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Kontakt/Contact

ZBW – Leibniz-Informationszentrum Wirtschaft/Leibniz Information Centre for Economics
Düsternbrooker Weg 120
24105 Kiel (Germany)
E-Mail: [rights\[at\]zbw.eu](mailto:rights[at]zbw.eu)
<https://www.zbw.eu/>

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KOF Swiss Economic Institute

**The KOF Education System Factbook:
Australia**

Edition 1, March 2019

KOF

ETH Zurich
KOF Swiss Economic Institute
LEE G 116
Leonhardstrasse 21
8092 Zurich, Switzerland

Phone +41 44 632 42 39
Fax +41 44 632 12 18
www.kof.ethz.ch
kof@kof.ethz.ch

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List of Abbreviations

ACE	Adult and Community Education
AISC	Australian Industry and Skills Committee
ALA	Adult Learning Australia
AQF	Australian Qualifications Framework
ASQA	Australian Skills Quality Authority
ATAR	Australian Tertiary Admission Rank
CISC	COAG Industry and Skills Council
CGS	Commonwealth Grant Scheme
COAG	Council of Australian Governments
CSP	Commonwealth Supported Place
DSP	Disability Support Program
EPL	Employment Protection Legislation
GCI	Global Competitiveness Index
GER	Gross Enrolment Ratio
GII	Global Innovation Index
GDP	Gross Domestic Product
HELP	Higher Education Loan Program
HESA	Higher Education Support Act
ISCED	International Standard Classification of Education
ILO	International Labour Organisation
IRC	Industry Reference Committee
KOF	Swiss Economic Institute
MCEECDYA	Ministerial Council for Education, Early Childhood development and Youth Affairs
MCTEE	Ministerial Council for Tertiary Education and Employment

NCVER	National Centre for Vocational Education Research
NER	Net Enrolment Ratio
NPA	National Partnership Agreement
NSSC	National Skills Standards Council
OECD	Organisation for Economic Co-operation and Development
PET	Professional Education and Training
PISA	Programme for International Student Assessment
RTO	Registered Training Organisations
SCA	Student Contribution Amount
SCOTese	Standing Council for Tertiary Education Skills and Employment
SSCE	Senior Secondary Certificate of Education
SSO	Skills Service Organization
STA	State Training Authority
TAFE	Technical and Further Education Institutes
TEQSA	Tertiary Education Quality Standards Agency
UIS	UNESCO Institute for Statistics
UNESCO	United Nations Educational, Scientific and Cultural Organization
VET	Vocational Education and Training
VPET	Vocational Professional Education and Training
VPETA	Vocational and Professional Education and Training Act
WEF	World Economic Forum
WGI	Worldwide Governance Indicators
YLMI	Youth Labour Market Index

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FOREWORD

The increasing competitiveness of the world economy as well as the high youth unemployment rates after the worldwide economic crises have put pressure on countries to upgrade the skills of their workforces. Consequently, vocational education and training (VET) has received growing attention in recent years, especially amongst policy-makers. For example, the European Commission defined common objectives and an action plan for the development of VET systems in European countries in the *Bruges Communiqué on Enhanced European Cooperation in Vocational Education and Training for 2011-2020* (European Commission, 2010). In addition, a growing number of US states and other industrialized, transition, and developing countries (for example Hong Kong, Singapore, Chile, Costa Rica, Benin and Nepal) are interested in either implementing VET systems or making their VET system more labour-market oriented.

The appealing outcome of the VET system is that it improves the transition of young people into the labour market by simultaneously providing work experience, remuneration and formal education degrees at the secondary education level. If the VET system is optimally designed, VET providers are in constant dialogue with the demand-side of the labour market, i.e. the companies. This close relationship guarantees that the learned skills are in demand on the labour market. Besides practical skills, VET systems also foster soft-skills such as emotional intelligence, reliability, accuracy, precision, and responsibility, which are important attributes for success in the labour market. Depending on the design and permeability of the education system, VET may also provide access to tertiary level education (according to the ISCED classification): either general education at the tertiary A level or professional education and training (PET) at the tertiary B level. PET provides occupation-specific qualifications that prepare students for highly technical and managerial positions. VET and PET systems are often referred to together as “vocational and professional education training (VPET)” systems.

Few countries have elaborate and efficient VPET systems. Among these is the Swiss VPET system, which is an example of an education system that successfully matches market supply and demand. The Swiss VPET system efficiently introduces adolescents to the labour market, as shown by Switzerland’s 2007-2017 average youth unemployment rate of 8.1 percent compared to 14.8 percent for the OECD average (OECD, 2017).

Though not many countries have VPET systems that are comparable to Switzerland’s in terms of quality, efficiency and permeability, many have education pathways that involve some kind of practical or school-based vocational education. The purpose of the KOF Education System Factbook Series is to provide information about the education systems of countries across the world, with a special focus on vocational and professional education and training.

In the KOF Education System Factbook: Australia we describe Australia's vocational system and discuss the characteristics that are crucial to the functioning of the system. Essential components comprise the regulatory framework and the governance of the VPET system, the involved actors, and their competencies and duties. The Factbook also provides information regarding the financing of the system and describes the process of curriculum development and the involved actors.

The Factbook is structured as follows: First, we provide an overview of Australia's economy, labour market, and political system. The second part is dedicated to the description of the formal education system. The third section explains Australia's vocational education system. The last section offers a perspective on Australia's recent education reforms and challenges to be faced in the future.

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This Factbook is edited by Johanna Kemper. We want to thank Oliver Budd for the elaboration of the contents, and Clair Premzic for the language and content editing. Without you, the realization of this Factbook would have been impossible!

The KOF Education System Factbooks has to be regarded as work in progress. The authors do not claim completeness of the information which has been collected carefully and in all conscience. Any suggestions for improvement are highly welcome!

Contact: factbook@kof.ethz.ch

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1. The Australian Economy and its Political System

One of the main purposes of an education system is to provide the future workforce with the skills needed in the labour market. The particularities of a country's economy and labour market are important factors determining the current and future demand for skills. Therefore, the particularities of the Australian economy and its labour market will briefly be described in the first part of this Factbook. In addition, this part provides an overview of Australia's political system with emphasis on the description of the education politics.

1.1 The Australian Economy

Australia is an open economy that is well integrated in global markets (OECD, 2017a). It has enjoyed a high Gross Domestic Product (GDP) per capita and consistent output growth over the last 25 years. Furthermore, the OECD notes that redistribution of economic activity away from commodities and mining has kept the economy stable despite the end of the so-called global commodity super-cycle¹. (OECD, 2017b).

Australia's GDP per capita for 2016 was an estimated \$44'083², ranking 9th among OECD countries and comparing favourably to the estimated OECD average of \$38,109 (OECD, 2016). As of 2016, the Australia economy had recorded 25 years of output growth and continues to perform well (OECD, 2017b). Australia's average GDP growth of 3.1 percent since 1990 exceeds the OECD average of 2.1 percent. In 2016, Australia recorded an output growth of 2.8 percent, once again exceeding the OECD average of 1.7 percent for the same year.

The growth of the Australian economy has also remained resilient to the large economic shocks of 2008 and onwards. While the 2008 Global Financial Crisis negatively affected both growth rates, Australia has made a better recovery than the OECD average: average growth in Australia was 2.7 percent between 2008 and 2012, well above the OECD average of 0.5 percent for the same period (World Bank, 2016a).

Table 1 shows value added as well as employment by sector for Australia in 2016. The percentages for the 28 member states of the European Union (EU28) are included for comparison. Australia and the EU show quite similar patterns in terms of hierarchy. In terms of value added and employment, the tertiary sector was by far the largest, followed by the

¹ The global commodity super cycle was the boom in prices of physical commodities beginning in the late 1990's to early 2000's, followed by a large fall in prices around 2014 (Schwartz & Creswell, 2015)

² Constant purchasing power parity (PPP), 2010 US Dollars.

secondary, and finally the primary sector, which only contributed a small amount to employment and value added.

Table 1: Value added and employment by sector, 2016³

Sector	Australia: Value added (%)	EU-28: Value added (%)	Australia: Employment ⁴ (%)	EU-28: Employment (%)
Primary sector	2.2	1.5	2.6	4.5
Agriculture, hunting and forestry, fishing	2.2	1.5	2.6	4.5
Secondary sector	24.1	24.6	18.0	21.6
Manufacturing, mining and quarrying and other industrial activities	15.8	19.3	9.1	15.3
of which: Manufacturing	6.2	16.3	7.2	13.8
Construction	8.3	5.3	8.9	6.3
Tertiary sector	73.7	73.9	79.5	73.8
Wholesale and retail trade, repairs; hotels and restaurants; transport; information and communication	19.6	24.1	28.0	27.6
Financial intermediation; real estate, renting & business activities	18.8	27.4	14.2	16.4
Public administration, defence, education, health, and other service activities	35.3	22.4	37.3	29.8

Sources: Eurostat (2016a; 2016b), (Australia: State of the Environment, 2016), (Vandenbroek, 2016)

There are however some differences between Australia and the EU28. The primary sector, for example, contributed slightly more to total value added in Australia and contributed more to total employment in the EU. The 2016 Australian Industry Report notes that agricultural output is on the decline in the country, falling by 5 percent in 2015-16 (Department of Industry, Innovation and Science, 2017).

The tertiary sector of the Australian economy took up a much larger percentage of total employment than that of the EU28. This is largely driven by Australia's health care and social services industry, which had a 12.7 percent share of total employment in the country (Vandenbroek, 2016).

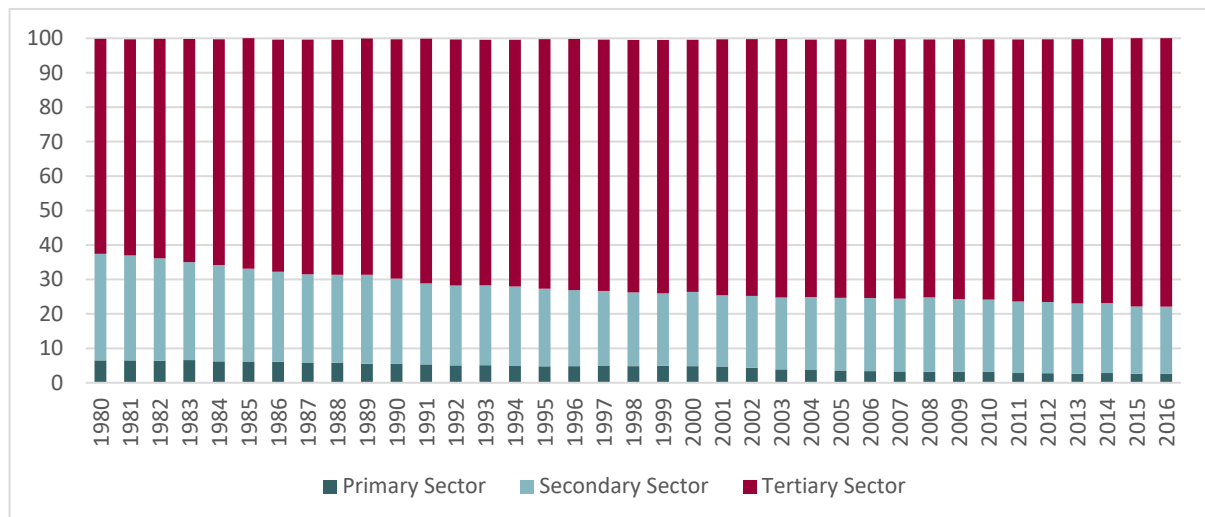
Figure 1 shows what percentage of total employment each of the three sectors covers. The percentage of total employment in the tertiary sector has been steadily increasing since 1980, while the other two sectors have decreased in terms of percentage of total employment. In 1980, the primary, secondary and tertiary sectors accounted for 6.6 percent, 31.0 percent and 62.4 percent of total employment. In 2016, these contributions were 2.6 percent, 19.5 percent

³ Due to rounding differences, the sum of all sectors may fall below 100 percent in some cases.

⁴ Australian employment percentages are for February 2016.

and 78.0 percent, respectively. The International Labour Organisation (ILO) attributes this to the strong growth of the tertiary sector since the 1990's, driven by information media and telecommunications, as well as financial services. The overall sector has grown by 3.5 percent per year on average (Narayan, 2015).

Figure 1: Employment by sector (as % of total employment), 1980-2016



Source: (World Bank, 2016b).

In the World Economic Forum's Global Competitiveness Index (GCI) for 2015-2016, Australia is ranked 21st out of 140 countries. The index is composed of 12 pillars, which assess a country's competitiveness. The report notes that Australia performs well in education (8th and 9th in basic and higher education respectively) and financial market development (7th). Areas where Australia falls behind in the index are innovation (23rd) and labour market efficiency (36th), the latter of which is traditionally the nation's weakest area (WEF, 2015).

The Global Innovation Index (GII) ranks countries by their capacity for innovation. Australia ranks 23rd out of 127 in the 2017 report, down from 19th in 2016. Australia performs well in the main categories of Human Capital and Research (9th), Infrastructure (7th) and Market Sophistication (9th). More specifically, the country's strengths lie in education (1st in school life expectancy, 3rd in tertiary enrolment) and business/market environment (ranked 7th in ease of starting a business, 5th in ease of getting credit, and 6th in intensity of local competition. Australia's weaknesses lie in government expenditure per secondary school pupil (66th), graduates in science and engineering (79th), and ecological sustainability (41st overall, 67th in GDP/unit of energy use) (Dutta, Lanvin, & Wunsch-Vincent, 2017).

1.2 The Labour Market

In the first part of this section, we will describe the general situation of Australia's labour market. In the second part, we will refer to the youth labour market in particular.

1.2.1 Overview of the Australian Labour Market

As previously stated, Australia has experienced prolonged growth despite recent global economic struggles (OECD, 2017b). Unemployment however has been climbing in recent years, rising steadily from 4.2 percent (% of labour force) in 2008 to 6.1 percent in 2015 (2016 however saw a small reduction to 5.7 percent) (OECD, 2017c).

The GCI for 2015-2016 ranks Australia as the 36th highest country out of 140 in terms of labour market efficiency. This is a low ranking for an established economy, and falls far behind other developed nations such as the United States (4th), The United Kingdom (5th), Canada (7th) and neighbouring country New Zealand (6th) (WEF, 2015).

The relatively low level of labour market flexibility of the Australian economy cannot be attributed to its regulations on the hiring and firing of workers, i.e. employment protection legislation (EPL). According to the OECD Index of Employment Protection, which is a multidimensional index that quantifies the strictness of EPL across countries, Australia depicts a relatively low level of protection. The index is scaled between zero to six, where zero refers to a low level of EPL, and six to a high level of protection. With an index value of 1.57, Australia ranks 28th among all OECD countries, which is below the OECD average of 2.03 (for protection of permanent workers against individual dismissal) (OECD, 2013a). The country with the highest protection index is Portugal with 3.01, and the lowest is the United States with 0.49.

The World Bank's *Doing Business* indicators states that the minimum wage in Australia is US \$2266.3 per month (World Bank, 2016c), while OECD data ranks Australia's real minimum wage as third highest among OECD countries (OECD, 2017d). Trade union density in Australia was 18.2 percent in 2012⁵, which ranked as 19th among OECD countries (OECD, 2017e). Trade union density has fallen steadily since 1999 (earliest year with available data), from 25.4 percent to 15.5 percent in 2014 (OECD, 2017e). This is attributed by many to the idea that unions in Australia have become more politically aligned rather than focusing on worker representation (Hannan, 2017).

Table 2 shows the unemployment and labour force participation rates, split by age group for Australia and the OECD average. It can be seen that Australia performs better than the OECD average in every measure. For example, Australia has a much higher youth labour force participation rate than the OECD average (66.9 percent versus 47.2 percent) and slightly higher rates for the other two measures. Unemployment is also lower in Australia across all age groups, but the gap in this case is much smaller.

⁵ Most recent year with data available for all OECD countries.

Table 2: Labour force participation rate, unemployment rate by age 2016

Age Group	Labour force participation rate		Unemployment rate	
	Australia	OECD average	Australia	OECD average
Total (15-64 years)	76.9	71.7	5.9	6.5
Youth (15-24 years)	66.9	47.2	12.7	12.9
Adults (25-64 years)	79.4	77.3	4.5	5.6

Source: OECD (OECD, 2017g).

The 2017 OECD Employment Outlook notes that unemployment has remained stable over the past decade, pointing to the robustness of the Australian labour market. It also observes that the unemployment rate gap between Australia and the OECD average has shrunk in recent years, from 3 percentage points in 2011 to 0.6 percentage points in 2016 (OECD, 2017f).

A report by the Australian Workforce and Productivity Agency also notes that youth labour force participation has been steadily declining since 2008, although the labour force participation rate for 15-24 year olds is still significantly above the OECD average. This is however not purely a product of fewer economic opportunities since the financial crisis, but also reflective of more young Australians pursuing full time education (Australian Workforce and Productivity Agency, 2014).

Table 3: Labour force participation rate, unemployment rate by educational attainment 2015 (persons aged 25-64)

Education Level	Labour force participation		Unemployment rate	
	Australia	OECD average	Australia	OECD average
Less than upper secondary education	63.5	63.6	7.5	11.7
Upper secondary level education	81.7	80.1	4.5	6.8
Tertiary education	86.3	88.0	3.2	4.5

Source: (OECD, 2017h)

Table 3 shows the unemployment and labour force participation rates, split by education level, for Australia and the OECD average. Australia has a lower rate of labour force participation for individuals with less than upper secondary education, as well as those with tertiary education. The rate for individuals with upper secondary education is slightly higher than the OECD average. Unemployment however is lower in Australia across every measure, particularly for those with less than upper secondary education (4.2 percentage point difference). As one might expect, labour force participation increases and unemployment decreases as we move up the education brackets.

1.2.2 The Youth Labour Market

The KOF Swiss Economic Institute developed the KOF Youth Labour Market Index (KOF YLMI) to compare how adolescents participate in the labour market across countries (Renold et al., 2014). The foundation for this index is the critique that a single indicator, such as the unemployment rate, does not suffice to describe the youth labour market adequately nor provide enough information for a comprehensive cross-country analysis. To increase the amount of information analysed and to foster a multi-dimensional approach, the KOF YLMI consists of twelve labour market indicators¹¹ that are grouped into four categories.

The first category describes the *activity state* of youth (ages 15-24 years old) in the labour market. Adolescents are classified according to whether they are employed, in education, or neither (unemployed, discouraged and neither in employment nor in education or training; see info box to the right). The category *working conditions* and the corresponding indicators reflect the type and quality of jobs the working youth have. The *education* category accounts for the share of adolescents in education and training and for the relevance of and their skills on the labour market. The fourth category, *transition smoothness*, connects the other three categories by capturing the school-to-work transition phase of the youth. Each country obtains a score of 1 to

Dimensions of the KOF YLMI	
Activity state	- Unemployment rate - Relaxed unemployment rate⁶ - Neither in employment nor in education or training rate (NEET rate)
Working conditions	Rate of adolescents: - with a temporary contract - in involuntary part-time work - in jobs with atypical working hours - in work at risk of poverty⁷Vulnerable unemployment rate⁸
Education	- Rate of adolescents in formal education and training - Skills mismatch rate
Transition smoothness	- Relative unemployment ratio⁹ - Long-term unemployment rate¹⁰
Source: Renold et al. (2014).	

7 on each particular indicator of the KOF YLMI. A higher score reflects a more favourable situation regarding the youth labour market and a more efficient integration of the youth into the labour market.

⁶ It is calculated as the number of unemployed and discouraged workers as a share of the entire labour force. Discouraged workers have given up the search for work (not actively seeking), although they have no job and are currently available for work (also: "involuntary inactive").

⁷ Those who cannot make a decent living out of their earnings, being at risk of poverty as a percentage of the working population.

⁸ Share of the employed population working on their own account or those working in their family business and thus contributing to the entire family income. Both are less likely to have formal work arrangements and are therefore less protected by labour laws and more exposed to economic risk.

⁹ Is defined as the youth unemployment rate (15-24 years) as a share of the adult unemployment rate (25+). If the youth cohort is affected in the same way as the adult group with respect to unemployment, then the relative unemployment ratio will be equal to one. If the youth are relatively more affected, then the ratio will be bigger than one.

¹⁰ Those unemployed for more than one year (52 weeks) in the total number of unemployed (according to the ILO definition).

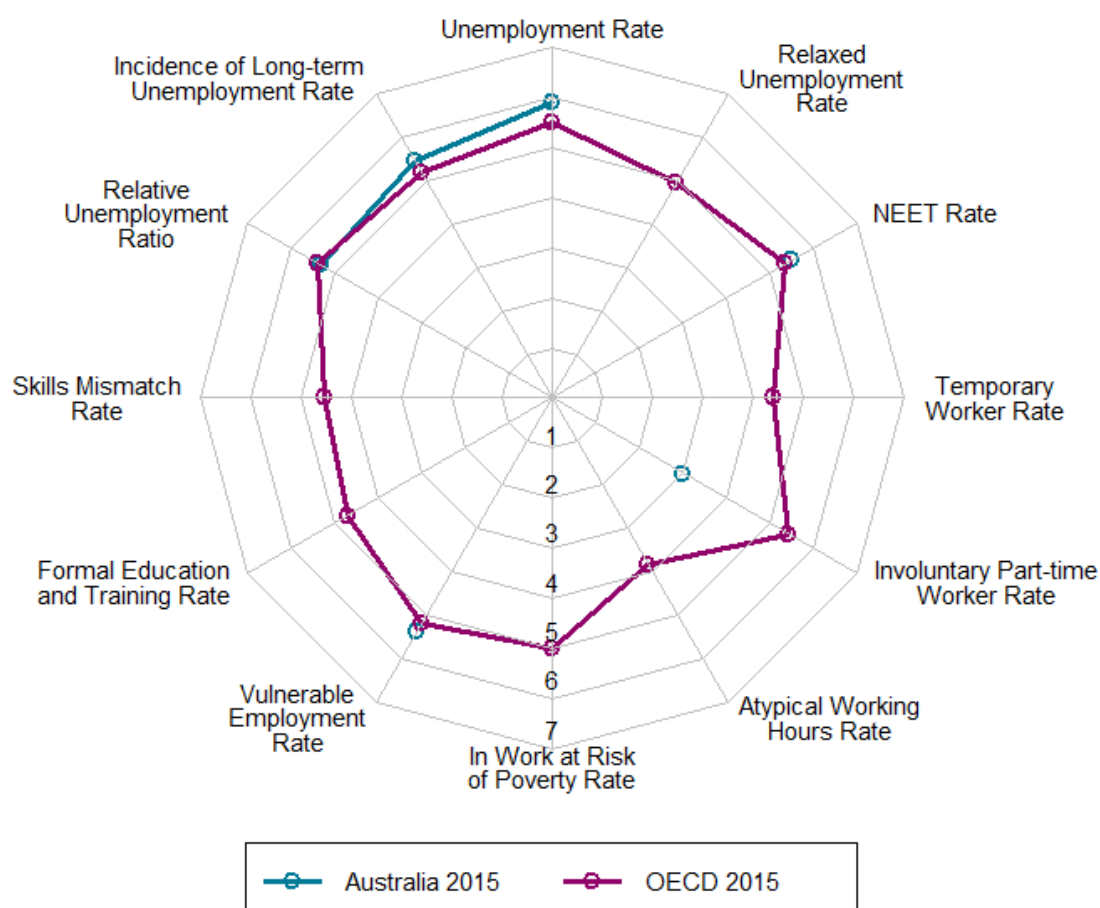
¹¹ The data for these indicators are collected from different international institutions and cover up to 178 countries for the time period between 1991 and 2012.

One of the major drawbacks of the KOF YLMI is data availability. When data is lacking, a category can occasionally be based on a single indicator or must be omitted entirely when not a single indicator for that category exists in a given country. A lack of indicators can make comparisons across certain countries or groups of countries problematic and sometimes even impossible.

1.2.3 The KOF Youth Labour Market Index (KOF YLMI) for Australia

Unfortunately, Australia suffers from the aforementioned data availability issues in the YLMI. Only six out of the total twelve indicators have available data for the year 2015 (and the whole period of 2005-2015). These available indicators are unemployment rate, NEET rate, involuntary part-time worker rate, vulnerable employment rate, relative unemployment ratio and incidence of long-term unemployment rate.

Figure 2: KOF YLM Spiderweb for Australia and OECD in 2015

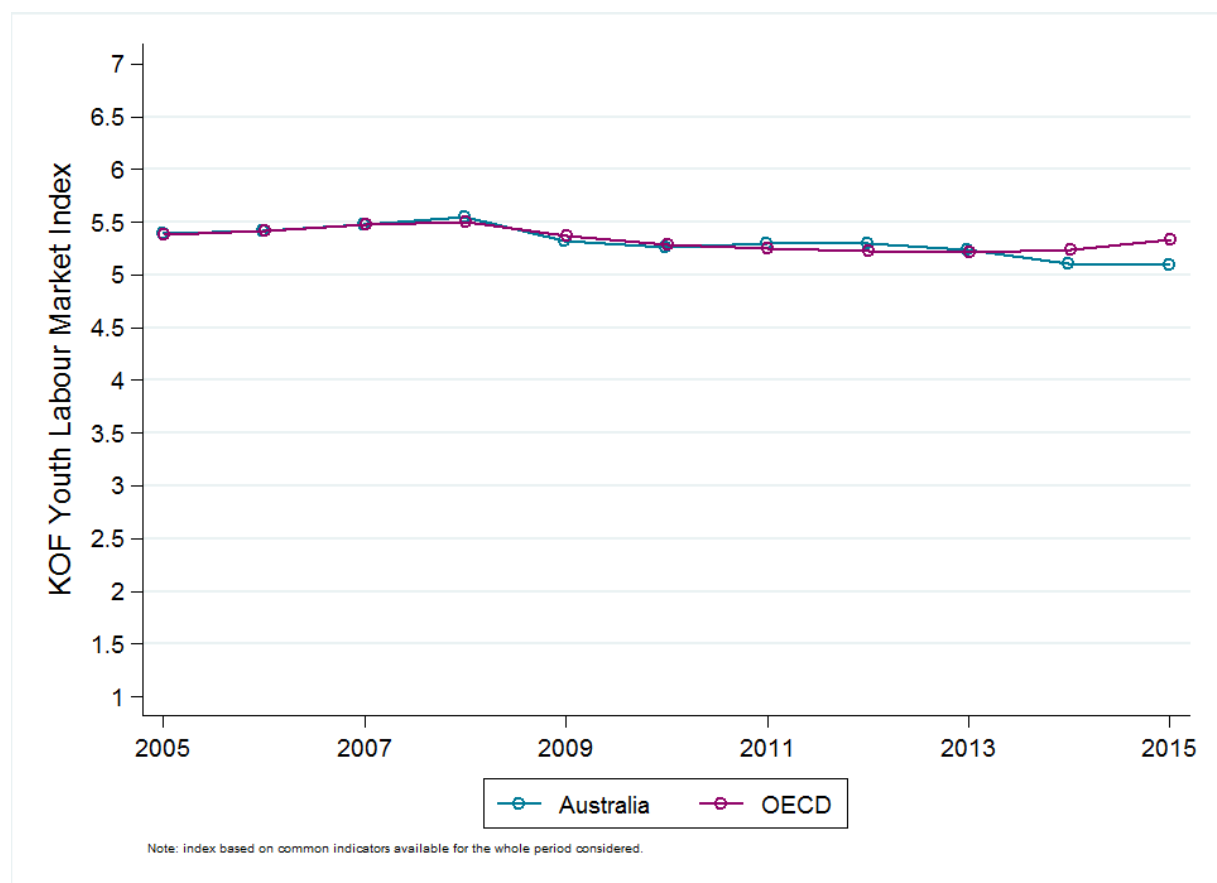


Source: (KOF, 2017).

Figure 2 shows the KOF YLMI Spiderweb for Australia and the OECD for the year 2015. Australia's average across all indicators, or overall index, is 5.09, below the OECD average of

5.33. In terms of individual indicators, we can see that Australia performs better than the OECD in terms of the unemployment rate, the NEET rate, the vulnerable employment rate and the incidence of long-term unemployment rate. The graph also shows that Australia performs slightly worse in the relative unemployment ratio, and significantly worse in the involuntary part time worker rate (2.39 units lower than the OECD). Lack of data however means that any comparison should be made cautiously, especially in light of the fact that the entire education category (rate of adolescents in formal education and training, skills and mismatch trade) is absent for Australia. The country's strong education system relative to the OECD average (see section 0 and GCI paragraph of section 1.1), and the inclusion of the two education indicators in the index, may have presented Australia's overall performance in the index in a more favourable light.

Figure 3: YLM-Index over time, 2005-2015



Source: (KOF, 2017).

Figure 3 shows the value of the overall YLMI over time for Australia and the OECD. The data for this graph is only drawn from the six aforementioned categories. The period between 2005 and 2008 shows that the two indices are almost identical each year; with Australia slightly surpassing the OECD in 2008 (Australia also had a higher index each year before, but by a negligible average difference of 0.0072). Australia had marginally lower index scores for the

years 2009 and 2010, and slightly higher scores for the years 2011-2013. Overall, Australia's index scores have declined in recent years, posting their lowest two scores for the entire recorded time period in 2014 and 2015. In these two years, Australia has a noticeably lower index relative to the OECD.

1.3 The Political System

Understanding the basics of a country's political system and getting to know the political goals with respect to its education system are crucial points for the understanding of the education system in a broader sense. In the first part, we explain Australia's political system in general. The politics and goals regarding the education system will be referred to in the second part.

1.3.1 Overview of the Australian Political System

Australia is a federation of six states and two self-governing territories. While the states have their own constitutions and parliaments, there is a central parliamentary government, known as the Federal Government (Parliament of Australia, 2017). The Parliament, the Executive Government and the Judiciary make up the so-called "three arms" of the central government.

The Economist's Democracy Index for 2016 classifies Australia as a "full democracy". Australia ranks as 10th overall with a score of 9.0 (Economist, 2016). There are 19 full democracies in the index. Within those 19, Australia ranks higher than the United Kingdom (16th) and Germany (13th), but lower than Norway (1st), and Switzerland (8th). Australia ranks 2nd in the Asia & Australasia region behind only New Zealand (4th overall). Of the five main categories that compose the index, Australia scores best in civil liberties (10.0) and scores worst in political participation (7.8). The report notes that public confidence in political parties is low in Australia, although support for democracy endures nevertheless.

The Worldwide Governance Indicators (WGI) are a set of six that evaluate aspects of governance within a country. These indicators are voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law, and control of corruption. In 2016, Australia performed well in these indicators, and consistently exceeded the average for high-income OECD countries across all six. In all indicators except political stability (82nd percentile), Australia ranks in at least the 92nd percentile among all countries (Kaufmann & Kraay, 2016).

The Corruption Perception Index, published by Transparency International, scores 176 countries on a scale of 0 to 100, 0 meaning highly corrupt and 100 meaning very clean. In 2016, the index placed Australia at rank 13th with a score of 79, below countries such as New Zealand (1st) and Switzerland (5th), and above countries such as the United States (18th) and France (23rd). Australia's score has declined every year since 2012, when it ranked 7th with a

score of 85. This decline is a product of recent foreign bribery scandals as well as evidence of human rights violations in asylum seeker detention centres (Transparency International, 2017).

1.3.2 Politics and Goals of the Education System

Australia entrusts control of education legislation to its six states and two territories individually. UNESCO (2011) describes overall Australian education practice and legislation as being based on “the principle of equality of access to all levels of education.” Each state has its own Education Act, most of which were initiated in the late 1800’s. The national government however has only a limited capacity to influence education policy, via its role in state cooperation to implement national priorities and strategies. The cooperative body between states is known as the Council of Australian Governments (COAG).

Each state decides on education policy via its Department of Education and Training. Priorities are usually announced on a yearly basis in the form of a strategic document. Key national education bodies include the Ministerial Council for Education, Early Childhood development and Youth Affairs (MCEECDYA) and the COAG Industry and Skills Council (CISC). These organisations act as a means of collaboration and coordination among state education departments. The MCEECDYA is concerned with school and early childhood education while the CISC is responsible for higher education, vocational education and training (VET) and adult education.

In 1999, *National Goals for Schooling in the Twenty-first Century* were introduced, known as the Adelaide Declaration. These national goals, as previously stated, were focused on giving access to education for all young Australians, as well as providing them with the skills and knowledge to effectively participate in Australian society (Education Council, 2014). The successor of this declaration was the 2008 Melbourne Declaration. It was introduced due to the recognition of global changes that required reform in the education system. This declaration had two goals: (1) Australian schooling promotes equity and excellence; and (2) All young Australians should become successful learners, confident and creative individuals, and active and informed citizens (MCEECDYA, 2008).

Recent reforms in Australian education have focused on higher education and VET. In terms of VET, several areas of the system have seen reforms since 2014. Firstly, the Australian Industry and Skills Committee (AISC) was established to advice on national training policy, which in turn gave industry a larger voice within the system. VET student loans have also been introduced in order to provide better access to VET qualifications (Department of Education and Training, 2017a).

With regard to higher education, the Higher Education Reform Package was recently announced (May 2017). The reform package seeks to improve sustainability of higher

education, provide more choice for students as well as measures for more transparency and accountability within the system (Department of Education and Training, 2017b).

Australia has one of the stronger education systems among OECD countries. It maintains a high ranking in the PISA (Programme for International Student Assessment) and has fewer underperforming students than the OECD average (OECD, 2013b). Furthermore, Australia had the eighth highest starting salary for teachers among OECD countries in 2015 (OECD, 2017i). Australia also ranks first and fifth respectively in secondary and tertiary education enrolment in the 2015-2016 Global Competitiveness Index (WEF, 2015).

Despite its many strengths, Australia does not have a perfect education system. The 2017 Global Innovation Index cites two large weaknesses within the realm of education. As previously mentioned, the GII ranks Australia at 66th overall for Government expenditure per secondary school pupil (percent of GDP per capita). In addition, Australia ranks at an even lower 79th rank for the number of graduates in science and engineering (percent of total graduates). (Dutta, Lanvin, & Wunsch-Vincent, 2017). These are rather low rankings for a nation that performs well in most other education metrics. An OECD (2013b) Education Policy Outlook on Australia also mentions other areas of weakness. PISA reading results have not improved since the year 2000, and there is a worrying disparity in higher education access and academic performance between the rural and indigenous population and the national average.

2. Formal System of Education

Figure 4 shows a map of the Australian education system in accordance with the International Standard Classification of Education (ISCED) 2011. The starting age of compulsory education is age six, when a student would theoretically start year one of their primary education. Primary school typically runs until year six (or year 7 in some areas), at which point they will move to high school, the lower portion of secondary education. High school typically runs until year 10, at which point a student can decide on their education pathway. They can either proceed to senior high school (years 11 and 12), or choose a vocational education. Courses that count towards vocational qualifications can also be taken in senior high school. Education is compulsory in Australia until the age of 16. Upper secondary education (named college or senior high school) typically lasts two years. Thereafter, students can pursue higher education via a bachelor's degree or associate degree, which typically take three to four years and two years respectively. The vocational education path may begin with one of four certificates

(named certificates I, II, III and IV) of the Australian Qualifications Framework (AQF)¹² that are offered at the upper secondary level. These are mostly offered outside of a school setting, but courses that count towards vocational qualifications (certificates I, II and III of the framework) are offered in senior high school. After completion of a certificate, students can enroll in university level diploma and subsequently advanced diploma programs, each lasting between one and two years. The associate degree can also be pursued in the vocational path, typically after certificate III or IV. A student obtaining an associate degree can continue higher education with a bachelor's degree. A bachelor's degree with honours requires an extra year of study, or can be awarded for excellent achievement in a bachelor's degree of at least four years. After a bachelor's degree, students can obtain a graduate diploma or a master's degree, both of which can last one to two years. The duration of a doctorate can vary, but usually requires at least three years of study.

¹² The AQF is the national recognition system for qualifications in Australia. It has 10 levels, the lowest being certificates I to IV (levels 1-4), and the highest being a doctoral degree (level 10). (AQF, 2018).

Figure 4: ISCED 2011 Mapping of Australia's Education System

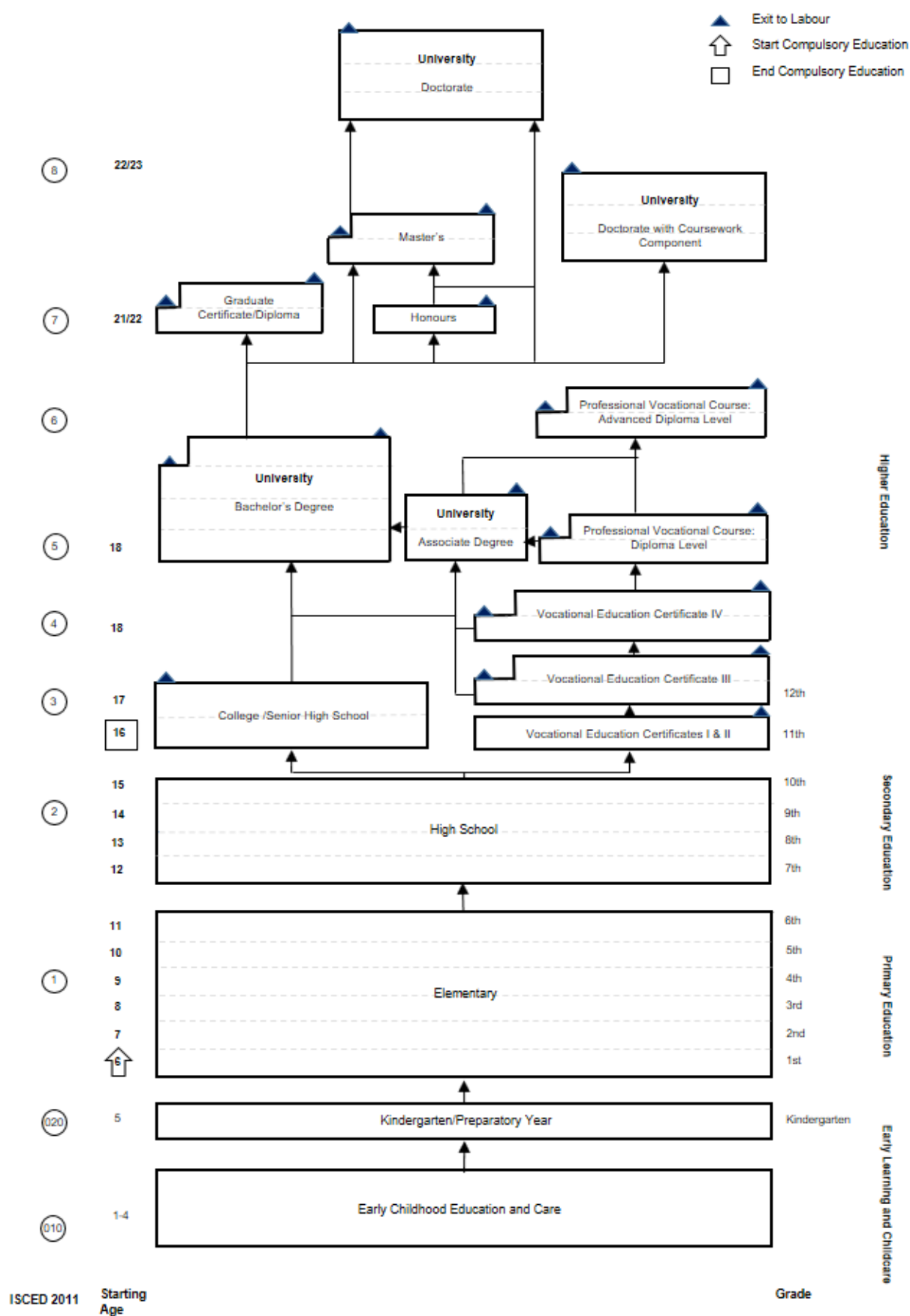


Table 4: Gross enrolment ratio by education level, 2014

Educational level	ISCED 2011	Net Enrollment Ratio	Gross Enrolment Ratio
Early childhood educational development programmes	010		55.0
Pre-primary education	020	81.3	114.1
Primary education	1	97.4	106.1
Secondary education	2 – 3	87.6	137.6
<i>Lower secondary education</i>	2	84.3	112.0
<i>Upper secondary education</i>	3	74.5	186.4
Compulsory education age group	1-3	n/a	120.5
Post-secondary non-tertiary education	4	n/a	87.8
Tertiary education	5 – 8	n/a	90.3
<i>Short-cycle tertiary education</i>	5	n/a	n/a
<i>Bachelor or equivalent level</i>	6	n/a	n/a
<i>Master or equivalent level</i>	7	n/a	n/a
<i>Doctoral or equivalent level</i>	8	n/a	n/a

Source: (UNESCO, 2017).

Table 4 shows the gross enrolment ratio (GER)¹³ and net enrolment ratio (NER)¹⁴ by education level for the year 2014. The NER quantifies the total number of enrolled students in the theoretical age group for a given education level, expressed as a percentage of the total population in that age group. The GER quantifies the number of students enrolled at a given education level—irrespective of their age—as a percentage of the official school-age population corresponding to the same level of education.¹⁵

The NER in Table 4 shows that 81.3 percent of pre-primary age students are enrolled in pre-primary education (which is non-mandatory), while 97.4 percent of primary age students are enrolled in (mandatory) primary school. The NER dips for secondary education, showing a low enrollment rate of 84.3 percent for mandatory lower secondary education, while non-mandatory upper secondary (senior high school) education has an even lower rate of 74.5 percent. The GER shows that a larger number of students than the size of the age cohort attend school for all education levels except tertiary and early childhood programs (neither of

¹³ The UNESCO Institute for Statistics (UIS) (2017) defines the gross enrolment ratio as the “number of students enrolled in a given level of education, regardless of age, expressed as a percentage of the official school-age population corresponding to the same level of education.”

¹⁴ The UIS (2017) defines the net enrolment ratio as the “Total number of students in the theoretical age group for a given level of education enrolled in that level, expressed as a percentage of the total population in that age group.”

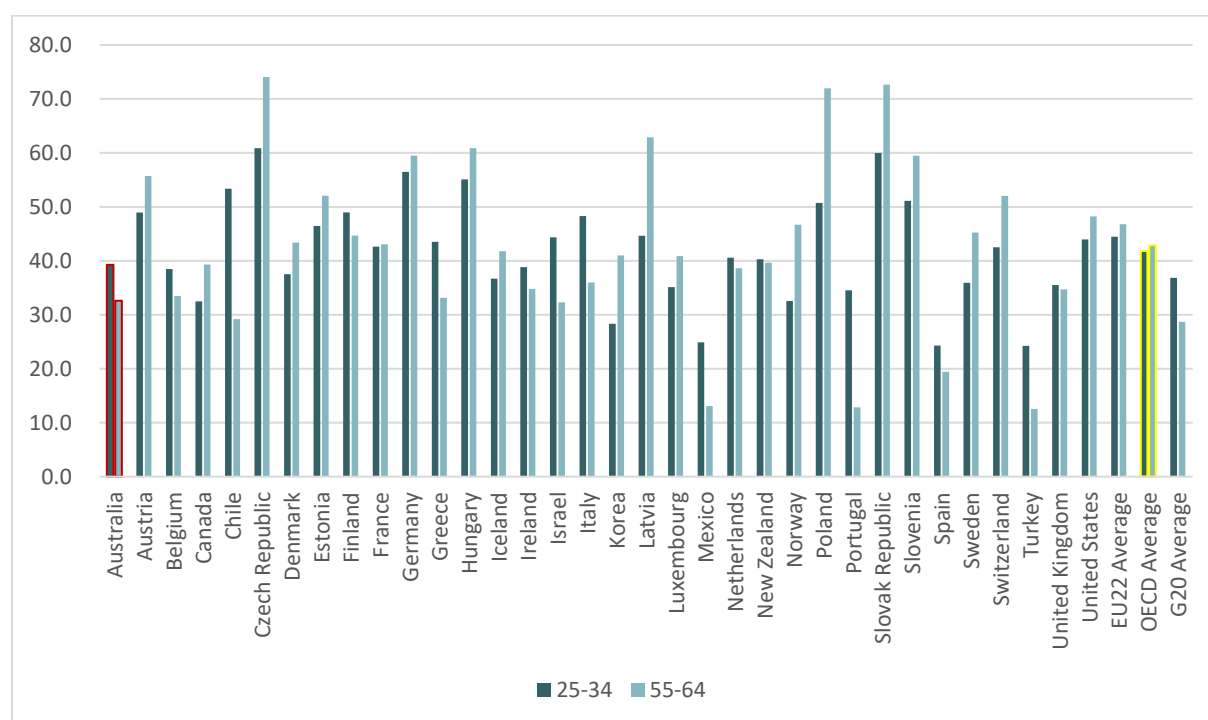
¹⁵ For example, for the primary education level, the NER tells how many students in the typical primary school age are actually enrolled in primary school, while the GER sets the actual number of students in primary education—irrespective of their age—in relation to those who are in the official age to attend primary education. A gross enrollment ratio of 100 corresponds to a situation where each child in a given country is enrolled in primary education. A value above 100 could occur due to students who are older than the typical enrolment age for primary education (e.g. have to repeat grade, adult learners). A value below 100 implies that not everyone who is in the typical age for primary education is actually enrolled.

which are mandatory). Enrolment in tertiary education is still quite high, with a gross enrolment ratio of 90.3.

There is a general disparity between the NER and GER at most education levels, particularly at the lower and upper secondary levels. The low NER at these levels, and therefore part of this large difference, can be explained by Australia's low secondary school completion and enrolment rates for rural and indigenous students. The OECD Education Policy Outlook for Australia (2013b) notes that while 95 percent of indigenous 4-14 year olds participate in education, only 20 percent of indigenous people age 15 and over complete year 12 of school (this provides some explanation to the disparity between the upper secondary GER and NER in particular, which is the largest difference in the table).

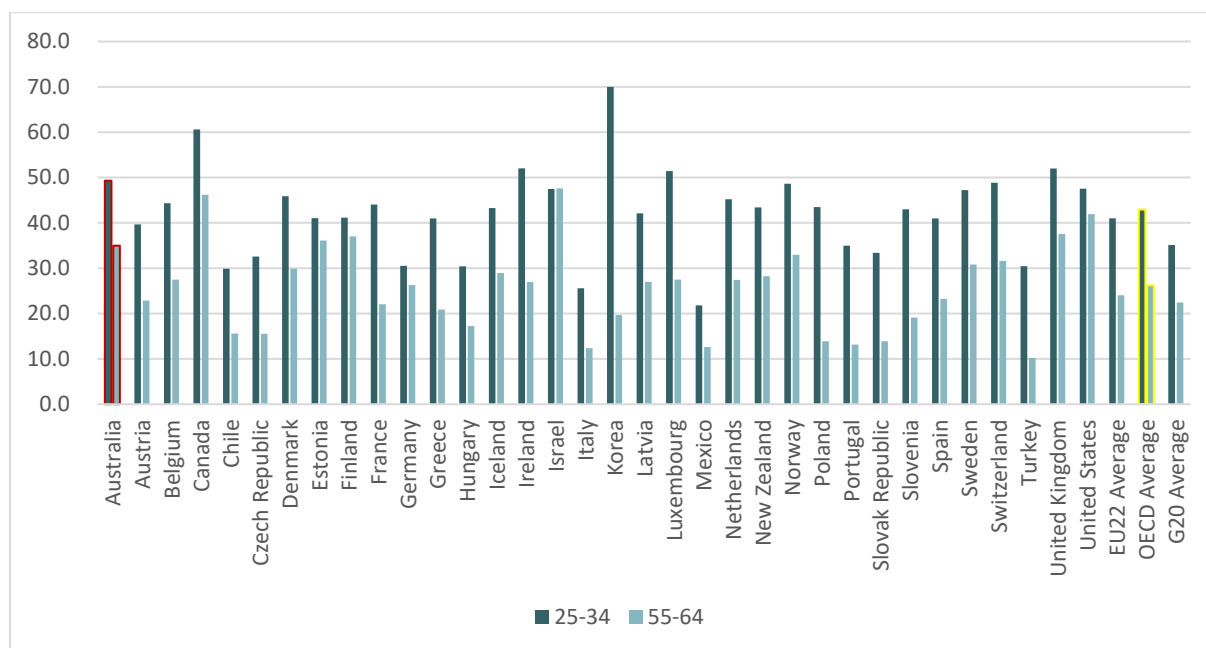
Australia ranks 40th among 107 countries in NER for secondary education overall, a low ranking for such a developed country. Most comparable countries have NERs in the high 90s, such as New Zealand (10th, 96.4) and the UK (6th, 98.3). Australia's GER for secondary education ranks third overall for countries with available data, behind Belgium and Finland. It also ranks highly in tertiary education, second only to Greece in 2014. Australia's overall ratio from primary to tertiary ranks second behind Belgium.

Figure 5: Percentage of population that has attained upper secondary or post-secondary non-tertiary education in OECD countries (2016)



Source: (OECD, 2017).

Figure 6: Percentage of population that has attained tertiary education in OECD countries (2016)



Source: (OECD, 2017).

Figure 5 shows the percentage of the population that has attained upper secondary or post-secondary non-tertiary education for all OECD countries except Japan (which had no data available), split by two age groups (25-34 and 55-64 years old). Australia performs below the OECD average in both age categories, with percentages of 39.3 for 25-34, and 32.6 for 55-64.

Australia fares much better in Figure 6, which shows the same percentages as in Figure 5 for tertiary education. Australia has a percentage of 49.3 for 25-34 year olds, and 35 for 55-64 year olds. Both of these are above the OECD average and rank 7th and 8th respectively among OECD countries.

2.1 Pre-Primary Education

Pre-primary education in Australia is generally comprised of early childhood care and one year to prepare children for primary school, often known as kindergarten, reception, or preparatory. Starting age of kindergarten is generally around the age of five (UNESCO, 2011). Early access programs are also available to indigenous children and children with special needs.

Attendance is not mandatory for pre-primary education and there are many different types of school that can be attended. Pre-primary education is offered by the government, local communities and private providers. Pre-primary education is decentralized, meaning that responsibility for this area of schooling relies on the states and territories. Preschools are generally staffed and funded by the state education departments, although some states

organize pre-primary education on a community level. Private preschools are also common, often attached to non-governmental schools.

In most states and territories, government funded preschool is free, although Queensland and Victoria for example both require fees (around AU\$140 (Australian dollars) per term). Benefits, fee relief and tax rebates are available in the states that require fees (Harrington, 2008).

Pre-primary education in Australia has a NER of 81.3 (Table 4), meaning that most preschool age children are enrolled in pre-primary education (UNESCO, 2017).

2.2 Primary and Lower Secondary Education

Compulsory education in Australia begins at age six, when most students would begin year one. There are no requirements for admission to primary school. Lower secondary education, known as high school, begins in year seven around the age of 12 and ends in year 10 around the age of 15 (Department of Social Services, 2016). The main types of schools are government schools, catholic schools and independent private schools. Even non-government schools are subject to educational requirements set out by the Australian government and are therefore somewhat incorporated into the overall education system (Study in Australia, 2017). In 2015, approximately 70 percent of primary school students attended a government school, while 19 and 12 percent attended catholic and other independent schools, respectively. The same figures for high school (lower and upper secondary) were 59.2 percent, 22.5 percent and 18.3 percent (Australian Bureau of Statistics, 2017).

As mentioned in section 1.3.2, each state or territory is responsible for the management of its own education system, which includes funding. Funding is provided for all schools in Australia, including private institutions. In 2015, AU\$12.8 billion of the total AU\$53 billion government school expenditure went to private schools (around 25 percent) (Hanrahan, 2017). Government school funding is mostly provided by state and territory governments, while funds for non-government schools are provided by the national government (Department of Education and Training, 2017c).

While a government primary education is technically free, parents are often asked for voluntary contributions of around AU\$70 to AU\$300 per year. Fees for catholic and other private primary schools range from AU\$2000 to AU\$3000 per year. High school fees for government secondary schools range from AU\$250 to AU\$800 per year (voluntary), while fees for catholic and other private schools generally range from AU\$3000 to AU\$6000 per year (Working in Australia, 2017).

The Australian curriculum for primary and lower secondary school is known as the F-10 (foundation to year 10) curriculum. There are three main “dimensions” to this curriculum;

learning areas, general capabilities and cross-curriculum priorities. The learning areas dimension pertains to the eight subject areas of the curriculum. These areas are English, Maths, Science, Humanities and Social Sciences, the Arts, Technologies, Health and Physical Education, Languages and Work-studies. The exact subjects within these areas vary by year. Humanities and Social Sciences for example begins only in year six, and the subject itself splits into more specific subjects such as history geography and economics as the curriculum progresses. General capabilities are a more broad set of skills that the curriculum aims to teach all students. These capabilities are literacy, numeracy, information and communication technology capability, critical and creative thinking, personal and social capability, ethical understanding, and intercultural understanding. Finally, three cross-curriculum priorities are incorporated into all learning areas to engage students with social and cultural topics. These priorities are Aboriginal and Torres Strait Islander histories and cultures, Australia's engagement with Asia, and Sustainability (Australian Curriculum, 2017a).

There are no requirements or examinations for a student to progress through primary school, and progression to secondary school is based on having completed the final year of primary school, as well as on the recommendations of teachers in some cases (UNESCO, 2011).

Table 4 shows that primary education in Australia has a NER of 97.4, meaning close to all children in the primary school age cohort are enrolled in school. The GER of 106.1 is only slightly above 100, implying that there are only a small number of early/late entrants or repeaters in the primary system. Lower secondary school in Australia has an NER of 84.3 (potential causes of which are addressed in the discussion of Table 4), while the lower secondary school GER of 112 offers equivalent conclusions to those of the primary school GER.

2.3 Upper secondary Education

Upper secondary education is the beginning of non-compulsory education for many students in Australia. Compulsory schooling ends at the age of 16, which would normally either be after year 10 (high school) or year 11 (Study in Australia, 2017). School years 11 and 12 are senior high school, and typical age range is from 15/16 to 17/18. Enrolment is mandatory if a student is under the age of 16.

Government funding, school fees and subsidies work in the same way as in lower secondary school (section 2.2). Funding and organization is mainly the responsibility of the governments of the individual states and territories.

The national curriculum for senior high school is called the senior secondary curriculum. Although each state and territory has individual freedom within the curriculum, five broad

subject areas are endorsed by the council of federal, state and territory education ministers. These subject areas are English, Maths, Science, History and Geography. These areas are the basis for each state and territory's overall course development. The curriculum assumes that students who enrol in a particular subject have prior knowledge and experience within the subject. The enrolment decision is made by the student's school and education authority (Australian Curriculum, 2017b).

For students that may wish to pursue a more vocational path, courses that count towards vocational education certificates can also be taken in senior high school. These courses provide practical and work-related learning, as well as provide credits towards VET certificates. Some schools (particularly private institutions) offer the International Baccalaureate (IB) program. The IB program is offered by around 150 schools across the country (Studies in Australia, 2017a).

Upon completion of secondary school, a student is awarded with a leaving certificate, broadly name the Senior Secondary Certificate of Education (SSCE). Although the specific name varies by state, certificates from all states and territories are recognized throughout the country (Study in Australia, 2017). This certificate is part of the AQF, which is the national system of qualifications in Australia. The AQF comprises of all academic as well as vocational certificates a student can receive, including degrees such as a bachelor's degree or doctorate (Studies in Australia, 2017b). This framework will be explained further in the sections to follow.

In terms of enrolment, Australia has an NER and GER for upper secondary education of 74.5 and 186.4. This is a very large difference, meaning that far more individuals are enrolled in upper secondary education than are actually in the equivalent age cohort, and less than all upper secondary age individuals are enrolled in education. Such a large GER is not easily explained by early/late entrants, but could be due to a large number of repeaters as well as adults enrolled in upper secondary level education. (A reason for the low NER is given in the discussion of Table 4.) About 10.5 percent of 15-24 year olds in Australia participated in secondary vocational education (in 2014). This would refer to the initial certificates in the AQF discussed above. This would rank Australia 25th among 91 countries that had data for 2014.

With regard to percentage of upper secondary school students enrolled in vocational programs, Australia ranked 16th (out of 87 countries with available data) in 2016, with a percentage of 56. Other high-income countries on the list include Finland (7th, 71.3 percent), Switzerland (13th, 64.9 percent) and New Zealand (38th, 30.5 percent). Just over half of all upper secondary school students being enrolled in vocational courses is quite a high rate, although this does not necessarily mean that all of these students will go on to pursue further vocational education (UNESCO, 2017).

2.4 Postsecondary /Higher Education

Postsecondary education in Australia would typically begin at the age of 18. The higher education path typically begins with a bachelor's degree (or associate degree) followed by other higher education qualifications such as a graduate diploma/certificate, master's degree or a doctorate. A vocational path would be continuing with the vocational education certificates of the AQF. There are four certificates in total, the first two of which may have already been completed by some students in secondary school. After these certificates, students may complete university level vocational qualifications, such as vocational diplomas. A student may also complete an associate degree after completing vocational certificates (UNESCO, 2011).

Public universities in Australia are currently funded by the government in two main ways; base funding and via the Higher Education Support Act (HESA) of 2003. Research grants are also awarded to universities, as were two programs that funded university infrastructure (one of which has closed, and the other has not provided any funding since 2013) (Universities Australia, 2017). Base funding is given to universities in order to provide teaching and conduct research (Lomax-Smith, Watson, & Webster, 2011). HESA provides the majority of funding to Australian universities. It contains several programs, such as the Commonwealth Grant Scheme (CGS), the Higher Education Loan Program (HELP), and the Disability Support Program (DSP). The CGS provides funding to universities by subsidizing tuition fees, while HELP is a student loan program (Department of Education and Training, 2018a).

Domestic students are all eligible for a Commonwealth Supported Place (CSP) via the CGS if they are accepted to university. This makes them eligible to pay a lower fee than international students, called a Student Contribution Amount (SCA) (Study Assist, 2017). This SCA varies by subject area and university, and typically ranges from around AU\$6,000 to AU\$10,000 (Study Assist, 2016). The average tuition fee for international students in 2017 was AU\$29,235 (Study Move, 2017).

The curriculum and assessment for each degree or vocational certificate are specific to the area of study. Each course at each university has its own admission criteria based on secondary school achievement. Each university also has a fair amount of autonomy, but has to conform to the regulations and standards of the Tertiary Education Quality Standards Agency (TEQSA). The TEQSA is a national body that provides accreditation and regulation to higher education institutions (TEQSA, 2017). This organization is also responsible for vocational education.

The GER for tertiary education in Australia is 90.3 (Table 4). This implies that almost all tertiary education age individuals are enrolled in some form of tertiary education. The GER for post-secondary non-tertiary (vocational) education is slightly lower at 87.8, offering a similar

interpretation. These are rather high rates, considering the non-compulsory nature of post-secondary education. These GER figures show that a large percentage of the Australian population chooses some form of post-secondary education.

2.5 Continuing Education (Adult Education)

Adult Education in Australia is focused on two main areas; skills for workplace integration and adult and community education (ACE).

The National Foundation Skills Strategy for Adults was developed by the Standing Council for Tertiary Education Skills and Employment (SCOTESE) in 2012. This strategy is a ten-year plan to improve employment outcome for working age Australians with low employability. The framework focusses on basic skills such as language, literacy and numeracy. The plan states that the Australian government will run programs and promote collaboration and coordination between the government and local/regional adult education providers. The strategy also aimed to increase equality in access to skills development programs, regardless of socio-economic background (SCOTESE, 2012).

A second nationally endorsed form of adult education is ACE. ACE refers to non-formal/non-vocational courses that do not have prerequisites for joining. These are generally recreational courses not intended for professional development. Its main national body is Adult Learning Australia (ALA) with an organizational presence in all of Australia's states and territories. Although ALA is a non-government not-for-profit organization, ACE is recognized and funded by local and state governments (Adult Learning Australia, 2018). Formal government recognition of ACE, as well as an agenda for ACE policy direction was established by the 2008 Ministerial Declaration on Adult and Community Education (Ministerial Council for Vocational and Technical Education, 2008).

2.6 Teacher Education

An individual can become a teacher in Australia in one of three ways. The first option is to go straight into teacher education at the university level. A prospective teacher would study a bachelor's degree in Education and Teaching, choosing to specialize in early childhood, primary or secondary school teaching. At the primary and early childhood level, a bachelor's degree is enough to be eligible to register as a teacher. To teach at a secondary school, a student can study a master's of teaching and specialize in a specific subject (i.e. Maths, English etc.) (Study Options, 2018). Alternatively, a student can study in a relevant field as an undergraduate (i.e. a bachelor's degree in mathematics) and then complete a master's of teaching in order to be eligible to teach in secondary schools (UNISA, 2018). A bachelor's of education is typically a four-year course, while a master's can last up to two years. These are

university taught courses and therefore funding, fees and admission work in the same way as other forms of higher education (see section 2.4)

The second main pathway for teacher education is the Graduate Diploma of Education. This is the most common route for university graduates from non-educational backgrounds. This is a one-year intensive course to qualify graduates to teach at schools. This is also taught in a university setting with a practical teaching component (Study Options, 2018).

A third, more specific option is the Teach for Australia program founded in 2009. The program places non-teaching graduates in disadvantaged secondary schools. Candidates receive support and training with a moderate teaching workload. At the end of the two-year program, participants are presented with a postgraduate teaching qualification. Funding for the program has been committed until 2021, with total government investment to this point standing at AU\$77 million. The program has placed around 500 participants in schools around Australia since its inception (Department of Education and Training, 2018b).

3. The System of Vocational and Professional Education and Training

This section of the Factbook describes the vocational education and training (VET) system at the upper secondary level and the professional education and training system (PET) at the tertiary level in more detail. Thereby, the term vocational and professional education and training (VPET) refers to both, the VET and the PET system.

3.1 Vocational Education and Training (VET; Upper Secondary Education Level)

The Australian VET system revolves around the previously mentioned Australian Qualifications Framework (AQF). While higher education qualifications such as a bachelor's degree also have a place in the AQF, the system pertains more to vocational qualifications. There are four VET certificates in the AQF (I – IV) as well as a Diploma and Advanced Diploma option later on (post-secondary). While the four VET certificates are at different levels in the hierarchy of the framework (see Footnote 12), one must not necessarily complete all previous certificates in order to enrol in one at a higher level. The certificates only represent levels of knowledge and skills taught to students, rather than any kind of progression system from one certificate to the next. Certificate I for example is described as providing a student with skills and knowledge for initial work, while certificate IV provides skills and knowledge for more specific/skilled work. Different vocational areas therefore are unlikely to have four certificates available to complete, and some subjects may only have one certificate.

At the upper secondary level, prospective VET students can enrol in certificates I, II, III or IV of the framework. The entry requirements of these certificates are generally only that an applicant has completed at least year 10 of secondary school. There can also be course specific entry requirements, such as relevant work experience (Studies in Australia, 2018). Certificate I typically lasts for four to six months, while certificates II and III typically take about a year each to complete (Study in Australia, 2018a). A wide variety of subjects can be studied as certificate courses. For VET in Australia as a whole (for 2016), the most popular general subject areas were Management and Commerce, Society and Culture, and Engineering and Related Technologies (NCVER, 2016a).

Since compulsory education in Australia ends after year 10, most secondary level VET courses are offered by Technical and Further Education Institutes (TAFE) institutes or Registered Training Organisations (RTOs). TAFE institutes are government run VET providers, while RTOs are private VET colleges (Studies in Australia, 2018). VET programs are also sometimes offered in school, usually in partnership with an RTO or TAFE. Certificate IV is usually unavailable to in-school VET programs, but students can complete certificates I, II or III in school (iVET, 2018a). The National Centre for Vocational Education Research (NCVER) reported that there were 42 TAFE institutes, 3111 private training providers (RTOs) and 419 schools that submitted training activity to them in 2016 (NCVER, 2016a).

The initial certificates of the AQF are designed as introductory skills and training courses. Along with industry-specific knowledge, they also provide general skills training in areas such as literacy, numeracy and communication. Most certificates (as well as PET diplomas) have a classroom as well as practical training element (Studies in Australia, 2018). The VET/PET system as a whole is based on cooperation between industry and government. The government contributes funding, policy development, regulation and quality assurance, as well as coordinates with industry partners and employer groups on training policy. Teaching staff have theoretical knowledge as well as experience in their field. All VET/PET courses must be nationally registered and are regulated by the Australian Skills Quality Authority (ASQA) (Study in Australia, 2018a). Employer surveys have shown satisfaction with graduate quality and level of industry influence in the system (NCVER, 2017a). A 2008 OECD report outlines other notable strengths of the Australian VET/PVET system. It states how the system's flexibility allows learners with different needs and backgrounds to gain qualifications, and that the qualification system (AQF) is clear and consistent across the country. States and territories also have a fair amount of autonomy over their VET/PVET systems. It also commends the strong research and information base that the NCVER provides (OECD, 2008).

In these respects, the Australian VET/PET system can be said to be of a comparable standard to the Swiss system. The system is highly organized with regulatory and organizational bodies,

as well strong cooperation with industry partners. Vocational certificates offer industry/occupation specific training, as well as education in more general skills (Study in Australia, 2018a). There were 200,900 certificate I and 600,200 certificate II program enrolments in 2016. Certificate's III and IV had 969,600 and 494,700 enrolments, respectively (NCVER, 2016a).

In 2017, a reported 48 percent of certificate I graduates were employed after completing training. This percentage raises to 65.9 percent for certificate II graduates, and 76.8 percent and 85.1 percent of certificate III and IV graduates respectively (NCVER, 2017b). Also reported was the percentage of program graduates who were either employed or in further study after completing a vocational certificate. 68.1 percent and 78.6 percent of certificate I and II graduates were employed or in further study, while the percentages for certificate III and IV graduates were 84.8 and 91.5 percent respectively.

A 2011 study by the NCVER using multivariate analysis and longitudinal data from 1995 to 1998 assessed the impact of VET completion on wages of young people. The study found a 12 percent wage premium for completion of a certificate I or II level course (for year 12 graduates). The authors conclude that completing a VET course seems to have a positive effect on future wages, although the effects were imprecisely estimated. There was however strong evidence suggesting that simply enrolling in a VET course, regardless of completion, increased wages (Hérault, Zakirova, & Buddelmeyer, 2011).

3.2 Professional Education and Training (PET; Post-Secondary Level)

Vocational education at the post-secondary level in Australia is comprised of three qualifications: the diploma, the advanced diploma, and the associate's degree. The diploma and the advanced degree are located at level five of the 2011 ISCED classification, while the advanced diploma is at level six. The diploma is at level five of the AQF, while the advanced diploma and associate's degree are at level six. The diploma and advanced diploma usually take one to two years and one and a half to two years (of full time study) to complete, respectively (Studies in Australia, 2018). The associate's degree typically lasts two years (UNESCO, 2011).

The diploma and advanced diploma are the final two possible qualifications in the vocational system before entering the labour market. The associate's degree, however, can be seen as a bridge between tertiary and vocational education. After the completion of an associate's degree, a student is theoretically (subject to course specific entry requirements) eligible to study a bachelor's degree at a university. This is particularly useful for students who may have left school in year ten in favour of the vocational pathway but later wish to pursue tertiary

education. After an associate's degree, individuals may also progress to the advanced diploma (Study in Australia, 2018b).

While there may be course-specific entry requirements, a diploma or associate's degree usually requires the completion of year 12 of high school, or the completion of a certificate III or IV (in a relevant subject) of the vocational pathway (Study in Australia, 2018b). However, some associate's degrees at certain institutions may require a diploma qualification (SAE, 2018) (Victoria University, 2018). The pursuit of an advanced diploma requires the completion of an associate's degree or a diploma (once again in a relevant subject) (Study in Australia, 2018b). Some courses may also ask for an Australian Tertiary Admission Rank (ATAR). This is a percentile rank created by assessing students' academic performance in order to compare applicants. Students are ranked relative to their peers. The ATAR is calculated by aggregating "scaled study scores" of various subjects. These scores are also ranks, but converted into a score out of 50. For example, a study score of 30 suggests a student performed somewhere in the middle of the cohort. The ATAR is calculated by adding the score for one English subject (i.e. English literature or English as an additional language), the three best subjects in terms of score (omitting English), and 10 percent of the scores of the fifth and sixth best subjects. (VTAC, 2018). The lowest rank a student could achieve is technically zero, although students who receive an ATAR of 30.00 or below will receive an ATAR of "30 or less" when they apply to access their rank (UAC, 2017). This rank is used across Australia with the exception of Queensland, which uses its own "Overall Positions" ranking. This ranking is calculated in a similar fashion, with the inclusion of a standardized test, the Queensland Core Skills Test (QCAA, 2018).

PET provision in Australia works in the same way as VET (see 3.1, paragraph 3), except PET is offered at universities rather than schools. Associate's degrees are offered at most universities as they can be said to be a form of tertiary education, while diploma and advanced diploma courses are only offered at some universities. State TAFE institutions and private RTOs will generally provide all three qualifications (TAFE NSW, 2018a).

The associate's degree is located at the same level of the AQF (level 6) as the advanced diploma. These courses are specifically designed for students from the vocational system who are interested in pursuing higher education. It is also a common step for high school graduates who might not have met the necessary entry requirements to pursue a bachelor's degree. Therefore, an associate's degree might be considered more of a tertiary education qualification rather than a vocational one. These courses are taught in a university setting and often at a slower pace than a bachelor's degree (Australian National University, 2018).

The diploma and advanced diploma are described as providing specialized knowledge and skills in a certain field, preparing students for skilled work. The AQF describes graduates of

this level to be prepared for “paraprofessional work”, i.e. assisting licensed professionals in the workplace without actually being licensed themselves, in the same way a paralegal would assist a licensed law practitioner (AQF, 2018). The advanced diploma is the direct step up from the diploma. The training content of these qualifications is comparable to certificate courses. Course quality and content, as well as the comparability of the PET system to that of Switzerland, is therefore included in the explanation for VET in paragraphs four and five of section 3.1.

79.5 percent of graduates of a diploma course or higher were employed after training in 2017, while 87.8 percent of these students were either employed or in further study (NCVER, 2017a).

3.3 Regulatory and Institutional Framework of the VPET System

3.3.1 Central Elements of VPET Legislation

VET and PET in Australia are regulated under the 2011 National Vocational Education and Training Regulator Act. This legislation established the Australian Skills Quality Authority (ASQA). This is the national regulatory body for VET and PET, and is responsible for the registration of RTOs, as well as regulating these RTOs for compliance with national VET standards agreed by the Council of Australian Governments (ASQA, 2018a). State and territory level VET regulators, such as the Victorian Registration & Qualifications Authority, also exist. These State Training Authorities (STAs) work in the same capacity as the ASQA, but at a more local level (VRQA, 2018).

The most recent legislation on VET standards, the Standards for VET Regulators 2015, created consistency and clarification in the application of national VET standards, while also increasing transparency and accountability in VET regulation. The 2015 Standards for Registered Training Organizations created stronger requirements for RTOs, to ensure a quality of training and assessment that is consistent across Australia. (Department of Education and Training, 2018c).

3.3.2 Key Actors

a) Vocational Education and Training

Government

The government body for VET/PET is the COAG Industry and Skills Council (CISC). This replaced the former SCOTese in 2013 in an effort by the Australian government to refocus and streamline the council system (Department of Industry, Innovation and Science, 2018a). The main role of the council is to develop and implement national policy and cooperation

between states and territories on VET and PET in Australia. It also oversees the Australian Qualifications Framework and sets national research priorities (Department of Education and Training, 2018d) (iVET, 2018b). This council formerly operated under the Department of Industry, Innovation and Science, but responsibility was transferred to the Department of Education and Training in 2014 (Department of Industry, Innovation and Science, 2018b). The council is comprised of various ministers (both state and national level) with responsibility for industry and skills, such as the Commonwealth Minister for Vocational Education and Skills, and the Minister for Education and Training (head of the Department of Education and Training) (Department of Industry, Innovation and Science, 2018a).

Representation and advisory bodies

Various advisory and representation bodies exist for various VET/PET stakeholders in Australia. One such body, designed to give industry a greater role in the vocational system, is the Australian Industry and Skills Committee (AISC). This committee was established in 2015 and is comprised of various industry leaders from across the country. Its purpose is to give industry a larger and more formal role in policy decisions in the vocational sector. The committee reviews training programs and advises COAG from an industry perspective (Department of Education and Training, 2018d).

In support of this council are various Industry Reference Committees (IRCs). An IRC is an industry-specific committee that advises the AISC on development and improvement of training within their specific sector (NCVER, 2018a). These IRCs are designed to make sure that vocational training meets the skill needs of employers in the sector. They are made up of representatives of large and small businesses as well as trade unions in order to provide the best recommendations to the AISC (AISC, 2018a). IRCs in turn are supported by Skills Service Organizations (SSOs). These are private professional organizations that aid IRCs in improving VET training. These also serve as an entry point to industry partners who wish to be involved in the development of vocational education in Australia (AISC, 2018b).

A final advisory body is the National Centre for Vocational Education Research (NCVER). The NCVER is an independent and not for profit company that was established by the Australian government in 1981. It is owned by the commonwealth of states and territories of Australia. Its function is to collect data and conduct research relating to vocational education in Australia. The NCVER also publishes statistics and survey data on VET (NCVER, 2018b).

Education and training providers

Government-owned TAFE institutes or private RTOs generally provide VPET. In addition, PET is also offered by many universities across the country. As of 2016, there were 42 TAFEs and 3111 private RTOs in Australia, accounting for 55.9 and 28.4 percent of all vocational subject

enrolments, respectively (NCVER, 2016a). Detailed information on education and training providers can be found in sections 3.1 and 3.2.

3.4 Educational Finance of the VPET System

VPET in Australia is funded mainly by the national government as well as the state and territory governments. There is also large private/industry investment into the system (UNESCO, 2015). In 2016, the Australian VPET system received AU\$2.882 billion in funding from state and territory governments and AU\$3.328 billion from the national government (NVCER, 2016b).

National funding for the VPET system is broken down into three main funding sources. The first of these sources can be called national agreement funding. This is funding that is delivered through the Intergovernmental Agreement on Federal Financial Relations of 2008. Under this umbrella agreement was the National Agreement for Skills and Workforce Development. This agreement set out a collaborative model for national VPET funding (inflation adjusted). In this agreement, the national government consented to help states and territories fund their training systems, and committed to maintaining its base VPET funding. Each state is permitted to control its own resource allocation (Noonan, 2016). In 2016, the VPET system received AU\$1.452 billion in national agreement funding (NVCER, 2016b).

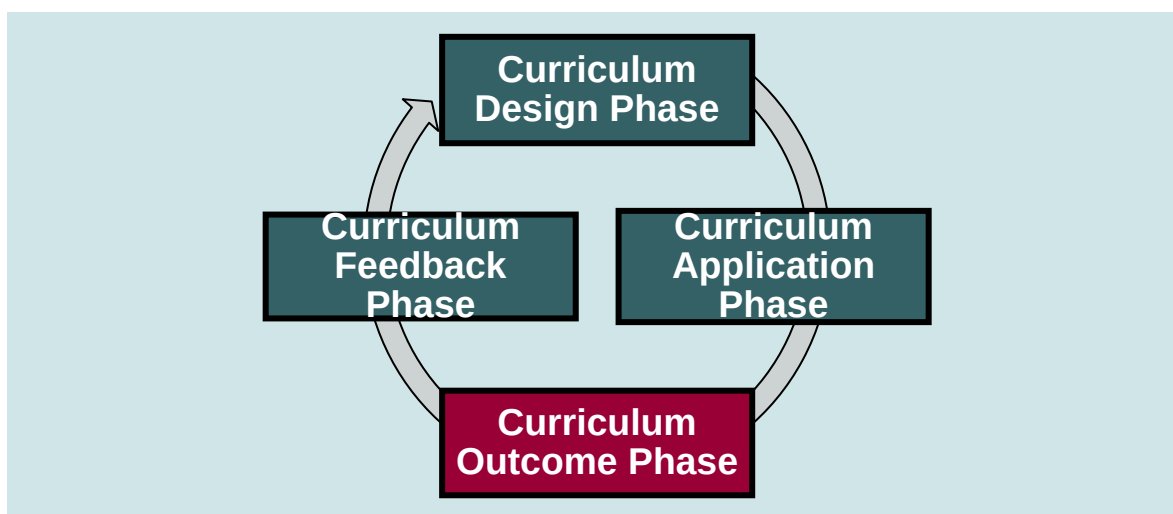
The second funding source is the National Partnership Agreement funding. National Partnership Agreements focus on funding for specific programs or projects, and are typically time-limited agreements, meaning that they expire after a few years of activity. (Council on Federal Financial Relations, 2018). Recent VPET related NPAs have included the National Partnership Agreement on Skills Reform, which expired in 2017 (Department of Education and Training, 2018e). Funding under this agreement was contingent on the commitment of states and territories to implement nationally approved skills reforms, such as providing access to a VET student loans system (Noonan, 2016). In 2016, National Partnership Funding for agreements such as the agreement on skills reform totalled approximately AU\$610 million (NVCER, 2016b).

The aforementioned VET student loans system was known as the VET FEE-HELP system. This system was introduced in 2007 to provide financial help to Diploma and Advanced Diploma students. In 2016, the government provided AU\$1.15 billion in funding for VET FEE-HELP loans (NVCER, 2016b). At the beginning of 2017, VET FEE-HELP was replaced by VET Student Loans, which are income-dependent loans available to Diploma students and above (StudyAssist, 2018).

3.5 Curriculum Development

The curriculum is a central element for the functioning of a VPET system by defining the framework and the (quality) standards for the education system. The development of a curriculum can be decomposed into a three-step process with a curriculum design, a curriculum application and a curriculum feedback phase. This theoretical concept is called the Curriculum Value Chain and is depicted in the picture below (CVC; for more details see (Bolli, et al., 2016)).

Figure 7: Curriculum Value Chain (CVC)



Source: (Bolli, et al., 2016)

In the curriculum design phase, VET curriculum content and qualification standards are decided upon by the relevant actors. Therefore, the discussion in the respective subchapter below focuses on the degree and the amount of stakeholder participation concerning curriculum design in Australia. The curriculum application phase revolves around the implementation of the curriculum. Because learning environments differ heavily across countries—especially with respect to the prevalence of workplace learning—the curriculum application phase subchapter in this Factbook focuses those learning environments. Specifically, it addresses where learning takes place and whether the curriculum dictates both school and workplace learning or only one of the two. Finally, curriculum outcomes can be collected and analysed in the curriculum feedback phase. This evaluation process is important as it may render a more refined curriculum design than was possible in the first place.

3.5.1 Curriculum Design Phase

The design phase is crucial for the whole curriculum process. In order to ensure that the skills taught in the VPET programmes correspond to the needs of the labour market, experts from

companies should be involved in defining the qualification standards and learning contents of the curricula.

The key components for curriculum development in the Australian VPET system are training packages. These training packages are developed by the SSOs mentioned in section 3.3, and set out skills and knowledge that a VPET subject area is required to provide (AISC, 2018c). These broad training packages encompass different qualifications at many different levels within a certain professional area. For example, the SSO SkillsIQ develops many of these training packages, one of which is the Tourism, Travel and Hospitality Training Package. Within this package are over thirty qualifications, ranging from the certificate I level to the advanced diploma (SkillsIQ, 2018).

Training packages are developed by SSOs via research and coordination with industry partners. New training packages are developed when an industry sees a gap in the VPET system, and believes that new nationally recognized VPET qualifications should be developed. The developed packages are then endorsed by the CISC if the package meets the Standards for Training Packages, a set of standards developed by SCOTese (now CISC) in 2012 to ensure that training packages meet the quality standards and needs of industry in Australia. There are 12 standards, which relate to the three components of training packages stated below (Department of Industry, Innovation and Science, 2018c). Two other sub-documents of the Standards for Training Packages are the Training Package Products Policy and the Training Package Development and Endorsement Process Policy (Department of Education and Training, 2018f).

There are three components that make up a training package (ASQA, 2018b) (iVET, 2018c):

1. **Units of Competency:** These define the skills and knowledge that must be developed in order to meet legislative and regulatory requirements as well as to perform effectively in the workplace.
2. **Qualifications Framework:** VPET qualifications are comprised of the grouping together of these units of competency. This component defines the guidelines of the packaging of these units in alignment with the Australian Qualifications Framework.
3. **Assessment Guidelines:** These guidelines specify the approach to assessment in order for students to meet standards of workplace competency. This includes how RTOs should assess their students, and how assessments should be designed.

Training packages therefore do not specifically dictate exactly how RTOs should provide training, but only set out requirements that RTOs must adhere to. Training providers develop their own teaching and assessment methods in accordance with the training packages. The

ASQA ensures that training providers meet the requirements of the training packages (iVET, 2018c), (ASQA, 2018b).

3.5.2 Curriculum Application Phase

The way in which a curriculum is implemented—especially with respect to learning environments—is important to achieve the intended learning outcome.

As described in sections 3.1 and 3.2, VPET programs in Australia have school and work based components. As mentioned above, training providers (private RTOs and TAFE institutes) administer their own training programs based on the framework set out by the relevant training package. Therefore, the exact shares of classroom and workplace training will differ between training providers. For example, a full time student at TAFE NSW (government training provider for the state of New South Wales) can expect to spend around 18 hours a week in the classroom (TAFE NSW, 2018b). Full time study at TAFE Western Australia would require around 15 to 25 hours of classroom study per week (TAFE WA, 2018).

There may also be differences in examinations and teacher provision across training providers. Firms' involvement in examination are through the development of the aforementioned training packages, when firms can specify to SSOs the competencies and skills they believe to be necessary to function in the workplace.

3.5.3 Curriculum Feedback Phase

The curriculum feedback phase deals with the question, whether and how educational outcomes are analysed. Based on this, the curriculum could be re-worked and improved.

As previously mentioned, the quality of training package content in the Australian VPET system is ensured via a process that requires the endorsement of the AISC, set out by the requirements of the Standards for Training Packages, the Training Package Products Policy, and the Training Package and Development and Endorsement Process Policy. Training package quality assurance is part of the last of these three documents, and ensures that training packages meet the prerequisites of the aforementioned standards/policies as well as assuring relevant stakeholders that the training package is fit for use.

The SSO that develops a certain training package must provide a mandatory quality report when it submits its training package to the AISC for approval. This report assesses whether or not the training package meets the requirements of the standards and policies for training packages, and must be written by a member of the Quality Assurance Panel. This Panel is an independent body set up by the AISC. It consists of individuals with expertise in the development and implementation of training products. Panel members are selected for three-

year terms. This panel is organized and managed by the Australian government (AISC, 2018d). As of July 2017, there were twenty members of the Quality Assurance Panel (AISC, 2018e).

Also, included Training Package and Development and Endorsement Process Policy are the Training Package Quality Principles. These are a set of six principles that set out the purpose of training packages and how they should meet the needs of industry and the individuals they serve to train. The principles are as follows (AISC, 2018d):

Principle 1: Reflect identified workforce outcomes

Principle 2: Support portability of skills and competencies including reflecting licensing and regulatory requirements.

Principle 3: Reflect national agreement about the core transferable skills and core job specific skills required for job roles and workplaces.

Principle 4: Be flexible to meet the diversity of individual and employer needs, including the capacity to adapt to changing job roles and workplaces

Principle 5: Facilitate recognition of an individual's skills and knowledge and support movement between the school, vocational education and higher education sectors.

Principle 6: Support interpretation by training providers and others through the use of simple, concise language and clear articulation of assessment requirements.

Outside of the initial training package endorsement process, already endorsed training packages can be updated and improved. Training packages are reviewed and improved regarding their response to industry demand for different or new skills, or the package is simply improved overall to a better standard. The process for an SSO to update a training package involves (ASQA, 2018b):

- Conducting an industry analysis to identify industry skill and training requirements
- Develop an improvement plan and undertake quality assurance processes (in the same way new training packages must undergo quality assurance) in order to meet these industry requirements
- Seek re-endorsement of updated training package
- Publish a Companion Volume Implementation Guide in order to assist training providers in updating their training programs to comply with the new training package.

The aforementioned Australian Skills Quality Authority, the main regulatory body of the Australian VPET system does not have a direct role in the development or improvement of training packages. Its role in the system is to ensure that training providers are providing training in accordance with the requirements of the training package. The ASQA has the

power to take regulatory action against training providers if they do not meet the required standards.

3.6 Supplying Personnel for the VPET System (Teacher Education)

To teach VPET in Australia, educators must have obtained at minimum a Certificate IV qualification in Training and Assessment. More advanced VPET qualifications often also require a bachelor's degree or vocational diploma relevant to the chosen teaching subject (Job Outlook, 2018). Other requirements are vocational/industrial experience in the relevant field. Many VPET teachers in Australia come directly from industry (UNESCO, 2015).

The Certificate IV in Training and Assessment is a specific course designed for aspiring VPET teachers, and is a required qualification for all VPET teachers under the Standards for Registered Training Organizations 2015 (COAG, 2018). The course is designed to prepare VPET teachers for classroom as well as workplace training and assessment. The course typically lasts between 6 months and two years, and is offered by normal training providers such as RTOs and TAFE institutes. Entry to the course is contingent on the demonstration of experience and skills in the relevant vocational field of the aspiring teacher. This can include holding a qualification such as a diploma or degree, but is not always necessary (TAFE NSW, 2018c).

According to Job Outlook, an Australian government careers website, there were 26,300 VPET teachers employed in 2017. This figure has been steadily falling since its peak in 2009, when 43,800 VPET teachers were employed. Of this 26,300, around 46.4 percent are female. 31.2 percent of VPET teachers had a bachelor's degree, 23.6 percent a graduate certificate/diploma, 18.2 percent a diploma or advanced diploma and 17.8 percent a certificate IV qualification or lower. The average age of VPET teachers in 2017 was 50 years, and average weekly earnings for full time teachers were AU\$1,524, above the 2017 average for all jobs in Australia of AU\$1,230 (Job Outlook, 2018).

4. Major Reforms in the Past and Challenges for the Future

4.1 Major reforms

Most recent reforms regarding the Australian VPET system have revolved around the creation and dissolution of various councils and other official bodies. The CISC, the current government body for VPET was created in 2013, replacing two outgoing councils, the SCOTese and the NSSC (National Skills Standards Council) (UNESCO, 2015). The SCOTese in turn was the successor of the MCTEE, which was dissolved in 2009. As mentioned in previous chapters,

both of these council reforms were made in an effort to streamline and improve governance of the system (iVET, 2018b).

In 2015, the AISC was created in order to provide industry with a greater presence in VPET policy. This arrangement also led to the creation (in early 2016) of IRCs and SSOs, who would provide advice and produce training packages for specific sectors (see 3.3.2) (UNESCO, 2015).

Notable recent VPET reforms are listed chronologically below (Department of Education and Training, 2018g):

- January 2014: All training providers who provide formal, nationally recognized training (i.e. courses within the AQF) are required to provide statistics on training activity to the NCVER.
- April 2014: Creation of the COAG Industry and Skills Council (CISC), replacing the outgoing SCOTese.
- January 2015: Standards for RTOs and Standards for Regulators implemented (see 3.3.1).
- May 2015: Creation of the AISC (see 3.3.2)
- January 2016: Creation of Industry Reference Committees and Skills Service Organizations (see 3.3.2)
- November 2016: Introduction of VET alumni program, which is designed to bring together the most successful students, teachers and training providers to promote VPET in Australia. Program will contribute to policy discussions in the future.
- January 2017: VET Student Loans program introduced, replacing the previous VET FEE-HELP program (see 3.4).

4.2 Major challenges

While the Australian VPET system is considered to be very well developed (OECD, 2008), it is not without its own challenges.

One such challenge is the training package system described in section 3.5.1, and the problems surrounding it. The OECD Learning for Jobs review cites several concerns with training packages, such as the large up-front investment involved in the developing of a training package, which assumes that the training package will be in use long enough for this investment to be regained. The OECD notes that the ever changing skills required in certain sectors may make certain parts of training packages obsolete or in need of significant updating. Training packages also tend to be cantered around jobs as opposed to more general skills, which works against students who wish to study in a certain area but do not know which specific

job they would like to pursue. In relation to this concern of high start-up costs, it is noted that many training packages (and the qualifications they contain) are not fully utilized. In 2006 for example, around 80 percent of VPET enrolments were concentrated in only 180 qualifications, out of the approximate 1,700 qualifications available. Approximately 70 qualifications had no enrolments at all in that year (OECD, 2008).

In the past, the Australian government used skills forecasting to identify shortages in certain professions and areas, and then implement specific programs to provide more funding to students in these areas. The OECD notes some problems with this method, including the fact that forecasting methods can be unreliable, as the demand for labour is based on factors that are not easy to predict, such as technology, government policy and economic conditions. A further concern of the OECD was that occupation shortages could be due to unwanted/low paying jobs rather than a perceived skills shortage in the labour force. A certain profession with a high vacancy rate may reflect a skills shortage, or conversely positions that are not appealing or do not pay enough. It is worth noting that funding under the aforementioned program (the Productivity Places Program) concluded after 2013, and whether or not skills forecasts affect other aspects of VPET funding in Australia is unknown (Noonan, 2016) (NVCER, 2016b) (OECD, 2008).

Another concern of the OECD report was the utilization of the VPET data collected by the NCVER. The NCVER collects a large amount of information on training providers and students, but there remain some concerns about the weaknesses of this data collection. One concern has been the lack of follow-up data collection in the annual Student Outcomes Survey, which obtains information on students in government funded training providers (TAFE institutes), as well as some private providers. This lack of follow-up survey data leaves an information gap on medium and long-term outcomes for students in the Australia VPET system. Another concern is the scope of this survey, which as previously mentioned collects data only from government training providers and a few private RTOs (OECD, 2008).

Finally, the OECD Learning for Jobs report notes that many countries around the world (Australia included) have struggled with attracting qualified teachers to the VPET system. The report notes that Australia's strong economy creates competition between the VPET system and industry, where teachers can earn far higher salaries as professionals in their respective fields. Furthermore, as noted in section 3.6, the average age of VPET teachers in Australia is approximately 50, although an aging workforce is an issue that affects the education system in general as well as the VPET system. A further concern is the upkeep of knowledge and expertise of VPET teachers, which can be difficult when technological changes have such an effect on so many professions. To combat this, the OECD suggests initiatives to encourage VPET teachers to work part time in industry alongside teaching (OECD, 2008).

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