001	0.003
Women	0.003	0.016	0.004	0.019	0.005	0.023

.. Between -0.001 and 0.001.

Source: Productivity Commission estimates based on ABS (2012), ALLS, Australian Government (2010a, 2011), MoDEM 2.0, PC (2006), Shomos (2010) and unpublished DEEWR figures.

Table F.12 **Realised and prospective productivity impacts from improved foundation skills among 25–64 year olds under each skill level increase scenario**

Relative to the baseline, per cent

	58% scenario		*70% scenario*		*82% scenario*	
	2011	*2015*	*2011*	*2015*	*2011*	*2015*
Men	0.002	0.007	0.002	0.009	0.002	0.011
Women	0.002	0.015	0.003	0.018	0.003	0.021

Source: Productivity Commission estimates based on ALLS, Australian Government (2010a, 2011), MoDEM 2.0, PC (2006), Shomos (2010) and unpublished DEEWR figures.

The assumption of no discount for the marginal ability effect is tested by comparing it with discounts of 10 and 20 per cent, for illustrative purposes. The effectiveness of the program is assumed to be 70 per cent. Changing the discount for the marginal ability effect does not markedly change the estimated employment and productivity impacts, relative to the baseline (tables F.13 and F.14).

Table F.13 **Realised and prospective employment impacts among 25–64 year olds under each marginal ability effect scenario**

Relative to the baseline, per cent

	Discount for marginal ability effect					
	0% discount		*10% discount*		*20% discount*	
	2011	*2015*	*2011*	*2015*	*2011*	*2015*
Men	..	0.002	..	0.002	..	0.002
Women	0.004	0.019	0.004	0.018	0.004	0.017

.. Between -0.001 and 0.001.

Source: Productivity Commission estimates based on ABS (2012), ALLS, Australian Government (2010a, 2011), MoDEM 2.0, PC (2006), Shomos (2010) and unpublished DEEWR figures.

Table F.14 **Realised and prospective productivity impacts among 25–64 year olds under each marginal ability effect scenario**

Relative to the baseline, per cent

	Discount for marginal ability effect					
	0%		*10%*		*20%*	
	2011	*2015*	*2011*	*2015*	*2011*	*2015*
Men	0.002	0.009	0.002	0.008	0.002	0.008
Women	0.003	0.018	0.003	0.016	0.002	0.015

Source: Productivity Commission estimates based on ALLS, Australian Government (2010a, 2011), MoDEM 2.0, PC (2006), Shomos (2010) and unpublished DEEWR figures.

Workplace English Language and Literacy program

Unlike the LLNP, measurement of WELL participants' LLN skills has only recently commenced (DEEWR, pers. comm., 24 October 2011). As a result, no information on the program's effectiveness in improving participants' LLN skills is available. However, a 2006 evaluation of the program found that both employers and employees were satisfied with the program. Employers stated that the WELL program resulted in:

- more effective communication
- improved teamwork
- improved relationships between workers and management
- higher ability for the organisation to meet regulatory requirements
- increased productivity (KPMG 2007).

As evidence of the program's effectiveness in improving LLN skills is not currently available, the impact of the program on the skills profile of the population, employment and productivity is not estimated here. Given the number of additional places is less than that for the LLNP — 22 500 overall between 2010-11 and 2014-15 — the additional investment would likely have a very small effect.

Victorian reforms

As mentioned earlier, the *Securing Jobs for Your Future* reforms introduced a training guarantee for foundation level courses and reduced the cost of these courses.

To estimate the realised effects of these reforms, it is assumed that the change in enrolments between 2010 and 2011 is due to the reforms. Although the change to tuition fees occurred earlier, enrolments in 2008 and 2010 were similar, and are therefore not taken into account. In addition, the reforms were only fully implemented in January 2011. Enrolments in foundation courses that focus on LLN skills increased by about 40 per cent between the third quarters of 2010 and 2011 (Productivity Commission estimates based on Skills Victoria, pers. comm., 18 November 2011).[4] Enrolments in LLN-focused foundation courses were 40 688 in 2010. It is assumed that enrolments in 2011 were 40 per cent higher, or 56 964, a difference of 16 276 enrolments as a result of the reforms.

In estimating the prospective effects of reforms, it is assumed that the reforms will result in the same increase in the number of enrolments in 2012 as in 2011.

The assumptions used in assessing the effects of the increase in enrolments as a result of reform are the same as those used when assessing the LLNP, as the courses completed by those who undertake the LLNP in Victoria are often the same as courses classified as foundation courses. Similar to the LLNP, the reforms are estimated to result in positive but very small changes in employment, productivity and social inclusion, and are therefore not reported in more detail.

South Australian reforms

The South Australian reforms include changing eligibility to government-subsidised training places and the subsidy amount, and increasing investment in the Adult Community Education sector for foundation skills-related courses. Over six years, 11 000 additional places are expected at the Certificate I and foundation level, or about 1830 per year. Similar to Victoria, the impacts of this increase on employment and productivity are estimated to be very small and are not reported in more detail.

F.6 Potential impacts of reforms

The current NASWD contains targets relating to VET qualifications at or above a Certificate III level only. However, as discussed in section F.2, the NFSS will include a target of increasing the proportion of working-age Australians with LLN

4 This excludes foundation courses such as Vocational Preparation, Transition Education, Work Preparation, Japanese, and courses completed in school, such as the Victorian Certificate of Applied Learning (Skills Victoria, pers. comm., 18 November 2011).

skills at level 3 or above to two thirds by 2022 (SCOTESE 2011). The Commission has estimated the effect of achieving this target.

To achieve the target for both males and females will require a 4.8 percentage point increase in the proportion of males at level 3 and above, and a 7.7 percentage point increase for females, compared with the 2022 baseline scenario (table F.15). The required improvement is similar to that achieved by New Zealand between 1996 and 2006, where there was a 7 percentage point improvement in adult reading literacy (Skills Australia 2010).

The assumed proportions of people increasing their skill level are presented in table F.16. The relative movements between levels is different to that assumed for the LLNP, where the investment is assumed to result in a greater proportion of people increasing their skill level from level 1 to 2 than from level 2 to 3. Given that the target involves people increasing their skill level up to level 3, it is assumed that a relatively higher proportion of people at level 2 undertake training as a result of the reform than people at level 1. It is also assumed that there will be people who improve their skills from level 1 to 2 due to increased foundation skills training under the strategy. These people do not contribute directly to achieving the target, however they will still contribute to the cost of the policy initiative, and to its impacts on employment and productivity.

Table F.15 **Foundation skills profile without reform and with achievement of the NFSS target, 25–64 year olds, 2022**

Per cent

	Men		*Women*	
	Baseline	*Potential*	*Baseline*	*Potential*
Level 1	12.3	9.3	14.1	9.4
Level 2	25.8	24.0	26.9	23.9
Level 3	38.7	43.5	41.0	48.7
Level 4/5	23.2	23.2	18.0	18.0

Source: Productivity Commission estimates based on ALLS, MoDEM 2.0, PC (2006), SCOTESE (2011) and unpublished DEEWR figures.

Table F.16 **Proportion of people moving between skill levels due to the NFSS, 2022**

Relative to the baseline, percentage points

	Men	*Women*
Level 1 to 2	2.4	3.8
Level 1 to 3	0.6	0.9
Level 2 to 3	4.2	6.8

The potential effects of increasing LLN skills to the target levels on employment and productivity are small (table F.17), although larger than those assessed in section F.5. The marginal effect of increasing LLN skill levels has been discounted by 6 per cent (marginal ability effect is discussed in section F.5). The size of the discount was derived from the ELMO model taking into account how many people would undertake training due to reform (appendix E).

Table F.17 **Employment and productivity effects of the NFSS, 2022**

Relative to the baseline, per cent

	Employment	*Productivity*
Men	0.156	0.820
Women	1.028	0.905

Source: Productivity Commission estimates based on ABS (2012), ALLS, MoDEM 2.0, PC (2006), SCOTESE (2011), Shomos (2010) and unpublished DEEWR figures.

Occupation impacts

The Commission estimated the impact of the NFSS on employment and productivity by occupation using the Australian and New Zealand Standard Classification of Occupations major groups. The current occupational profile of those employed differs by LLN skill level. Occupations such as labourers, which are considered less skill intensive and require lower qualifications, have relatively higher representation at the lower LLN skill levels. Occupations such as managers and professionals that are considered more skill intensive are more highly represented at higher LLN skill levels.

The change in employment was derived by assuming that people who increase their skill level have the same employment probability as people employed at the new skill level. For example, if 40 per cent of labourers at level 1 were employed and 50 per cent at level 2 were employed, the employment rate of the group of managers who move from level 1 to 2 due to the policy initiative is assumed to increase by 10 percentage points. It is assumed there is no change in occupation at the major group level due to the NFSS.

Wages are higher for those employed in higher skilled occupations, and people within the same occupation group earn different wages if they have different LLN skill levels. In estimating the impact on wages, it is assumed that people who become employed as a result of the reforms receive the average expected wage for that occupation and LLN skill level. People who remain in employment, but whose skill level increases as a result of the reforms, receive the average expected wage for that occupation and new skill level. The impacts are discounted by 6 per cent to take account of the marginal ability effect.

Achievement of the NFSS target is projected to increase employment and productivity, relative to the baseline (table F.18).

Partial fiscal effects

The NFSS will also impact on governments' budgets, both in the short and long term. In the short term, governments might incur additional expenditure in subsidising the training and incur a loss in revenue if people work less while undertaking training. In the long term, government revenues might increase if there is an increase in employment and productivity due to the reforms. More information on how fiscal effects were calculated can be found in appendix D.

Table F.18 **Potential impact of the NFSS on employment and productivity by major occupation group, 2022**
Relative to the baseline, per cent

	Employment	*Productivity*
Managers	0.42	1.25
Professionals	0.56	0.38
Technicians and trades	0.31	0.62
Community and personal service	0.80	0.12
Clerical and administrative	0.92	0.71
Sales	0.66	1.27
Machinery operators and drivers	0.23	2.03
Labourers	0.42	0.89
Total	**0.55**	**0.79**

Source: Productivity Commission estimates based on ABS (2012), ALLS, MoDEM 2.0, PC (2006), SCOTESE (2011), Shomos (2010) and unpublished DEEWR figures.

The partial fiscal effects of the NFSS for those who complete LLN training are estimated based on a number of assumptions.

- The cost to government of subsidising LLN training per person is assumed to be $2830 (in 2010 dollars) on average. This is Skills Australia's estimate of the expenditure per trainee in the LLNP (Skills Australia 2010).

- People are assumed to work 36 hours a week, 48 weeks in a year and, on average will be working for another 18 years (based on an average retirement age of 63 and a median age of 45 for the 25–64 year old cohort (appendix E)).
- There is no short-term loss in revenue to government. People who are employed are assumed to undertake LLN training outside of work hours and not decrease their hours of work.
- The effective average tax rate is 38 cents in the dollar (appendix C).
- The long-term benefits are discounted by 6 per cent to account for the time value of money (appendix C).

The partial fiscal effect of the NFSS is estimated to be about $4.4 billion in 2010 dollars.

Sensitivity analysis

Sensitivity analysis of the six per cent discount for the marginal ability effect is presented in tables F.19 and F.20. Varying this discount to 16 and 26 per cent does not markedly change the overall result of an improvement in employment and productivity.

Table F.19 **Employment impacts from improved LLN skills among 25–64 year olds in 2022 under each scenario**

Per cent

	Discount for marginal ability effect		
	6% discount	*16% discount*	*26% discount*
Men	0.156	0.121	0.086
Women	1.028	0.809	0.590

Source: Productivity Commission estimates based on ABS (2012), ALLS, MoDEM 2.0, PC (2006), Shomos (2010) and unpublished DEEWR figures.

Table F.20 **Productivity impacts from improved LLN skills among 25–64 year olds in 2022 under each scenario**

Per cent

	Discount for marginal ability effect		
	6% discount	*16% discount*	*26% discount*
Men	0.820	0.674	0.529
Women	0.905	0.731	0.556

Source: Productivity Commission estimates based on ALLS, MoDEM 2.0, PC (2006), Shomos (2010) and unpublished DEEWR figures.

F.7 Conclusion

The policy initiatives assessed in this appendix will likely result in improvements in foundation skills, employment, productivity and social inclusion. Achieving the NFSS target would also have a positive partial fiscal effect. The small realised and prospective results are at least partly due to the small number of enrolments and completions associated with the assessed reforms, relative to the size of the population. Given the potential improvements in employment and productivity from increasing LLN skills, and the apparent success of LLN programs such as the LLNP, significant increases in investment in improving the LLN skills profile of the population might result in marked employment and productivity improvements. Intervening earlier, during school years for example, might be more cost effective and lead to better outcomes in the long term.