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KOF Swiss Economic Institute

The KOF Education System Factbook:
Peru

Edition 1, July 2017

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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 labor-market oriented.

The appealing outcome of the VET system is that it improves the transition of young people into the labor 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 labor market, i.e. the companies. This close relationship guarantees that the learned skills are in demand on the labor 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 labor 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 labor 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, 2017a).

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: Peru, we describe Peru'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 Peru's economy, labor market, and political system. The second part is dedicated to the description of the formal education system. The third section explains Peru's vocational education system. The last section offers a perspective on Peru's recent education reforms and challenges to be faced in the future.

EDITING AND ACKNOWLEDGEMENTS

This Factbook is edited by Johanna Kemper. We want to thank Damiano Landoni and Louis Uzor for the elaboration of the contents, and Clair Premzic for the excellent 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!

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1. The Peru Economy and its Political System

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

1.1 The Peru Economy

Peru is a country positioned on the North-West coast of the South American continent, just below the equator line. It borders Ecuador and Colombia in the North, Brazil in the East, and Bolivia and Chile in the South. It is the third largest country in South America, with a greater area than France and Spain combined, and had a population of 31.5 million in 2016, of which more than half (66.3 percent in 2014) live in urban areas. It is the fifth most populous country in the South American continent (Moore, 2016).

Starting in the 1990's, Peru's government implemented structural economic reforms and opened some economic sectors for private businesses, which had previously been monopolized by the State. This economic liberalization of some sectors contributed to a rapid economic growth of Peru's economy in the early 21st century (Moore, 2016). Since 2009, Peru is classified as an upper middle-income country¹ (OECD, 2016a).

From 1990 to 2015, Peru's GDP grew at an average of 4.4 percent annually. This was still lower than the growth rate of neighboring OECD member Chile (4.8 percent) but larger than the OECD average, which just grew by 2 percent over the same time (World Bank, 2016). Peru's GDP growth was especially strong between 2007 and 2008 (8-9 percent), but has slowed in the last couple of years, with growth rates of 2.3 percent in 2014 and 3.2 percent in 2015 (World Bank, 2016).

In 2015, the GDP per capita (constant 2010 US\$) for Peru was 5,935 US\$, which was significantly lower than Chile's per capita GDP of 14,661 US\$ and far away from the OECD average of 37,456.7 US\$. Despite these gaps, GDP per capita has more than doubled since 1990's (World Bank, 2016).

¹ Which is classified by a gross national income (GNI) per capita between 4,126 and 12,000 USD and calculated using the World Bank Atlas method.

Income inequality in Peru is more severe than in high-income countries, but still low if compared to its neighboring countries. With a GINI-index² score of 0.44, the inequality in Peru was much higher than in the average score of the OECD countries in 2014 (index 0.32 for OECD average). Furthermore, Peru's income inequality has decreased in recent decades (index score of 0.56 in 1999). Compared to its neighbors, such as Chile with a GINI-index of 0.50 (2014 value), Peru performed quite well. (World Bank, 2016).

Peru also managed to reduce its poverty rate: the number of people who had less than 1.9 US\$ per day (2011 PPP) decreased from 6.2 percent in 2000 to 0.8 percent in 2014. Chile showcases similar values, where 0.5 percent of the population lived on less than 1.9 US\$ per day in 2013 (World Bank, 2017).

Table 1: Value added and employment by sector, 2015

Sector	Country: Value added (%)	EU-28: Value added³ (%)	Country: Employment (%)	EU-28: Employment (%)
Primary sector	7.8	1.5	25.6	4.8
Agriculture, hunting and forestry, fishing	7.8	1.5		4.8
Secondary sector	32.8	24.4	17.8	21.8
Manufacturing, mining and quarrying and other industrial activities	-	19.0	-	15.5
of which: Manufacturing	-	15.6	-	13.9
Construction	-	5.4	-	6.3
Tertiary sector	59.4	74.0	56.6	73.4
Wholesale and retail trade, repairs; hotels and restaurants; transport; information and communication	-	24.0	-	27.6
Financial intermediation; real estate, renting & business activities	-	27.3	-	16.1
Public administration, defense, education, health, and other service activities	-	22.7	-	29.7

Source: Eurostat (2015a; 2015b), (ILO, 2017).

As in many developed countries, the tertiary sector is the most important sector for Peru's economy. The most important branches of the services sector are telecommunications and financial services, which together account for nearly 40 percent of GDP (FocusEconomics, 2017). In 2015, the tertiary sector accounted for 59.4 percent of the country's gross value

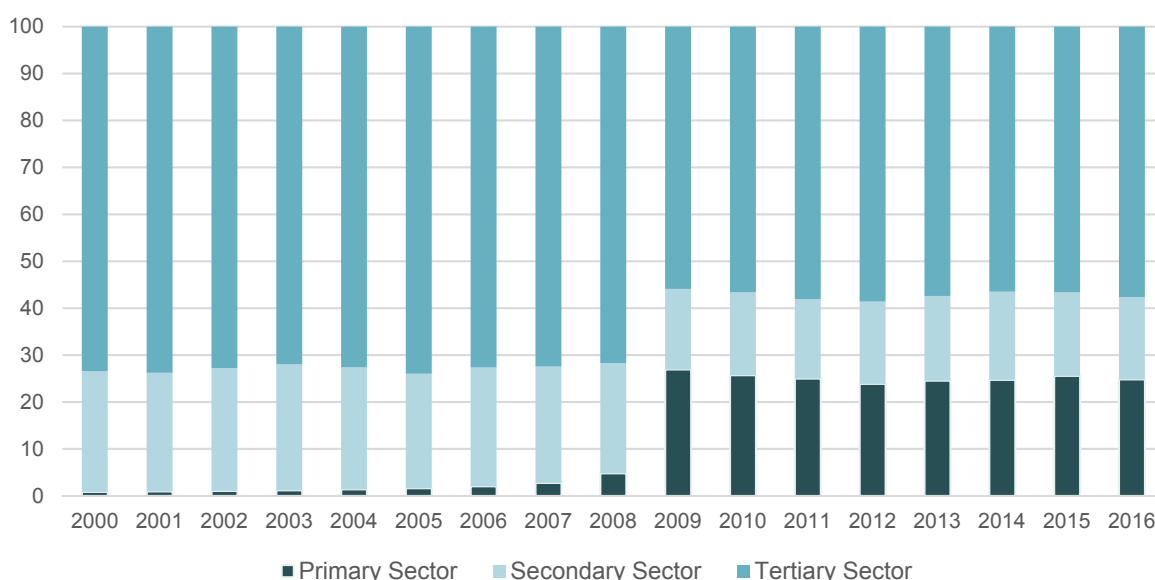
² The Gini Coefficient is a measure for income inequality. The Gini is zero if everyone has the same income and one if a single person has all the income. Income refers to income after taxes and transfers, adjusted for difference in household size (OECD, 2012).

³ Due to rounding differences, the sum of all sector falls below 100 percent.

added, while the secondary sector constituted 32.8 percent and the primary sector 7.8 percent (Table 1). Unfortunately, there is no detailed data on the subcategories of each sector.

Despite the dominance of the tertiary sector, the secondary and primary sectors are definitely more relevant for the Peruvian economy than for the EU-28 countries on average. In fact, Peru is one of the largest producers of bismuth, silver, and copper at an international level, and the ratio between labor invested and value added indicates higher labor productivity in the secondary sector compared with the EU-28 countries. In addition, the agricultural sector (including fishing) is relatively more important for Peru than for the EU-28 countries: it accounted for more than one quarter of the total employment (Moore, 2016).

Figure 1: Employment by sector (as percentage of total employment), 2000-2016



Source: (ILO, 2017).

The dominant role of the services sector can be observed in Figure 1, which shows the evolution of formal sector employment in the primary, secondary and tertiary sector from 2000 until 2016. From 2000 to 2008, the tertiary sector accounted for about three quarters of total employment. In the world economic crisis of 2009, the situation changed drastically. The share of primary sector employment out of total employment increased from less than 2 percent before 2008 to about one quarter from 2009 onwards. One reason for this change is that the tertiary sector was hit particularly hard by the consequences of the economic crisis, leading to a relatively high share of job losses compared to the other sectors (ILO, 2013).

In the World Economic Forum's Global Competitive Index (GCI), Peru reached rank 67 out of 140 in the 2016-17 assessment. Peru improved two positions in 2016, staying in the top half of the ranking. The negative effects of a worsening macroeconomic environment (government

budget balance, national savings, Inflation, government debt, country credit rating, etc.) were recently compensated for by an improved efficiency of financial markets, ICT (Information and Communications Technology) use, capacity for innovation, and property rights (World Economic Forum, 2015-2016). Such improvements are sometimes mistakenly attributed to the wide network of free trade agreements with which Peru has opened its economy to its main trade partners, including the United States, China and the European Union (State Secretariat for Economic Affairs SECO, 2017). However, according to “The Global Competitiveness Report 2016–2017”, Peru still must attend to different problematic factors related to business, such as inefficient government bureaucracy, restrictive labor regulations, corruption, and an inadequate supply of infrastructure (Klaus Schwab, 2016–2017).

The capacity to innovate is another important indicator regarding the strength of an economy. The Global Innovation Index (GII) for the year 2016, which quantifies an economy’s innovativeness, places Peru at rank 71 out of 128 countries. Peru’s position in this index did not improve since last year. The sub-indicators knowledge and technology outputs showcase the most relevant weaknesses of the Peruvian economy. Market sophistication is Peru’s most relevant strength, which include sub-factors like the availability and affordability of financial services, ease of getting credit, microfinance gross loans, and ease of protecting minority investors (World Intellectual Property Organization, 2016).

1.2 The Labor Market

In the first part of this section, we will describe the general situation of Peru’s labor market. In the second part, we will refer to the youth labor market in particular.

1.2.1 Overview of Peru’s Labor Market

Peru’s labor laws, with some limitations, secure the right of workers to form and join labor unions, strike and participate in collective bargaining. Regulations also allow workers to form unions without seeking prior authorization (United States Department of State, 2015). The tripartite National Labour Council, which involves business associations, trade unions, and the state, determines the minimum wage in Peru. The minimum wage applies to the private sector for an eight-hour day. Currently, it is set at a monthly wage of 850 Peruvian Nuevo Sol, which is equivalent to \$US 260. Labor regulation also assures that workers are entitled to at least one day of rest per week (Wageindicator, 2017). The level of employment protection legislation (EPL) in Peru is relatively strict if compared internationally. The OECD Index of Employment Protection, which quantifies the strictness of EPL, that is, the costs involved when dismissing individuals or groups of workers and the procedures involved in hiring workers on fixed-term or temporary work agency contracts. According to this index, Peru had an index value of 2.2

regarding the protection of permanent workers and of 2.9 regarding the protection temporary workers in 2014. Peru's index value for the protection of permanent workers is high compared to the latest available data for Chile 1.8 and the OECD average of 2.3 (both 2013), as well as its index value for the protection of temporary workers, which was 2.4 for Chile and 2.1 for the OECD average (2013) (OECD, 2016b). However, this indicator measures the strength of labor laws and not their enforcement.

According to the Peru's "Country Reports on Human Rights Practices" (2015) of the United States Department of State, the government's resources to guarantee the enforcement of worker's rights are limited (United States Department of State, 2015).

Indeed, the lack to guarantee the enforcement of the labor law is in general a problem in Peru. One consequence is the predominance of the informal sector in Peru's labor market, which accounts for the employment of approximately 60-70 percent of the working population (State Secretariat for Economic Affairs SECO, 2017). Peru's rate of informal employment is one of the highest in South America (Worldatlas, 2017). However, the rate of informal employment in Peru decreased in the last years. It fell from 76 percent in 2005 to under 70 percent in the last years (State Secretariat for Economic Affairs SECO, 2017) (ILO, Regional Office for Latin America and the Caribbean, 2014). Another example for a lax enforcement of the labor law is the problem of child labor, which is predominant in the informal sector. In 2014, the *Instituto Nacional de Estadística e Informática* (INEI) estimated that there were 1.65 million children working in exploitative labor conditions (United States Department of State, 2015).

Table 2: Labor force participation rate, unemployment rate by age 2015

	Labor force participation rate		Unemployment rate	
	Peru	OECD average	Peru	OECD average
Total (15-64 years)	74.1	71.3	4.4	7.0
Youth (15-24 years)	55.2	47.1	10.3	14.0
Adults (25-64 years)	80.3	76.9	3.1	6.0

Source: Own illustration, (OECD, 2016c) (ILO, 2017).

Table 2 shows the labor force participation rates and unemployment rates, by age for Peru and for the OECD average in 2015. Peru's official labor force participation rate for those aged between 15-64 years was higher than the OECD average (74.1 percent vs. 71.3 percent for the OECD average), and its unemployment rate lower (4.4 percent vs. 7 percent for the OECD average) in 2015.

Labor force participation of youth (15-24 years) in Peru was even higher than the OECD average (55.2 percent vs. 47.1 percent for the OECD average), and its unemployment rate even lower (10.3 percent vs. 14 percent for the OECD average) in 2015.

Again, for adults (25-64 years) in the labor force participation rates and unemployment rates, the order relation did not change. Labor force participation in Peru was higher than the OECD average (80.3 percent vs. 76.9 percent for the OECD average), and its unemployment rate lower (3.1 percent vs. 6 percent for the OECD average).

Table 3: Labor force participation rate, unemployment rate by educational attainment 2014 (persons aged 25-64)

	Labor force participation rate		Unemployment rate	
	Peru	OECD average	Peru	OECD average
Less than upper secondary education	72.7	63.6	1.1	12.8
Upper secondary level education	70.4	79.9	4.0	7.7
Tertiary education	77.1	87.7	4.7	5.1

Source: Own illustration, (OECD, 2016c), (ILO, 2017).

Table 3 shows the labor force participation rates and unemployment rates by education level for Peru and for the OECD average in 2015. Peru's official labor force participation rate people with less than upper secondary education was higher than the OECD average (72.7 percent vs. 63.6 percent for the OECD average), and its unemployment rate lower (1.06 percent vs. 12.8 percent for the OECD average) in 2015.

Labor force participation for people with upper secondary level education in Peru was lower than the OECD average (70.4 percent vs. 79.9 percent for the OECD average), and its unemployment rate even lower (4 percent vs. 7.7 percent for the OECD average) in 2015.

Labor force participation of people with tertiary education in Peru was even lower than the OECD average (77.1 percent vs. 87.7 percent for the OECD average), and its unemployment rate even lower (4.7 percent vs. 5.1 percent for the OECD average) in 2015.

Interestingly, the labor force participation rate of people with less than upper secondary education in Peru is higher and the unemployment rates lower than the OECD average. However, this may not reflect a well-functioning labor market. One major reason for these favorable number could be the fact that people simply cannot afford to stop working. Instead, they take on any kind of job they get to earn money. Often, these may be precarious jobs, often located in the informal sector. The dominance of the informal sector may be the reason for low

unemployment: people who work in the informal sector cannot claim unemployment benefits if they lose their job.

Another interesting aspect of the Peruvian labor market is that the risk of becoming unemployed seems to increase with the education level, while the opposite holds for the OECD average. One reason for this could be the unemployment benefit system. The unemployment benefit system in Peru is a fund-based system, which is financed by the employer. Every six months, the employer has to deposit a sum equivalent to half of a month's salary. In case a worker loses his job, he can access these funds.⁴ Since this system depends on the individual worker's wage, high wage earners can live for a longer period from these funds than low-wage earners in case they lose their job. Since the education level and wage are highly correlated, this may explain the low unemployment rate among those with less than secondary education.

1.2.2 The Youth Labor Market

The KOF Swiss Economic Institute developed the KOF Youth Labour Market Index (KOF YLMI) to compare how adolescents participate in the labor 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 labor market adequately nor provide enough information for a comprehensive cross-country analysis. To increase the amount of information analyzed and to foster a multi-dimensional approach, the KOF YLMI consists of twelve labor market indicators¹⁰ that are grouped into four categories.

Dimensions of the KOF YLMI
Activity state <ul style="list-style-type: none"> - Unemployment rate - Relaxed unemployment rate⁵ - Neither in employment nor in education or training rate (NEET rate)
Working conditions <p>Rate of adolescents:</p> <ul style="list-style-type: none"> - with a temporary contract - in involuntary part-time work - in jobs with atypical working hours - in work at risk of poverty⁶ Vulnerable unemployment rate⁷
Education <ul style="list-style-type: none"> - Rate of adolescents in formal education and training - Skills mismatch rate
Transition smoothness <ul style="list-style-type: none"> - Relative unemployment ratio⁸ - Long-term unemployment rate⁹
Source: Renold et al. (2014).

⁴ However, workers can also access these funds due to other reasons, e.g. to re-pay loans or debts.

⁵ 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").

⁶ Those who cannot make a decent living out of their earnings, being at risk of poverty as a percentage of the working population.

⁷ 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.

⁸ 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 than 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.

⁹ Those unemployed for more than one year (52 weeks) in the total number of unemployed (according to the ILO definition).

¹⁰ The data for these indicators are collected from different international institutions and cover up to 178 countries for the time between 1991 and 2012.

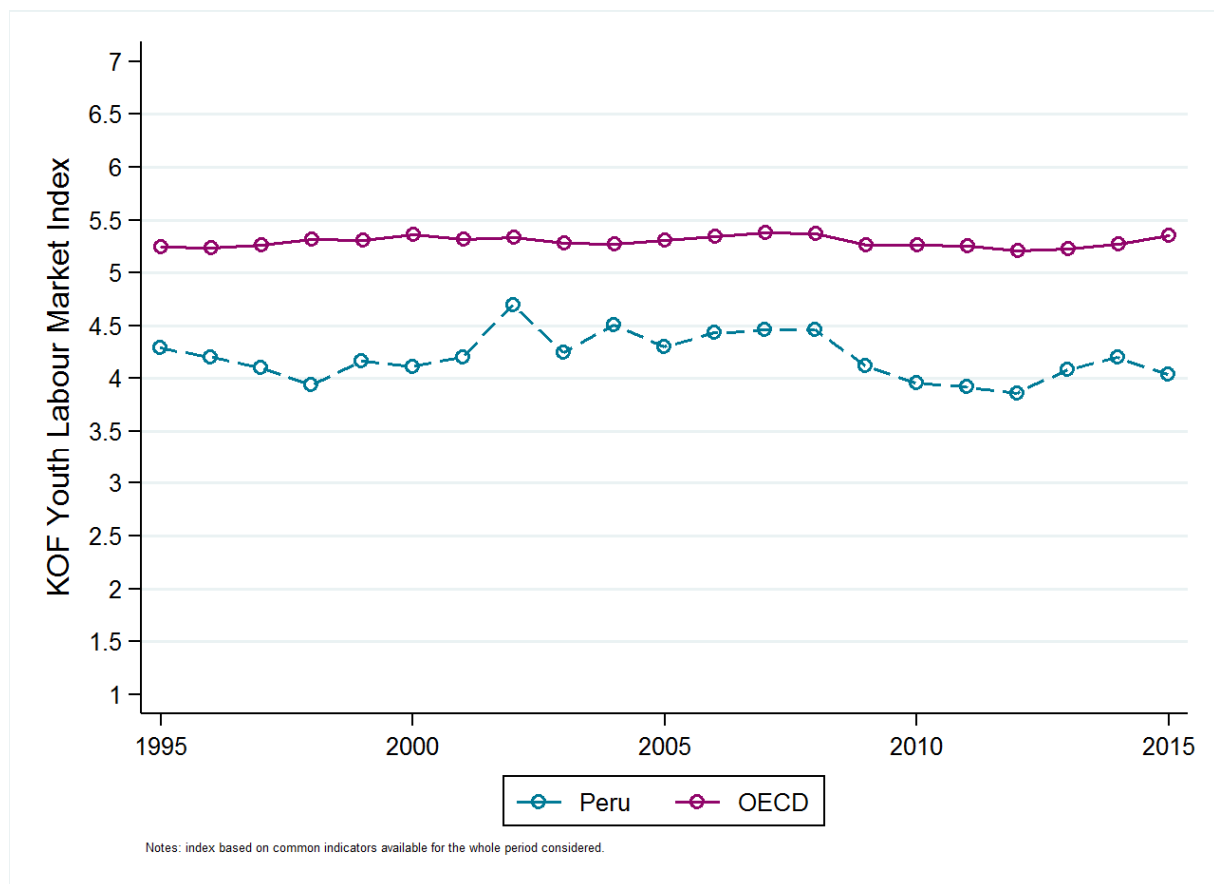
The first category describes the *activity state* of youth (ages 15-24 years old) in the labor market. Adolescents are classified according to whether they are employed, in education, or neither (unemployed, discouraged and neither in employment nor in education or training; see info box to the right). 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 labor 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 7 on each particular indicator of the KOF YLMI. A higher score reflects a more favorable situation regarding the youth labor market and a more efficient integration of the youth into the labor market.

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 Peru

Figure 2 illustrates the evolution of the aggregated KOF YLMI over time from 1991 to 2015. In the period 1991-1999, just three indicators of the KOF YLMI are available for Peru (the same three has been used for OECD) and for some of the following years four. The indicators are unemployment rate; NEET rate, vulnerable employment rate, and relative unemployment ratio. Peru has a lower and unstable score for the KOF YLMI compared with the OECD average. This is equal to saying that on average Peru constantly had a higher unemployment rate; NEET rate, vulnerable employment rate, and relative unemployment ratio, than the OECD average. However, for most of the years the index consists of only three indicators because data is missing on most indicators usually included in the YLMI. Therefore, conclusions based on this index are very limited.

Figure 2: YLM-Index Peru versus OECD, 1991-2015



Source: (KOF, 2017).

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 Peru'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 Peruvian Political System

Peru declared its independence from Spain in 1821. The end of Spanish domination lead Peru in an unstable situation faced by political, social, and economic problems. After years of military rule, in 1980 Peru returned to democratic leadership (Moore, 2016). Nowadays it is a presidential republic divided into 25 regions, which are further divided into departments, provinces, and districts. The head of the government is the president, elected by the population to a five-year term, renewable once. The president acts as both chief of state and head of government and appoints the cabinet (CIA, 2017). In the political process, voting is universal and compulsory starting from the age of 18 until 70.

The democracy kept being unstable also after the end of the military dictatorship. In 1990, Alberto Fujimori became the president, by creating a new party, and after some years, he limited the democracy modifying the constitution in his favor with a coup d'état. Fujimori ended his presidency in 2000 under scandals related to corruption and human rights violations.

In the Economist's 2016 Democracy Index, Peru improved its position by moving from the 65th place of 2015 to the 59th out of 167 countries, similar to El Salvador (60th) and Colombia (57th) but much worse than Chile (34th) (Economist, 2017). In the Transparency International's 2016 Corruption Perception Index, Peru placed 101th out of 176 countries, on the lower half part of the rank, which is not such a good position, that means a quite corrupted country (Transparency International, 2017).

1.3.2 Politics and Goals of the Education System

The Ministry of Education is the responsible authority for the Peruvian education system. At the country level, it determines the education policy, legislation, curriculum guidelines and textbook content (U.S. Library of Congress, 2017). The local education authorities in the 25 regions administer and implement the policy measures at the primary and secondary level (World Education News & Reviews , 2017).

In Peru, people link social and economic well-being with educational achievement. This way, education became important, not only for its functional usefulness, but also for social reasons (U.S. Library of Congress, 2017).

Although the enrolment rate is close to the OECD average and higher than the regional average (countries of South-America) at all levels of education, Peru had one of the lowest scores in the PISA 2012 ranking.

To improve the quality and performance of the education system, the government enacted some reforms to improve the quality of the education system. To improve the teaching profession and in general the quality of teachers, the government introduced the "*Ley de Reforma Magisterial*" in 2012. This reform intended to increase the attractiveness of the teacher profession not only through better professional development but also by improving the working conditions and payment. (OECD, 2016a).

To improve the infrastructure of public schools, the government developed the "*Programa Nacional de Infraestructura Educativa*", a national education infrastructure program to enable the different levels of government to collaborate to improve the planning and execution of public works and to promote private-sector involvement (OECD Development Centre, 2015).

For the tertiary level, the government adopted the University Act (*Ley Universitaria*) which established that the quality of education in universities have to be monitored by the National Superintendence of University Education (OECD Development Centre, 2015).

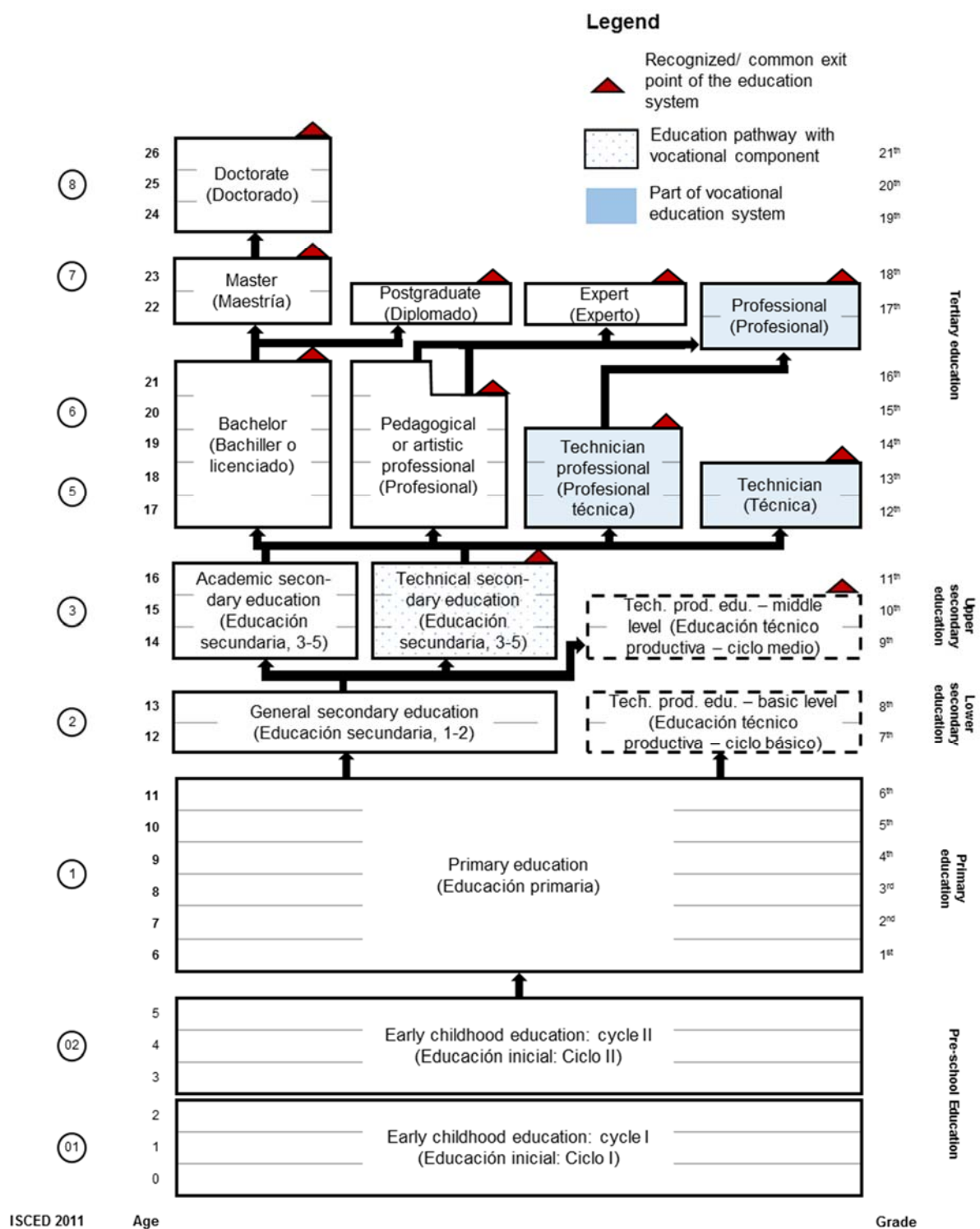
2. Formal System of Education

Compulsory education in Peru lasts twelve years and takes place between the ages of five and seventeen. The academic year runs from February until December. The mandatory school system is divided into three stages: pre-primary school education (one year), primary school education (six years), and secondary school education (five years) (WENR, 2015). Before the 1993 constitutional reform, only primary education was compulsory. (UNESCO-IBE, 2011).

The Ministry of Education determines the national curriculum for the entire mandatory school system and applies to both public and private schools. Schools must respect the official curriculum, but may also implement supplementary learning plans. Municipalities and the local educational bodies are responsible for ensuring the implementation of the curriculum, standard teaching hours, and compliance with the rules. (EP-Nuffic, 2015)

In contrast to Switzerland, Peru does not have a public dual vocational education system. Instead, vocational education is offered after secondary school at Institutes and Schools of Higher Education (*institutos y escuelas de educación superior*) or directly at universities (*universidades*) (EP-Nuffic, 2015).

Figure 3: Overview of the Peruvian education system¹¹



Source: Own illustration based on the data of the UNESCO (2016), Clark (2015) and MINEDU & CNE (2010).

¹¹ The size of the boxes does not coincide with the actual size or importance of the program in the education system.

Table 4 reports the gross enrolment ratio (GER) by education level for the years 2010 and 2015. The GER illustrates the number of students enrolled at an education level proportional to the population in the corresponding age group. For example, for the primary education level, the gross enrollment ratio sets the actual number of students in primary education in relation to those who are in the official age to attend primary education.¹²

Table 4: Gross enrolment ratio

Educational level	2010	2015
Pre-primary education	78.6	88.7
Primary education	110.4	101.7
Secondary education	94.7	95.7
- Lower secondary education	105.6	99.8
- Upper secondary education	78.6	89.6
Tertiary education	40.5	-

Source: Based on (UNESCO, 2017a).

The GER in pre-primary education has improved in recent years. In contrast, enrollment in primary education decreased from 2010 to 2015 (a trend that has been observed since 2000 (UNESCO, 2017a)).

Although the GER for secondary education has remained relatively stable in recent years, the GER for lower secondary education has decreased while it increased for the upper secondary education level. Nevertheless, the GER in lower secondary education remains higher than in upper secondary education. A GER for 2015 is not yet available for tertiary education, but the 2010 numbers indicate a substantially lower enrolment than the other education levels.

2.1 Pre-Primary Education

Pre-primary school is the first level of compulsory education. Although children can attend starting as infants, only the last year (age five) is mandatory. Pre-primary education is divided into two parts. The first part is covered by daycare institutions and caters to infants up until two-year-olds. Institutions offering the second part are kindergartens and cater to children ages three to five (WENR, 2015). Kindergarten attendance is five hours a day, five days a week (900 hours total each year). Attendance at daycares, in contrast, is much more flexible (EP-

¹² 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.

Nuffic, 2015). Kindergartens also offer special programs for children who come from marginal groups and rural areas (WENR, 2015).

2.2 Primary Education

The second level of compulsory education is primary education, which is attended by children ages six to eleven. Primary school lasts six years in total and is made up of three two-year cycles. Students spend six hours and 45 minutes per day, five days a week (1100 hours per year) in class. However, the UNESCO estimates that the mandatory schooling hours are not often reached. Estimations show that actual schooling time amounts to only 50-80 percent of the officially required time. Compulsory subjects include mathematics, communications, art, personal development, physical education, religious education, as well as science and environmental studies (UNESCO-IBE, 2011).

2.3 Secondary Education

Secondary education is the third level of basic education. It is split in two parts and takes five years to complete. The first part takes two years and encompasses general education for all students. The second part takes three years to complete and includes both an academic and a technical track; both provide access to universities (UNESCO-IBE, 2011). Secondary education is made up of seven teaching hours per day, five days a week (40 weeks per year amounting to 1400 hours per year) (WENR, 2015).

The Ministry of Education has defined a general curriculum for secondary education that includes compulsory subjects, such as mathematics and languages, as well as vocational training. (WENR, 2015) (EP-Nuffic, 2015).

Alternatively, students can enroll in the national Center for Technical Education (*Centros de Educación Técnico-Productiva*) (CETPRO), which offers short-cycle occupational training programs that last one to two years. After one year, students can earn the degree “assistant technician” (lower cycle) and after two years the “technician” degree (middle cycle). This option is available to students who do not complete primary and/or secondary education. However, some students who completed the upper secondary school also choose CETPRO because they do not want to or they are not able to access post-secondary or tertiary programs (Mary Alice McCarthy, 2016). Most of the CETPRO are private, however the Ministry of Education supervises and licenses them. For students who complete the lower secondary school, it is possible to enter directly in the middle cycle of the technical productive educational system. Other students start from the basic level cycle. (WENR, 2015)

As a third option at the upper secondary level, students can attend VET programs provided by industry sectors, namely the housing, tourism, manufacturing and defense sectors, which have established their own technical schools providing their own training programs.

The technical productive educational system does not provide access to universities. Instead, completion is recognized as an exit point of the educational system. The certification issued after a successful completion of the basic level is the Assistant Technician (after one year of post-primary school). After completion of the medium level, (after the completion of the lower secondary school and two years of post-primary schooling), the Ministry of Education awards the student the certification of Technician (WENR, 2015). This alternative education path is also for students with any kind of disabilities who are not able to continue the general education pathway (Net Industries, 2017).

2.4 Postsecondary /Higher Education

Mandatory schooling ends after secondary education and students can freely choose whether they want to continue studying (at tuition-free public institutions) or exit the education system. Two main options are offered after a successful completion of the upper secondary general education pathway. Students can either pursue their studies in a general education subject at a national university or a teacher training college or arts academy, or they can pursue a vocational degree at a higher institute of technology.

Institutes and Schools of Higher Technological Education (*Institutos y Escuelas de Educación Superior Tecnológicos – IEST*) provide post-secondary technical and vocational training education that result in three main qualifications: Technician (two years), Technician Professional (three years) or Professional (four to five years). After having finished the education as a Technician Professional and Professional, students have the possibility to pursue further training as an “Expert” or obtain a second “Professional” qualification. Obtaining an Expert qualification requires a Professional qualification plus one more year of studies, while obtaining a second Professional qualification requires an additional two years of studies on top of either a Professional or Technical qualification. (EP-Nuffic, 2015) (WENR, 2015)

National universities are the main providers of general education at the tertiary level. Other providers include teacher training colleges (*Institutos de Educación Superior Pedagógicos – IESP*) or arts academies (*Institutos y Escuelas Superiores de Educación de Formación Artística – IESFA*). There are 51 public universities and 89 private universities (including both profit and non-profit). Most of the renown universities are private. Public universities often lack financial resources to compete with the private universities. The private universities need to be accredited by the National System of Evaluation and Accreditation of Educational Quality

(SINEACE) (see section 3.4.2). The academic year is split into two semesters, beginning between March and April and lasting around 34-36 weeks. (WENR, 2015)

Access to higher education is dependent on the successful completion of secondary school. However, the most prestigious public and non-profit universities tend to be very competitive and selective, requiring students to pass an additional entrance exam. Students often prepare for the entrance exam for one or two years. (WENR, 2015) (EP-Nuffic, 2015)

2.5 Teacher Education

In 2006, the UNESCO estimated that, 51.7 percent of freshmen university students wanted to become teachers (UNESCO-IBE, 2011). Article 38 of Law No. 29062 (2007) manifests that there are two ways to become a teacher: either graduate from a teacher training college (*Institutos Superiors Pedagogicos, ISP*) or from an accredited education program at a university, where students specialize in a certain subject and attend pedagogical classes alongside their specialization. Becoming a teacher normally takes five years and results in a certificate granting the title of a teacher (Spanish: “*Profesor*”) with mention of the educational level and specialization (WENR, 2015). One exception is teachers at vocational schools, who are trained at IESTs. Their education lasts three years and results in a “Technician Professional” certificate (*Profesional Técnico or Profesional*) (UNESCO-IBE, 2011).

Studies at teacher training colleges (ISPs) comprise 4,800 hours of instruction distributed as follows: 25.5 percent general education topics, 25.5 percent basic professional education, 36 percent specialized professional education, and 13 percent professional practice.

Teachers can also choose to complete their education at a professional program, which combines traditional and distance education for six years. These kinds of programs are mostly attended by teachers who do not yet have a pedagogic diploma but already teach and just want to advance their studies (ibid.).

There is no difference in the education of teachers for the primary or secondary education level. In addition, the only difference between programs offered at ISPs and universities is that the universities offer a slightly larger scope of program specialization. Each university or teacher college has the autonomy to design its own curricula for the teacher training, as long as it follows the basic curricular structure prescribed by the Ministry of Education. Teachers with teaching experience can also take part in continuing education options at the colleges and universities (ibid.).

To become a teacher, the candidates have to apply through a public system for teacher placement. Besides having a teacher diploma from an ISP or certificate confirming educational

studies at a university, the aspiring teachers must prove they are healthy do not have a criminal record. An evaluation committee consisting of experts, different representatives of the education system, and parents recruits teachers to the public school system. The evaluation of teachers for the higher education institutions is done by a special body, the so-called Local Educational Management Unit (*Unidad de Gestion Educativa Local (UGEL)*) (ibid.).

In 2007, the government passed a law on the public teaching career (*Carrera Pública Magisterial* law, CPM). Among other measures, the CPM included in-service teacher evaluation policies and linked teachers' promotions and salary increases to professional performance (Verger, Altinyelken , & de Konig, 2013).

In 2009, the government launched a program aimed to increase the quality of teachers (*Programa Nacional de Formacion y capacitacion Docente, PRONAFCAP*). It restricted the number of annual recruitments of teachers to 34,200, increased the time future teachers have to spend in training, and tested the quality of some teacher training institutions. Consequently, the number of ISPs decreased, as well as the enrollment in teacher training programs at universities and ISPs (ibid.).

According to the OECD (2016), teachers in Peru face some challenges that may affect students' outcomes negatively. The OECD is critical of the quality of Peru's teachers, which might be caused in part by low wages (more than 30 percent lower than the average professional worker). There are also very few incentives for teachers to perform better, because the education system does not reward good teaching or provide sufficient training. The most talented students may seek employment in another sector rather than become teachers, based on these conditions. (McCarthy & Musset, 2016).

In 2012, the Magisterial Reform Law (*Ley de Reforma Magisterial*) aimed to reform the teacher profession and to increase the quality of teachers. Its goal was to introduce meritocracy to teaching careers by offering better working conditions, pay and higher incentives for further professional development (McCarthy & Musset, 2016). According to the OECD (2016), improving the quality of teachers was still on the agenda of the government that was in power in 2016.

3. The System of Vocational and Professional Education and Training

This section of the Factbook describes the Peruvian 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. The term vocational and professional education and training (VPET) refers to both the VET and the PET systems.

The programs offered by VET or PET institutions can be classified into 20 different professional categories (see Table 5). The professions that share a common stock of knowledge, technology, and resources are classified into one category. Consequently, each professional category contains a set of professional titles and certifications.

Table 5: Classification of Professional Categories

N°	Professional Category
1	Administration and Trade (<i>Administración y Comercio</i>)
2	Farming Activities (<i>Actividades Agrarias</i>)
3	Maritime Fishing (<i>Actividades Marítimo pesqueras</i>)
4	Graphic Arts (<i>Artes Gráficas</i>)
5	Crafts (<i>Artesanías y Manualidades</i>)
6	Computer and Information Technology (<i>Computación e Informática</i>)
7	Communication, Image and Sound (<i>Comunicación, Imagen y Sonido</i>)
8	Construction (<i>Construcción</i>)
9	Leather and Footwear (<i>Cuero y Calzado</i>)
10	Electricity and Electronics (<i>Electricidad Electrónica</i>)
11	Beauty services (<i>Estética Personal</i>)
12	Hospitality and Tourism (<i>Hostelería y Turismo</i>)
13	Food Industries (<i>Industrias Alimentarias</i>)
14	Mechanics and Metals (<i>Mecánica y Metales</i>)
15	Mechanics and Engines (<i>Mecánica y Motores</i>)
16	Mining (<i>Minería</i>)
17	Chemics (<i>Química</i>)
18	Health Services(<i>Salud</i>)
19	Social Services (<i>Servicios Sociales</i>)
20	Textile and Clothing (<i>Textil y Confecciones</i>)

Source: INEI (2014).

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

Peru's VET system at the secondary level is underdeveloped. VET is offered as both secondary schools and open access training centers. Although the open access training centers fall under the MINEDU and provide officially recognized degrees, these degrees do not allow students to progress to higher education. (McCarthy & Musset, 2016). In the following, we will first refer to vocational education at secondary schools and then to VET offered by open access programs.

VET at secondary schools

After the completion of the primary education level, students can directly continue with the first two years of secondary education at the lower secondary education level, which is a general education program, i.e. with no vocational education. After these two years, students can choose whether they want to continue their studies in general education (*Centro Educativo/Colegio –Ciclo Científico-Humanístico* (BQ-Portal, 2017)) or vocational pathway (*educación para el trabajo*) offered by a small group of vocationally oriented upper secondary schools (so-called *Colegios Técnicos* (McCarthy & Musset, 2016) or *Escuelas Superior de Educación Profesional–Ciclo Técnico* (BQ-Portal, 2017)). Both the general and vocational pathways take three years to complete and provide access to higher education. However, the majority of students directly enter the labor market, while only about 40 percent progress to higher education. While the general education pathway terminates with the degree *Certificado Oficial de Educación Secundaria Común Completa*, students completing the vocational program are granted the *Diploma de Aptitud Profesional/Auxiliar Técnico* (BQ-Portal, 2017).

Pupils in the vocational pathway have the opportunity to choose a specialization in one of the following fields: agriculture, crafts, trade, industry, mining, tourism, or health. Recent educational reforms for secondary schools reduced the hours spent on vocational education and increased the hours spent on general education, essentially equalizing vocational and general programs. (McCarthy & Musset, 2016). Some sources say that this alignment of programs reduced the amount of time that could be dedicated to vocational education to two hours a week in both vocationally oriented and general education schools. The main reason for these reforms was the poor quality of the vocationally oriented schools. To remedy the shortcomings of the vocational programs, the government has applied the same graduation requirements used for general education diplomas on diplomas from vocationally oriented schools. (EP-Nuffic, 2015).

VET provided by open access training centers

Beyond vocational education at secondary schools, students can also enroll in open access schools, called *Centros de Educación Técnico-Productiva* (CETPRO). The General Education Law (Law N°28044) established the CETPROs, which replaced the former Occupational Education Centres (CEO) (Lavado, Rigolini, & Yamada, 2015).

The CETPROs offer adults, young people and persons with special needs the opportunity to acquire competences for the labor market and for the pursuit of special professional activities. In addition to providing training for the labor market, the CETPROs offer continuing education and training, as well as training for the unemployed (Schönstedt-Maschke, 2014).

CETPROs offer two different short-cycle training programs: the basic cycle (*Ciclo Basico*) and the middle cycle (*Ciclo Medio*). While the former lasts between two months to one year, the latter takes two years to complete (McCarthy & Musset, 2016).

Most of the basic cycle courses are offered in trades and professions in the textile industry. To be admitted to a basic course, no previous knowledge is required. Consequently, this program provides training opportunities for people with a primary education degree or those who have no formal school-leaving certificate. The courses are free of charge in the public institutions, which provides qualification possibilities for persons with low incomes. After one year, the students are awarded the degree “assistant technician”. The one-year degree shall equip students with the necessary skills for the execution of minor complexity activities, helping them to transition into the labor market. In order to be admitted in a two-year middle cycle course, a secondary school diploma is necessary (after completing the first two years of secondary school) (ibid.). The two-year program trains students for a specialized occupational activity, enabling them to receive a technical degree, the so-called “technician” degree (Lavado, Rigolini, & Yamada, 2015).

The basic cycle training courses at CETPROs are mostly introductory seminars. Most of the courses are taught with simple devices, since the teaching equipment and infrastructure is very poor. Thus, students lack work experience with devices used in the real workplace. No contacts are made between students and companies, which could facilitate the entry into employment after finishing training. Since a large number of the private CETPROs are profit-oriented companies, it is crucial for them to save costs in the short term. For example, they refrain from analyzing whether the skills they teach meet the demand of the labor market. The consequence is that many curricula are outdated, as they are not adapted to the ever-changing conditions of the labor market (Schönstedt-Maschke, 2014).

The education provider in the manufacturing sector, *Servicio Nacional de Adiestramiento en Trabajo Industrial* (SENATI) (see also next subsection), runs some of the CETPROs in this sector. To be admitted in one of the SENATI schools, a secondary school leaving qualification is a prerequisite (Schönstedt-Maschke, 2014).

Due to its low entry barriers, the CETPROs are a good alternative for young Peruvians who dropped out of school or somehow did not manage to finish secondary school. School dropouts have been a problem in Peru since a long time. Despite improvements in the past, around one third of the Peruvians aged 18 or 19 have not completed secondary school. In this regard, many CETPROs students come from families with low socioeconomic status (McCarthy & Musset, 2016; Lavado, Rigolini, & Yamada, 2015).

In 2014, there were more than two thousand CETPROs in Peru; half of these were private. In 2014, 244 694 students were enrolled in CETPRO programs (50 percent in private institutes, see Table 6) (McCarthy & Musset, 2016).

Since private CETPROs do not receive public funding, they are dependent on the tuition and fees of the students. Consequently, they often deliver programs in subjects that are demanded by the students (e.g. hair dressing, secretarial skills) but not necessarily on the labor market (with an over-demand for people with technical skills), leading to a skills mismatch. In fact, one problematic aspect of the Peruvian VET system is the poor alignment of education programs with the needs of the labor market. In particular, there is an under-supply of professionals with a scientific or engineering degree and an over-supply of people with a degree in administration or accounting. In addition, national and international actors (e.g. the OECD) have questioned the quality of the training programs (McCarthy & Musset, 2016; Lavado, Rigolini, & Yamada, 2015).

The Ministry of Education (MINEDU) regulates the CETPROs. It gives them the authorization to grant degrees and develop their own curricula. Though the CETPRO programs belong to the formal education sector, they have no formal connection to the secondary school system (McCarthy & Musset, 2016). Since the end of 2016, the law N° 30512 (*Ley de Institutos y Escuelas de Educación Superior y de la Carrera Pública de sus Docentes*) grants students with the certificate of a “technician” (having completed the middle cycle) issued by a CETPRO the opportunity to access programs at the post-secondary education level at so-called Institutes and Schools of Higher Technological Education (IESTs). This is only possible if the IESTs recognize the “Technician” certificate. However, the large number of training programs with a diffuse range of specialization opportunities and the absence of a uniform training regulation, provides that the programs of the CETPROs are very heterogeneous. This makes

the transition of graduates to the higher education system almost impossible (Schönstedt-Maschke, 2014).

One example of the diffuse situation on the training market is that CETPROs as well as higher education programs at IESTs (see next subsection for a description of the IEST) grant the certificate of a “Technician” (McCarthy & Musset, 2016).

Table 6: Enrolment in public and private VET institutions, 2014

	IEST		CETPRO	
	Number of students	%	Number of students	%
Public	109'367	30	123'388	50
Private	252'032	70	121'306	50
Total	361'399	100	244'694	100

Source: Own Illustration based on (McCarthy & Musset, 2016).

As a consequence of the low amount of VET programs offered at the upper secondary education level, paired with the fact that many Peruvians do not enrol in tertiary education (only around 40 percent of a cohort), many young Peruvians enter the labour market rather unprepared (McCarthy & Musset, 2016).

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

Compared to the VET system, Peru's professional education and training (PET) system is much more elaborated and integrated in the Peruvian education system. As described in section 2.4, upon completion of the secondary school, students who decided to start a vocational degree have access to a wide range of programs. They can choose between programs offered by the Institutes and Schools of Higher Technological Education (*Institutos y Escuelas de Educación Superior Tecnológicos- IEST*) or those provided by sector-based institutions. Both types of institutions offer highly technical programs, such as auto repair and precision manufacturing, and less technical programs, such as business administration and graphic design (McCarthy & Musset, 2016). Both types of institutions will be described in more detail in this section.

Post-secondary education in general and the non-university sector is regulated by the laws N°29394 (*Ley de Institutos y Escuelas de Educación Superior*) and N°30512 (*Ley de Institutos y Escuelas de Educación Superior y de la Carrera Pública de sus Docentes*). According to these laws, the institutes and schools for higher education in the non-university sector can offer pedagogical, technological or artistic training; public or private providers can run the institutes (INEI, 2014).

PET provided by the IESTs

Students who decide to enroll in a program at an IEST can choose between two different qualifications: the two-year technical training (80 credits, around 2000 hours of instruction) leading to a “Technician” certificate (*Técnico*), and the three-year professional technical training (about 3000 to 4000 hours of instruction) leading to a “Technician professional” certificate (*Profesional Técnico or Profesional*) or “Technical Bachelor” (*Bachiller técnico*) (WENR, 2015; Edugestores , 2017).

In 2014, 30 percent of all post-secondary students were enrolled in an IEST program. Since the liberalization of the education sector (through the *Decreto Legislativo 882*), the university but also the non-university sector has expanded substantially through the establishment of private institutions. Consequently, private providers run most of the IESTs: in 2014, over the 70 percent of IEST students were enrolled in private institutions- even more than in the CETPRO sector where the corresponding share was 50 percent (see Table 6). Private schools do not receive financial aid from the government. Consequently, they depend primarily on tuition fees. The variation in fees is very high, they range between \$US100 to \$US8000 (McCarthy & Musset, 2016).

As in the VET sector, a general problem of the programs provided by the IESTs is their poor alignment with the needs to the labor market. According to the OECD (2016), there is an oversupply of graduates from less technical fields and an under-supply of graduates in scientific and technological fields. In addition, the transition between IEST programs and the university sector is difficult. Such a transition is often only possible if there is a large overlap of the program attended at an IEST with the university program and given that the respective student invests a lot of effort to convince the responsible persons. More often, students end up starting from scratch or repeating coursework (McCarthy & Musset, 2016).

The programs provided by sector-based institutions often guarantee a better alignment of the programs with the needs of the labor market. These will be described next.

PET provided by sector-based institutions

Some industry sectors, namely the housing, tourism, manufacturing and defense sectors, have established their own technical schools providing training programs. These technical schools are largely independent from the MINEDU, have their own governance structures and finance schemes. They not only provide degree programs for youngsters, but also further training for the working population. The close collaboration with employers in- terms of financing and program design- reassures the alignment of the programs with the labor market needs. Though

the schools account for only 10 to 15 percent of total enrollment in PET programs, they have a good reputation (McCarthy & Musset, 2016).

As mentioned in a report published by the *Banco de Desarrollo de América Latina* (CAF) (2015), these sector-based institutions also belong to the formal education sector.

An OECD report (2016) provides a short summary of three of these sector-specific schools. Unless otherwise indicated, this report is the main source for the information provided in the following.

Programs of the construction sector (SENCICO)

The *Servicio Nacional de Capacitación para la Industria de la Construcción* (SENCICO) provides initial and further training for the construction sector in schools located in the four biggest cities of Peru. The schools are private and develop their curricula independently. They are financed only through tuition and employer contributions. Nevertheless, the SENCICO operate under the jurisdiction of the Ministry of Housing. Compared to the 361'399 students enrolled in IEST programs, the number of 2'573 enrolled students (both in 2014) is relatively low.

Programs of the tourism sector (CENFOTUR)

The *Centro de Formación en Turismo* (CENFOTUR) caters two- and three-year training programs to the tourism sector, provided in four different schools. These schools are authorized by the Ministry of Trade and Tourism, but otherwise free to design their curricula according to the industry's needs. In addition, these schools are financed partly through tuition fees, partly through employer contributions. About 1'500 students enroll in the CENFOTUR schools every year.

Programs of the manufacturing sector (SENATI)

The *Servicio Nacional de Adiestramiento en Trabajo Industrial* (SENATI) provides two- and three-year training programs in 13 different areas with 31 training professions belonging to manufacturing sector (e.g. in machining, mechanical production, and repair technologies). The schools of the SENATI belong to the post-secondary, non-university sector. As such, the minimum entry requirement for all programs provided by the SENATI schools is a secondary school certificate (Schönstedt-Maschke, 2014).

International organizations, such as the OECD, have criticized the low quality of the Peruvian education system in general. In addition, quality differences within Peru seem to be present. Due to these quality differences, SENATI decided to bring all trainees to a uniform level of basic skills. Before the start of the actual training program, each student has to go through a

compulsory preparatory course (*Nivelación académica*). The preparation course ends with a test. Only the students who pass the test are admitted to start the actual training program (Schönstedt-Maschke, 2014).

Some of the training programs provided by SENATI schools are organized in a dual manner; others are completely school-based, as shown in Table 7. The programs are classified in levels that correspond to their degree of complexity and variety of their productive tasks or functions, as well as the degree of autonomy and responsibility. While the dual program is located at the lowest level, the “operative technical level”, the other school-based programs are classified as “middle technical level” and “higher technical level”. By providing vocational training in a dual manner, the SENATI schools are unique in Peru (ibid.).

The dual training program lasts three years (3-6-semester). Therein, students spend their first year in school and the second and third year in the workplace under the guidance of a mentor (McCarthy & Musset, 2016). In the last two years, students work four days a week in the company and one day in professional education centers (*Centros de Formación Profesional*). The ratio of training spent at the workplace and in training centers is 80 to 20 percent. “instructors” teach the theoretical and practical basic and vocational training provided in the professional education centers. They must have a university degree and at least three years of professional experience in the professional field they teach (often, they are former SENATI students). Specialists supervise the in-company training. Their role is comparable to a “Meister” in the VET model in German-speaking countries like Switzerland. The instructors also have the task to undertake company visits and to support the in-company supervisors pedagogically and technically. In addition to vocational training, there are also four-week supplementary seminars (*Seminario de Complementación*), which ensure that all trainees have knowledge and skills with the most up-to-date technology, as modern technical equipment is missing in some companies (ibid.).

The training companies that participate in the dual training can be divided into two groups. First so-called *Patrocinios*, where the company trains the trainee and pays him additional salary for the training period. They are obliged to pay the trainee at least 50 percent of the minimum wage. Thereby, the trainee has to pay his insurance costs himself. Second, companies that train, but do not provide compensation for the trainees. However, the trainees can apply for a fellowship (ibid.).

Table 7: Education programs provided by SENATI

Level	Kind of program	Professions provided
Operative technical level (<i>Nivel técnico operativo</i>) Duration: 3-6 semester	Dual program (<i>Aprendizaje Dual</i>)	<ul style="list-style-type: none"> • <i>Metalmecánica y mecánica de producción</i> • <i>Artes gráficas</i> • <i>Trabajados en madera</i> • <i>Electrotecnia</i> • <i>Mecánica automotriz</i> • <i>Textil/Condecciones</i> • <i>Cuero y calzado</i> • <i>Cerámica industrial</i> • <i>Industria alimentaria</i> • <i>Joyería, orfebrería y platería</i> • <i>Turismo</i>
Middle technical level (<i>Nivel Técnico medio</i>) Duration: 6-7 semester	School-based program (<i>Formación de Técnicos industriales</i>)	<ul style="list-style-type: none"> • <i>Mecánica de producción.</i> • <i>Diseño de máquinas</i> • <i>Procesos de producción textil</i> • <i>Diseño gráfico</i> • <i>Matricería</i> • <i>Automatización industrial</i> • <i>Mecánica de automotores.</i>
	School-based program (<i>Formación de Mandos medios</i>)	<ul style="list-style-type: none"> • <i>Mecánica automotriz</i>
	School-based program (<i>Formación de Administradores industriales</i>)	<ul style="list-style-type: none"> • <i>Administrador industrial</i>
Higher technical level (<i>Nivel Técnico superior</i>) Duration: 8-9 semester	School-based program (<i>Formación de Profesionales en Técnicas de Ingeniería</i>)	<ul style="list-style-type: none"> • <i>Profesional en técnicas de ingeniería mecánica de mantenimiento</i> • <i>Profesional en técnicas de ingeniería electrónica</i>

Source: Schönstedt-Maschke (2014).

The SENATI is independent from the MINEDU in operating its schools and granting degrees. It runs 80 schools with 72'443 enrolled students in 2014. The schools are financed only through tuition and employer contributions from the industrial employer association (*Asociación de Empresas Industriales*) (McCarthy & Musset, 2016). For its dual training programs, the SENATI cooperates with about 9'500 companies spread all over Peru (Schönstedt-Maschke, 2014).

The co-operation between SENATI and the company sector also covers other areas. The companies are involved in the management of SENATI and in the planning and development of the training curricula (about 250 companies at country level).

SENATI also recruits industry experts as teachers from the companies and consults companies regarding their training strategies.

In cooperation with companies, SENATI also offers the Employment Service (*Bolsa de Trabajo*), both for graduates of SENATI and for registered companies. In this way, graduates who have not found a job directly after their training can have their profile and application submitted, but also the companies can benefit from the exchange if they want to fill vacancies with qualified specialists (*ibid.*).

3.3 Recognition of prior learning

A large proportion of Peru's workforce does not have completed secondary or higher education or does not have any formal qualification. Since proving their abilities and skills to employers can be challenging without having a certificate, the Ministry of Labor initiated a service that helps workers certifying their skills in 2011. Thereby, a third-party organization assesses the workers' skills and awards them an official qualification. The Ministry gave some schools, industry associations and local job centers the right to test the workers' skills and to issue such qualifications. Workers only have to pay a small fee for this service. This measure also helps workers in the informal labor market to get access to the formal labor market (McCarthy & Musset, 2016).

3.4 Regulatory and Institutional Framework of the VPET System

3.4.1 Central Elements of VPET Legislation

The General Education Law No. 28044, article 3 (*Ley General de Educación*) is the legal foundation of the Peruvian VPET system, i.e. it refers to the upper secondary and the tertiary sector.

Other relevant acts are listed in the following. The information is based on a report published by the *Banco de Desarrollo de América Latina* (CAF) (2015) and on information provided by Edugestores (2017).

- **Law for the establishment of the National System of Evaluation, Accreditation and Certification of Educational Quality (SINEACE)**; Law No. 28740 (year: 2006): This institution has the goal to manage and evaluate the quality of education and training institutes (see section 3.4.2 for more info).
- **The Orientation Guide for Modular Programming** (*La Guía de Orientación para la Programación Modular*; year: 2007): Regulates the curriculum design and its components for CETPRO (proponent: Ministry of Education).

- **Directive Resolution 0920** (year: 2008) (in combination with the afore-listed *La Guía de Orientación para la Programación Modular* (year: 2007): Includes a performance-based curriculum, a teaching and assessment (draft) method for the basic design and components of the VET curricula (proponent: Ministry of Education).
- **Resolution 0107** (year: 2010): Regulates the curriculum design and its components for postsecondary technical education institutes.
- **Law of Institutes and Schools of Higher Education** (*Ley de Institutos y Escuelas de Educación Superior*); Law No. 29394 (year: 2009): Includes general principles for operating postsecondary technical institutes.
- **Directive Resolution 2935** (year: 2011): Promotes activities in postsecondary technical education institutes.
- **Law of Institutes and Schools of Higher Education and of the Public Career of its Teachers** (*Ley de Institutos y Escuelas de Educación Superior y de la Carrera Pública de sus Docentes*); Law No. 30512 (year: 2016): Regulates the creation, licensing, academic regime, management, supervision and control of the Institutes of Higher Education (IESTs) and Higher Education Schools (EES). It also regulates the development of the public career of the teachers of public or private higher education institutions (with the exception of the Schools and Institutes Superiors of Artistic Formation).

3.4.2 Key Actors

The key actors administrating or operating the VPET system are briefly described in the following.

Government

In Peru, the Ministry of Education (*Ministerio de Educación del Perú*— MINEDU) is the main actor in the entire education system, i.e., from preschool to university. The ministry sets the education policy, and develops the legislation and curriculum guidelines. The local education authorities are responsible for the implementation of the education policy and supervision of the compulsory education. While the MINEDU designs the curricula for the VET system is guided by the MINEDU. In the PET system, the MINEDU regulates the institutes, but sets neither the curriculum nor the degrees, which is the privilege of the respective institutes. The sector-based institutes, on the other hand, have their own governance structures and financing strategies making them mostly independent of the MINEDU (McCarthy & Musset, 2016).

Part of the MINEDU is the Vice Ministry of Pedagogic Administration (VMPA). As a subsidiary of the VMPA stands the General Direction of Superior Education and Professional Technicians (*Dirección General de Educación Superior y Técnico Profesional*- GDSEPT). This department

is responsible for both, public vocational programs at the secondary and post-secondary level. Its responsibilities lie in the design of basic curricular structures and regulatory framework for the VPET system in CETPRO and IEST (MINEDU, 2015). The GDSEPT sets rules at the national institutional level.

Operationally, the MINEDU has 26 Decentralized Regional Governments (*Dirección Regional Education- DRE*), together with 17 decentralized Local Education Management Centers (*Unidad de Gestión Educativa Local- UGEL*). These official bodies act at the regional level. Therefore, they are better informed about the needs of the local education system. Their main task is to supervise the alignment of the curricula in the local education institutions with the nationally prescribed minimum requirements for curricula (ibid.).

Together with the MINEDU, the Ministry of Labour (*Ministerio de Trabajo y Promoción del Empleo- MTPE*) is responsible for the training provided at CETPROs. In addition, it is responsible for other vocational training programs, such as job training and employment services and active labor market programs (CAF, 2015).

Collaboration between the MINEDU and the MTPE in the public VPET sector is scarce. As the MINEDU mainly focuses on the general education programs at the secondary education level, this gives little room for improvement and collaboration with the MTPE regarding the VET system (Sociedad de Comercio Exterior del Perú, 2014). According to the OECD (2016a), a closer collaboration of the MTPE and the MINEDU would be favorable. The MTPE recently launched three sector skills committees. These committees serve as forums for dialogue and collaboration across ministries, among others the MINEDU, and with employers (ibid.).

In 2011, the MTPE launched a service for recognition of prior learning for workers from certain fields by giving several skill certifying institutions, such as schools, industry associations or local job centers, the authority to award official qualifications. The participants pay a small fee for this service. Regarding the high level of informality in the labor market, this service enhances the transition from the informal to the formal employment sector (McCarthy & Musset, 2016).

In 2016, a new law (N°30512) regulating technical institutions in the higher education sector was passed. Among other things, it established a new body responsible for the planning and management of the national network of technical institutions in the higher education sector, the so-called Office of Management of Institutes and Schools of Higher Education (*Organismo de Gestión de Institutos y Escuelas de Educación Superior Tecnológica Públicos- EDUCATEC*). EDUCATEC is attached to the MINEDU, with functional, economic, budgetary and administrative autonomy for the exercise of its functions. It operates at the national level

to support the development and establishment of public technical higher education. It does so in close coordination with regional governments (OECD, 2016a; Edugestores , 2017).

Representation and advisory bodies

The main advisory body is the National Council of Education (*Consejo Nacional de Educación-CNE*). It is part of the MINEDU but operates autonomously and includes several stakeholders of the education system. Their main objective is medium and long term education planning. Its current members include representatives from important industry sectors, teachers, the MINEDU and the MTPE. This advisory body is influenced and informed by many non-governmental education stakeholders (Consejo Nacional de Educación, 2017).

Furthermore, the National System of Evaluation and Accreditation of Educational Quality (SINEACE) is in charge of the certification of competencies of those completing programs in IEST. These certificates are also applied to a number of graduates of CETPRO (OECD, 2016a).

Education and training providers

a) Vocational Education and Training

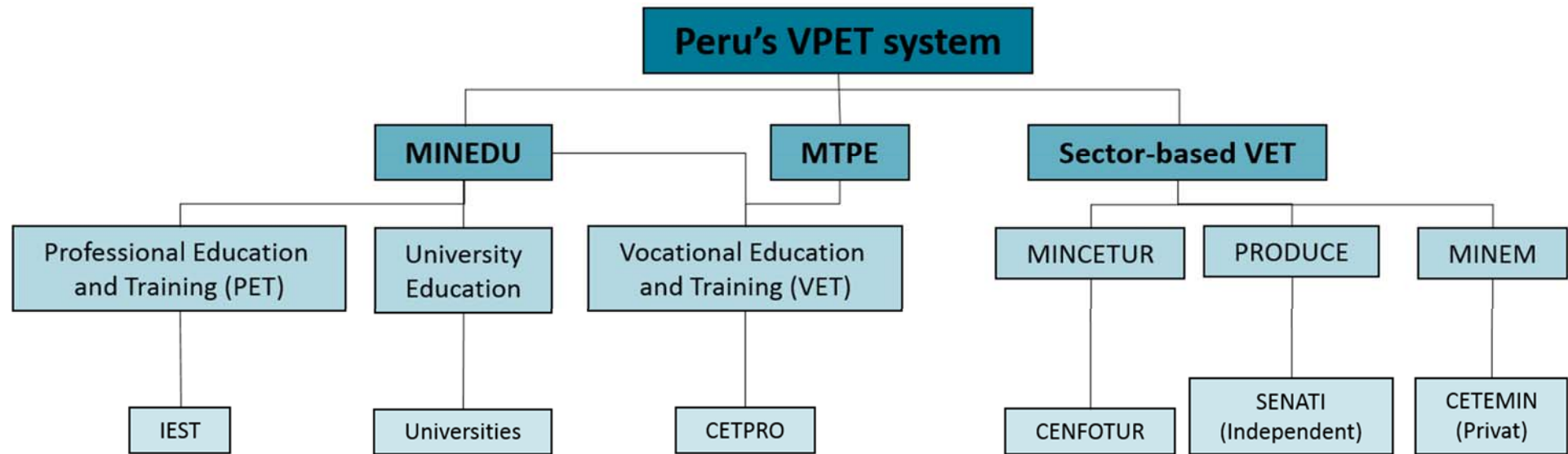
Besides the vocational schools, the CETPRO are the main VET institutions at the lower secondary level. They form the curricula in accordance with their local representatives of the UGEL or DRE. The CETPRO are meant to be flexible, so that the educational services respond to the heterogeneity of the students and stands in context to their peculiarities (MINEDU, 2004).

b) Professional Education and Training

PET is offered by the IESTs the sector-based programs that are organized independent of the MINEDU. The sector-based programs make up only a small proportion of the sector (10-15 percent), while the majority of programs is offered by the IESTs. They enjoy a good reputation among employers and students. Examples and large operators within this category are education programs offered by the following providers (McCarthy & Musset, 2016; CAF, 2015):

- *Servicio Nacional de Capacitación para la Industria de la Construcción (SENCICO)*
- *Servicio Nacional de Adiestramiento en Trabajo Industrial (SENATI)*
- *Centro de Formación en Turismo (CENFOTUR)*
- *Centro de Formación Técnica Minera (CETEMIN)*
- *Instituto Nacional de Investigación y Capacitación de Telecomunicaciones (INICTEL)*

Figure 4: Overview of Peru's VPET system and the key actors



Source: Based on (CAF, 2015).

3.5 Educational Finance of the VPET System

Even though Peru has increased its investments in education, these are still quite low when compared to other OECD or Latin American countries. In 2015, Peru spent 4 percent of its GDP for education (both, private and public institutions), while Chile spent about 4.9 percent in the same year and the OECD countries 5.2 percent of their GDP on average in 2013 (more recent data not available). Thereby, most of Peru's spending (84 percent in 2015) was invested in (pre-) primary and secondary education, and only one sixth (16 percent) in tertiary education (OECD, 2017b; UNESCO, 2017b). This is not surprising, given the low enrollment rate in tertiary education and its comparatively low quality.

As described in sections 3.1 and 3.2, half of the students in the CETPROs, and more than two-thirds of the students in IESTs, are enrolled in private institutes. Hence, together they account for a large part of the VPET system. Funding in both, public and private institutions is linked to the enrollment rates. Only the sector-based institutions do not have an enrollment-based funding system (McCarthy & Musset, 2016).

Private VPET institutions receive no funding from the government but are free to raise their funding as they want. As the main source of income of private VPET institutes are tuition fees, they are largely dependent on the students' demand for their programs. In contrast, the funding of public VPET institutes comes from the MINEDU. Compared to private sector institutes, the available money per student is substantially lower. As in the private sector, the financing of public VPET institutes is linked to the number of enrolled students, and in addition, the number of teachers of an institution. In contrast to the private institutions, the raising of own funding of public institutions is highly restricted so that they rely heavily on private donations. The largest part of their funding is used for teachers' salaries, whereas the donations cover equipment and materials. The attendance of public VPET institutions is tuition free.

By the design of these funding systems, both public and private institutions have an incentive to provide programs that are tailored to students' preferences and inexpensive to deliver, rather than to provide the skills that are demanded on the labor market. In addition, the institutes are not made responsible for students' outcomes in terms of graduation rates or labor market prospects, which reduces their incentive to provide high-quality programs that meet the needs of the labor market (ibid.).

Hence, according to the OECD (2016), the existing financing system of both public and private institutes sets the wrong incentives for the provision of VPET programs. They argue that the incentives should be set in a way to strengthen the alignment of supply and demand of skills.

One suggestion is that the funding system should be based on students' outcomes (outcome-based system), e.g. in terms of graduation rates, rather than enrollment rates.

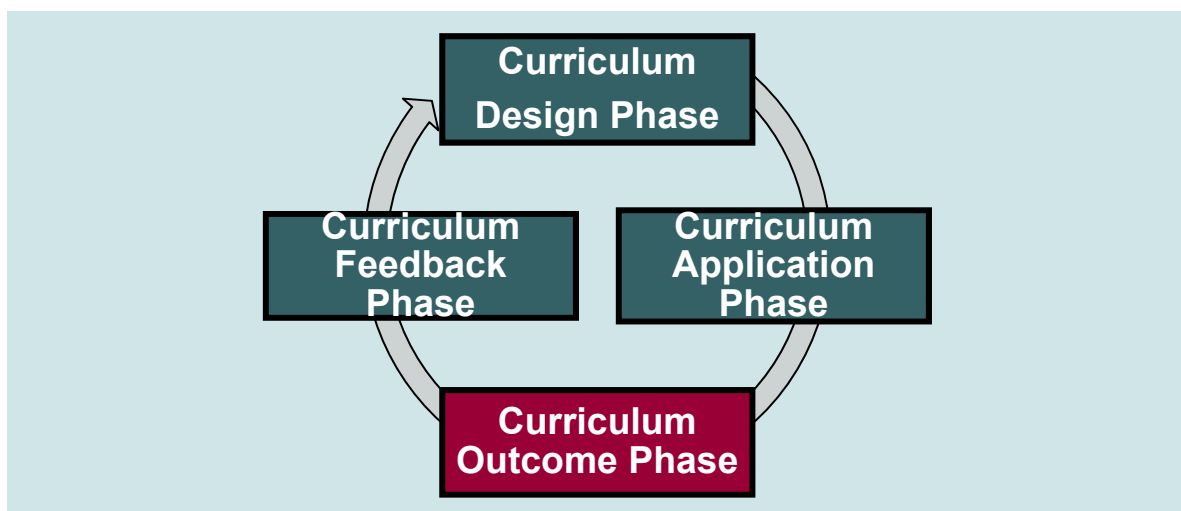
In contrast to the funding system at CETPROs or IESTs, the sector-based institutions can rely on employer contributions for the funding of their programs, besides charging students tuition fees (ibid.).

Whenever possible, parents want to enroll their children in private schools, since these provide better quality education (better teachers, equipment, etc.). This poses an equity problem, since families with low socioeconomic background cannot afford sending their children to private institutes. Therefore, the Peruvian government has initiated a program that provides financial aid to children from low-income families (scholarship program called BECA 18) (ibid.).

3.6 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 5: 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. 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 analyzed 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.

3.6.1 Curriculum Design Phase

The design phase is crucial for the whole curriculum process. In order to ensure that the skills taught in the VPET programs correspond to the needs of the labor market, experts from companies should be involved in defining the qualification standards and learning contents of the curricula.

The MINEDU lists all education programs, which can be provided by educational institutes, in a national catalogue thus also all the VPET programs. For the VET programs, the MINEDU also develops and updates the curricula. Even though the MINEDU involves stakeholders, such as regional offices and employers in the development of the curricula and includes the demanded key competencies, the process is very centralized. Besides, the MINEDU defines the entrance requirements, whereby it has set up mechanisms to recognize prior learning. One such mechanism are certification centers, which evaluate the informally learnt skills to assign the corresponding qualification. A new development is the definition of occupational profiles by the MTPE under the advice of employers. The MINEDU authorizes the CETPROS to deliver the degrees it has developed before (McCarthy & Musset, 2016).

In the last decade, the MINEDU has made the curriculum design more flexible by replacing the course-based by a modular and competency-based curricular model. In addition, it has created more flexibility by giving the education institutions more leeway in the way they deliver portions of VET programs (ibid.).

3.6.2 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.

The largest part of the curriculum is implemented at schools; thus, few students actually get workplace learning experience. The students are badly informed about their career opportunities but the MINEDU and the MTPE have developed a database including all postsecondary and tertiary education programs. A new national career guidance program under the MTPE also intends to ameliorate the situation by giving advice to in-school students,

young job seekers, as well as adults about their job opportunities (*Servicio de Orientación Vocacional e Información Ocupacional, SOVIO*). The SOVIO also trains secondary school teachers on career guidance (McCarthy & Musset, 2016).

In addition, the MINEDU and the Ministry of Labor have established a database of post-secondary and tertiary education programs that provides information about the cost of particular programs along with the earning perspectives in the corresponding jobs (McCarthy & Musset, 2016).

3.6.3 Curriculum Feedback Phase

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

The quality varies between VPET programs and depends heavily on the providers. The current quality assurance is weak, which harms students and employers (McCarthy & Musset, 2016).

In 2006, Peru established an accreditation system- the National System for Evaluation and Accreditation of Education Quality (*Sistema Nacional de Evaluación y Acreditación de la Calidad Educativa- SINEACE*), which aimed to improve education at all levels. The SINEACE consists of three distinct accrediting agencies (McCarthy & Musset, 2016):

- The Peruvian Institute of Evaluation, Accreditation and Certification of Basic Education Quality (*Instituto Peruano de Evaluación, Acreditación y Certificación de la Calidad de la Educación Básica- IPEBA*), which accredits primary and secondary schools as well as the CETPRO.
- The Evaluation, Accreditation and Certification Council of Non-University Higher Education Quality (*Consejo de Evaluación, Acreditación y Certificación de la Calidad de la Educación Superior no Universitaria- CONEACES*), which is responsible for the IEST.
- The Evaluation, Accreditation and Certification Council of University Higher Education Quality (*Consejo de Evaluación, Acreditación y Certificación de la Calidad de la Educación Superior Universitaria- CONEAU*), which is responsible for the accreditation of universities.

These bodies accredit institutions and individual programs, using a peer-review and quality standards (McCarthy & Musset, 2016).

Most importantly, since accreditation is not obligatory, these institutions have little impact. By 2015, the SINEACE had only accredited 83 of the 2406 vocational education degree programs (33 of the 1743 university degree programs) (ibid.).

3.7 Supplying Personnel for the VPET System (Teacher Education)

Vocational teachers are trained at IESTs. Their education lasts three years. Upon completion, they receive the title of a “Technician professional” certificate (*Profesional Técnico or Profesional*) (UNESCO-IBE, 2011).

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

4.1 Major reforms

- To address quality issues of the Peruvian education system, the National Education Council (Consejo Nacional de Educació, CNE), which is a consultative body of the MINEDU, commenced a consultative process to develop a National Educational Project (NEP) to improve the quality of the quality of the Peruvian education system in 2000. This process lasted six years. This process triggered the introduction of new policies and regulations that aimed in particular at improving the quality of teachers (Verger, Altinyelken , & de Konig, 2013).
- In 2007, the government passed a law on the public teaching career (*Carrera Pública Magisterial* law, CPM). Among other measures, the CPM included in-service teacher evaluation policies and linked teachers’ promotions and salary increases to professional performance (ibid.).
- In 2009, the government launched a program that aimed to increase the quality of teachers (*Programa Nacional de Formacion y capacitacion Docente, PRONAFCAP*). It restricted the number of annual recruitments of teachers to 34,200, increased the time future teachers have to spend in training and tested the quality of some teacher training institutions. Consequently, the number of ISPs decreased, as well as the enrollment in teacher training reprograms at universities and ISPs (ibid.).
- According to the OECD (2016), teachers in Peru face some challenges that may affect students’ outcomes negatively. In general, they criticize the low quality of Peru’s teachers. Since the teacher profession is quite unattractive in terms of pay (teachers’ salaries are more than 30 percent lower than those of other professional workers in the country), it does not attract the best people and, because teachers have to work within a system that does not reward good teaching, it provides low incentives to perform better. Further, teachers do not receive sufficient training (McCarthy & Musset, 2016).
- In 2012, the law *Ley de Reforma Magisterial* aimed to reform the teacher profession and to increase the quality of teachers. Its goal was to introduce meritocracy in teaching careers

by offering better working conditions and pay and higher incentives for further professional development (McCarthy & Musset, 2016). According to the OECD (2016), improving the quality of teachers was still on the agenda of the government that was in power in 2016.

- To improve the infrastructure of public schools, the government developed the “*Programa Nacional de Infraestructura Educativa*”, a national education infrastructure program to enable the different levels of government to collaborate to improve the planning and execution of public works and to promote private-sector involvement (OECD Development Centre, 2015).
- In July 2014, the University Law was revised to promulgate the New University Law (Law No. 30220; *Nueva Ley Universitaria*). This law implements different strategies that aim to improve the quality of technical higher education. These include creation of a licensing system for technical careers, development of a monitoring and auditing system, definition of technical degrees based on a demand-driven approach, creation of a National Qualification System, etc. (CAF, 2015).

4.2 Major challenges

- Improving the alignment of skills provided by the VPET system and the skills needs of the labor market:

The current design of the VPET system is problematic due to several factors that provide incentives for the actors in the system not to align the demand and supply sides.

Example: The input-oriented VPET system. Many private schools have an incentive to provide programs demanded by the students rather than those demanded on the labor market, since they depend on students’ tuition fees. Consequently, there is a lack of graduates in technical professions and an oversupply in other professions (e.g. hairdressers).

- Quality of programs: There are large quality differences between the different programs in the VPET system. In particular between program provided by public and private institutions.
- Permeability of the system: in particular, the transition from CETPRO programs to higher education is not possible. This reduces the attractiveness of this pathway and impedes quality improvements. Increasing the quality of the VET programs and, at the same time, creating a permeable system, could help to increase students’ outcomes, the attractiveness and quality of the entire system.

- Inequality of the education system: many poor students cannot afford paying the tuition fees of the higher quality VPET programs at private institutes. They remain “trapped” in a low education equilibrium.

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