

**KOF** Swiss Economic Institute

The KOF Education System Factbook:  
Colombia

Edition 1, July 2017

# KOF

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

Phone +41 44 632 42 39  
Fax +41 44 632 12 18  
[www.kof.ethz.ch](http://www.kof.ethz.ch)  
[kof@kof.ethz.ch](mailto:kof@kof.ethz.ch)

## Table of Contents

|  |           |
|--|-----------|
| FOREWORD .....   | III       |
| EDITING AND ACKNOWLEDGEMENTS.....  | IV        |
| <b>1. The Colombian Economy and its Political System.....</b>                      | <b>1</b>  |
| 1.1 The Colombian Economy.....   | 1         |
| 1.2 The Labor Market.....  | 4         |
| 1.2.1 Overview of Colombia's' Labor Market .....                                   | 4         |
| 1.2.2 The Youth Labor Market.....  | 6         |
| 1.2.3 The KOF Youth Labour Market Index (KOF YLMI) for Colombia 2015 .....         | 7         |
| 1.3 The Political System .....   | 8         |
| 1.3.1 Overview of Colombia's Political System.....                                 | 8         |
| 1.3.2 Politics and Goals of the Education System .....                             | 9         |
| <b>2. Formal System of Education.....</b>  | <b>10</b> |
| 2.1 Pre-Primary Education.....   | 13        |
| 2.2 Primary and Lower Secondary Education.....                                     | 14        |
| 2.3 Upper secondary Education.....   | 14        |
| 2.4 Postsecondary /Higher Education.....   | 15        |
| 2.5 Continuing Education (Adult Education) .....                                   | 16        |
| 2.6 Teacher Education.....   | 16        |
| <b>3. The System of Vocational and Professional Education and Training.....</b>    | <b>17</b> |
| 3.1 Vocational Education and Training (VET; Upper Secondary Education Level) ..... | 17        |
| 3.2 Professional Education and Training (PET; Post-Secondary Level).....           | 21        |
| 3.3 Regulatory and Institutional Framework of the VPET System .....                | 23        |
| 3.3.1 Central Elements of VPET Legislation.....                                    | 23        |
| <b>3.3.2 Key Actors of the VPET System</b> .....                                   | <b>24</b> |
| 3.4 Educational Finance of the VPET System .....                                   | 26        |
| 3.5 Curriculum Development .....   | 27        |
| 3.5.1 Curriculum Design Phase.....   | 28        |
| 3.5.2 Curriculum Application Phase.....  | 29        |
| 3.5.3 Curriculum Feedback Phase .....  | 29        |
| 3.6 Supplying Personnel for the VPET System (Teacher Education).....               | 30        |
| <b>4. Major Reforms in the Past and Challenges for the Future .....</b>            | <b>30</b> |
| 4.1 Major reforms.....   | 30        |
| 4.2 Major challenges.....  | 31        |
| <b>References .....</b>  | <b>32</b> |

**List of Figures**

Figure 1: Employment by sector (as % of total employment), 1985-2015.....4  
Figure 2: YLM-Index Colombia versus OECD, 1995-2015 .....7  
Figure 3: Overview of the Colombian Education System ..... 11  
Figure 4: Enrolment in VET programs by subject field 2011 ..... 18  
Figure 5: Curriculum Value Chain (CVC) .....28

**List of Tables**

Table 1: Value added and employment by sector, 2015 .....3  
Table 2: Labor force participation rate, unemployment rate by age 2015 .....5  
Table 3: Labor force participation rate, unemployment rate by educational attainment 2014  
(persons aged 25-64) .....5  
Table 4: Enrolment and enrolment rate into education programs, 2014 ..... 12  
Table 5: Gross enrolment ratio (GER) 2015..... 13

## 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, 2017d).

Though not many countries have VPET systems that are comparable to Switzerland 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: Colombia, we describe Colombia'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 Colombia's economy, labor market, and political system. The second part is dedicated to the description of the formal education system. The third section explains Colombia's vocational education system. The last section offers a perspective on Colombia'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 Louis Uzor for his help in elaborating parts 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 is regarded as work in progress. The authors do not claim completeness of the enclosed information, which has been collected carefully and consciously. Any suggestions for improvement are welcome!**

**Contact: [factbook@kof.ethz.ch](mailto:factbook@kof.ethz.ch)**

### **Suggested citation:**

KOF Swiss Economic Institute (2017). KOF Education System Factbook: Colombia. KOF Education System Factbooks, ed. 1. Zurich: Swiss Federal Institute of Technology

# **1. The Colombian Economy and its Political System**

One of the main purposes of an education system is to provide the future workforce with the skills needed in the 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 Colombia's political system with emphasis on the description of the education politics.

## **1.1 The Colombian Economy**

After five decades of guerrilla war between the so-called Revolutionary Armed Forces (FARC), who were able to resist the government due to its earning through drug trade, and the Colombian government, both signed a peace deal in November 2016 after four years of formal peace negotiations. Despite this movement, Colombia has maintained strong democratic institutions over the decades with transparent elections and a good rule of law. Colombia is with around 47.2 million inhabitants the third largest country in Latin America, behind Brazil and Mexico. Its annual population growth rate of 1.02 percent is comparable to OECD countries.

As other Latin American Countries, Colombia's economy depends heavily on its natural resources exports, in particular energy (Latin America's fourth largest oil producer) and mining products (fourth largest coal exporter). On the one hand, the business with natural resources attracts many investors, but also makes the country dependent on world commodity prices. Consequently, the economy suffered from the recent drop in the world oil prices (World Bank, 2017a). However, the country's productivity and investments outside the oil and mining sector remain relatively low. According to the OECD, the main reason being the high tax burden on corporations and labor, as well as inadequate infrastructure and limited access to finance (OECD, 2015a).

Colombia has signed Free Trade Agreements (FTAs) with more than a dozen countries, such as the EU or USA. However, due to the low diversification of its exports, Colombia cannot take full advantage of having access to highly sophisticated markets, such as the EU or US market. At the regional level, Colombia is the founding member of the Pacific Alliance, which is a regional trade block that was formed together with Chile, Colombia, Mexico and Peru in 2012, in order to foster regional trade and economic integration. Since 2013, Colombia is on the accession path to join the OECD (OECD, 2015a).

In 2015, Colombia's GDP per capita was with US\$7,447<sup>1</sup> lower than that of Mexico (US\$9,510) and substantially below the OECD average (US\$37,713) (World Bank, 2017b). However, Colombia's total GDP grew with an average rate of 4.5 percent per annum at a much higher pace than that of Mexico (2.7 percent p.a.) or the OECD average (1.6 percent p.a.) in the last decades, from 1990 to 2015 (World Bank, 2017b).

Not least the armed conflicts that lasted for more than five decades and forced many people to leave their homes contributed to poverty and income inequality in Colombia. According to the World Bank (2015), if Colombia had been in peace for the last 20 years, its GDP per capita would be 50 percent higher than today. Despite these conflicts, Colombia managed to decrease extreme poverty, defined as the share of the population living from less than \$1.25 a day (at 2011 international prices), 17.7 percent to 8.1 percent in time from 2002 to 2014.

Colombia also reduced its income inequality, as measured by the Gini-Index<sup>2</sup>. From 2000 to 2014, Colombia's Gini-Index decreased by 5.2 index points from 58.7 to 53.5. However, income inequality in Colombia is still higher than in Mexico (Gini-Index of 53.5, respectively 48.2 for 2014). Also, poverty is still an issue in Colombia if compared to the strongest economies in Latin America, like Chile and Mexico. In 2014, 5.7 percent of the Colombian population lived on less than a \$1.90 a day (2011 international prices), which was nearly twice as high as in Mexico (3 percent in Mexico) and more than six times higher than in Chile (0.9 percent in 2013) (World Bank, 2017b).

As mentioned before, the energy and mining sectors are very important for the Colombian economy. In 2015, both sectors contribute to almost one-fifth (21.8 percent) to total value added (see Table 1). This was much higher than in the average EU28 country, where the manufacturing sector was more important. Unfortunately, the data does not allow analyzing whether the mining sector was also important in terms of employment, since it is just available for the secondary sector in general. Despite the importance of the secondary sector, the tertiary or services actor was the most important driver of total value added- in Colombia and relatively more in the EU28 countries. This also holds for employment. Remarkable is that the primary sector in Colombia contributed a significant share to total value added (6.8 percent in Colombia vs. 1.5 percent in the EU28) and was nearly as important as the secondary sector for employment in Colombia (15.8 percent vs. 19.6 percent, vs. only 4.8 percent in the EU28).

---

<sup>1</sup> Data are in constant 2010 U.S. dollars.

<sup>2</sup> Gini index measures the extent to which the distribution of income (or, in some cases, consumption expenditure) among individuals or households within an economy deviates from a perfectly equal distribution. A Gini index of 0 represents perfect equality, while an index of 100 implies perfect inequality (World Bank, 2017b).



**Table 1: Value added and employment by sector, 2015**

| Sector  | Colombia: Value added (%) | EU-28: Value added <sup>3</sup> (%) | Colombia: Employment (%) | EU-28: Employment (%) |
|---|---------------------------|-------------------------------------|--------------------------|-----------------------|
| Primary sector  | 6.8                       | 1.5                                 | 15.8                     | 4.8                   |
| Agriculture, hunting and forestry, fishing  | 6.8                       | 1.5                                 | -                        | 4.8                   |
| Secondary sector  | 34.0                      | 24.4                                | 19.6                     | 21.8                  |
| Manufacturing, mining and quarrying and other industrial activities                                   | 34.0                      | 19.0                                | -                        | 15.5                  |
| of which: Manufacturing   | 12.2                      | 15.6                                | -                        | 13.9                  |
| Construction  | -                         | 5.4                                 | -                        | 6.3                   |
| Tertiary sector   | 59.2                      | 74.0                                | 64.6                     | 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                  |

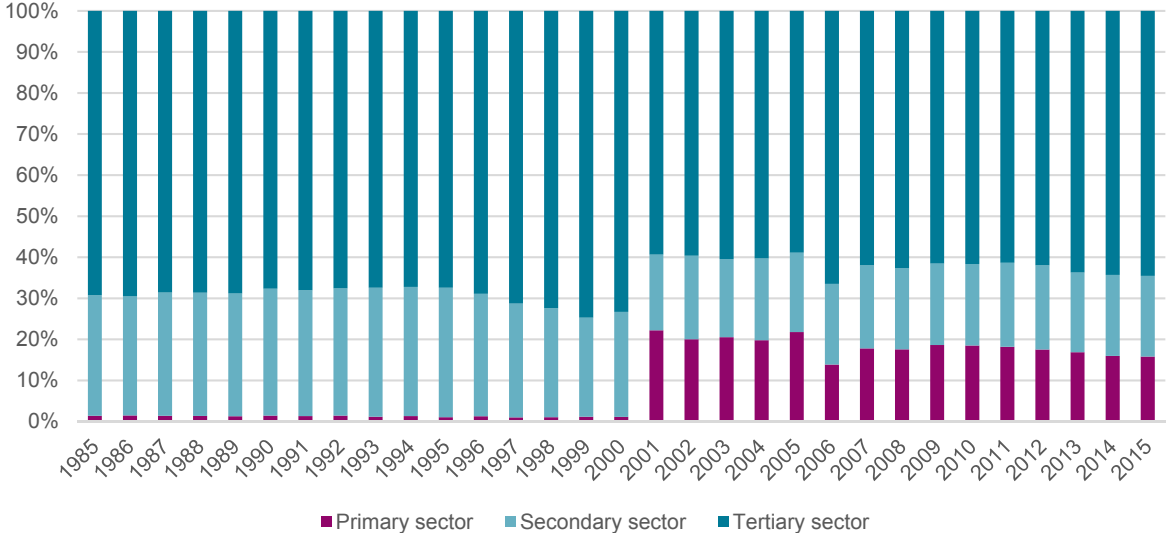
Source: Eurostat (2015a; 2015b; World Bank, 2017b).

Figure 1 shows the evolution of employment by sector for the time from 19985 to 2015. While the importance of the services sector increased at a constant pace from 1985 until 2000, the picture reversed from 2001 onwards. The reason was that the primary sector, that was negligible in terms of employment before, gained importance relative to the other sectors from 2001 onwards.

According to the Global Competitiveness Index (GCI) of the World Economic Forum (WEF), Colombia has improved its position in the GCI ranking compared to the previous year (61st out of 138 countries), mostly due to an improvement in financial market development (up 45 places to 25<sup>th</sup> rank). It slightly improved the sophistication of its business environment and ameliorated its health and education system, even though it underperforms in these two latter fields relative to other countries (rank 97 of 138 countries). Compared to its neighboring countries, Colombia has a stable macroeconomic environment and a relatively large market. According to the Global Competitiveness Report (GCR), in order to increase its innovativeness, Colombia needs to improve the quality of its education system, especially in math and science, and to diversify the economy. Further, the GCR mentions that improving Colombia's institutional framework, in particular its public institutions, security, the quality of transport system and fighting corruption could increase competitiveness (WEF, 2017).

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

**Figure 1: Employment by sector (as % of total employment), 1985-2015**



Source: (World Bank, 2016).

According to the Global Innovation Index (GII), Colombia is average: out of 128 countries, it ranked on rank 63 in 2016. Compared to 2015, it improved its position by 4 ranks. Strengths include its market sophistication and infrastructure, including information and communication technologies (ICTs) and ecological sustainability (Dutta et al. 2016).

**1.2 The Labor Market**

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

**1.2.1 Overview of Colombia’s’ Labor Market**

Colombia’s strong economic growth in the recent years has helped the country to make social advances and to introduce policies to reduce poverty and income inequality in the country. The economic success provided for employment and labor force participation rates well above the OECD average (see further below). The favorable economic situation also attracted more immigrants from neighboring countries. Despite these favorable conditions, Colombia still faces problems such as poverty, income inequality, informal sector employment and poor enforcement of the labor law (OECD, 2016d).

According to the OECD (2016d), 68 percent of all workers aged 15 to 64 work in the informal sector, meaning that they do not contribute to the pension system (self-employed: 93 percent and employees: 42 percent). Using a different definition of informality, the OECD states that 83 percent of the self-employed people did not register their business and 41 percent of employees work without a written contract. In addition, the OECD states that, among other

factors, high labor costs, through a relatively high minimum wage, and complex procedures for the registration of companies push especially the low skilled workers, youth, and those in less developed regions to work in the informal sector. It also mentions the low productivity related to the low qualification of many workers as one factor for this high level of informality (OECD, 2015a). The large share of people working in the informal sector is problematic not only for the well-being of these people, as they do not have social security or a pension system, but also the government revenues. Therefore, the movement started different initiatives to formalize the employment sector. For example, The Formalization and Job Creation Law of 2010, a package to incentivize formalization of firms and employment (e.g. reduced social security contributions and taxes), or the comprehensive tax reform of 2012, which reduced non-wage labor costs (OECD, 2016d).

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

|                      | Labor force participation rate |              | Unemployment rate |              |
|----------------------|--------------------------------|--------------|-------------------|--------------|
|                      | Colombia                       | OECD average | Colombia          | OECD average |
| Total (15-64 years)  | 74.5                           | 71.3         | 9.2               | 7.0          |
| Youth (15-24 years)  | 54.7                           | 47.1         | 17.7              | 14.0         |
| Adults (25-64 years) | 81.8                           | 76.9         | 7.1               | 6.0          |

Source: (OECD, 2017b).

Table 2 shows the labor force participation rate for Colombia along with the OECD average for 2015. In general, the labor force participation rate in Colombia was higher than the OECD average. The labor force participation rate of the youth was even 7.6 percent points above the OECD average. However, unemployment in Colombia was also higher than the OECD average. The youth unemployment rate was 3.7 percentage points above the OECD average.

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

|                                     | Labor force participation |              | Unemployment rate |              |
|-------------------------------------|---------------------------|--------------|-------------------|--------------|
|                                     | Colombia                  | OECD average | Colombia          | OECD average |
| Less than upper secondary education | 77.0                      | 63.6         | 6.2               | 12.8         |
| Upper secondary level education     | 83.3                      | 79.9         | 8.4               | 7.7          |
| Tertiary education                  | 91.1                      | 87.7         | 7.4               | 5.1          |

Source: (OECD, 2017c).

Table 3 shows the labor force participation and unemployment rate by education level for those aged 25 to 64. In Colombia and the OECD average, the probability to be in labor force

increases with the education level. While the risk of becoming unemployed decreases with the education level for the OECD average, this is different for Colombia, where unemployment is actually the highest for people with upper secondary level education and lowest for people with less than upper 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 indicators<sup>9</sup> that are grouped into four categories.

| Dimensions of the KOF YLMI   |
|--|
| <b>Activity state</b><br>- Unemployment rate<br>- Relaxed unemployment rate <sup>4</sup><br>- Neither in employment nor in education or training rate (NEET rate)  |
| <b>Working conditions</b><br>Rate of adolescents:<br>- with a temporary contract<br>- in involuntary part-time work<br>- in jobs with atypical working hours<br>- <b>in work at risk of poverty</b> <sup>5</sup> Vulnerable unemployment rate <sup>6</sup> |
| <b>Education</b><br>- Rate of adolescents in formal education and training<br>- Skills mismatch rate   |
| <b>Transition smoothness</b><br>- Relative unemployment ratio <sup>7</sup><br>- Long-term unemployment rate <sup>8</sup>   |
| Source: Renold et al. (2014).  |

The first category describes the *activity state* of youth (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

---

<sup>4</sup> 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").

<sup>5</sup> Those who cannot make a decent living out their earnings, being at risk of poverty as a percentage of the working population.

<sup>6</sup> 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.

<sup>7</sup> 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.

<sup>8</sup> Those unemployed for more than one year (52 weeks) in the total number of unemployed (according to the ILO definition).

<sup>9</sup> The data for these indicators are collected from different international institutions and cover up to 178 countries for the time period between 1991 and 2012.

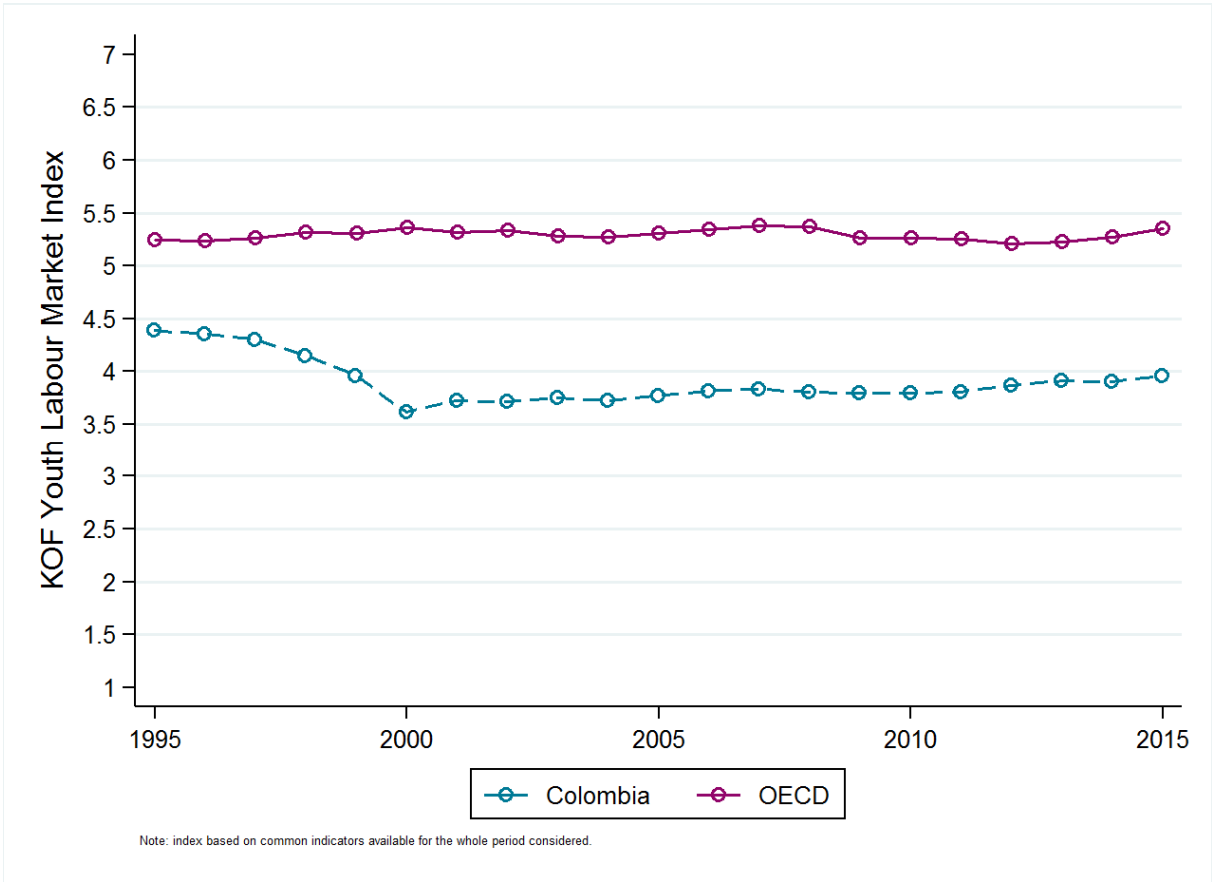
higher score reflects a more favorable situation regarding the youth labor market and a more efficient integration of the youth into the labor market.

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 Colombia 2015

The KOF YLMI for Colombia is based on only five indicators: the unemployment rate, the incidence of long-term unemployment rate, the NEET rate and the vulnerable employment rate. Therefore, a meaningful comparison of the KOF YLMI is not possible. However, we show the evolution of this reduced KOF YLMI for Colombia along with the OECD average over time, from 1995 to 2015. As can be seen in Figure 2, the KOF YLMI for the OECD average was constantly above that for Colombia, implying that the situation of the youth in the OECD countries was on average more favorable than for Colombia's youth.

Figure 2: YLM-Index Colombia versus OECD, 1995-2015



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 Colombia'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 Colombia's Political System

By the constitution established in 1991, Colombia is a presidential republic. Its governmental powers are separated into the executive, the legislative and the judicative. The executive is led by the nationally elected President of Colombia (*Presidente de Colombia*) who is head of both, state and government. Elections are held every four years. The current president of Colombia (May 2017), Juan Manuel Santos Calderón is in his second, consecutive tenure ending 2018. The right of suffrage in Colombia is obtained by the age of 18 and is conferred to all citizens. Together with the government, the bicameral congress forms the legislative authority and is constituted of the senate (102 seats, whereof 100 are elected nationally and 2 are predestinated for indigenous communities) and the House of Representatives (166 seats, elected in electoral districts) (Encyclopaedia Britannica, 2017).

Colombia is segmented into 32 departments and the capital district of Bogotá. Each department is headed by an elected governor and has an elected legislature (*Asamblea Departamental*). The departments are granted a certain degree of autonomy with respect to administrative and financial matters, which attributes to decentralization and Colombia's geographical differences. The departments are further divided into municipalities headed by an elected Mayor and a Municipal Council (*Concejo Municipal*) (ibid.).

The central government sets the main priorities for all governance levels and a National Development Plan (*Plan Nacional de Desarrollo- PND*). Currently the PND has three priorities – peace, equity and education. Equity refers to the challenges of poverty and inequality throughout Colombia. Education to the aim of the government to increase the quality of the education system (ibid.).

Peace is the first of the three priorities. It stands in context of the five-decade long internal conflict with the militant Revolutionary Armed Forces of Colombia (*Fuerza Armadas Revolucionarias de Colombia- FARC*). The FARC was responsible for bombings, assassinations, hijackings and other armed attacks against political and economic targets and producing and distributing illegal drugs. They were a major player that adversely affected Colombia and compelled the country through a severe guerrilla war.

The actions of the FARC and other illicit players in the shadow economy harmed the Colombian economy in that their actions slowed down economic growth. An inclusion or absence of the illicit action could have leveled the real per capita GDP growth rate up to somewhere between 1.96 and 2.01 percent instead of 1.86 percent for the time 1980 to 2012 (Schneider & Hametner, 2014).

After approximately 220,000 lost lives and half a century of conflict the government succeeded in peace talks with the FARC in 2016 (Economist, 2016). First peace agreements between the government and the FARC were narrowly rejected by a popular vote in October 2016: 50.24 percent of the population were against these agreements. Subsequently, the two parties managed to renegotiate the agreement and enforced it (without another popular vote) by November 2016. This earned the country the Economist's title of the country of the year. Part of the peace agreement is the disarmament of the FARC. It is currently effectuated under UN observation and control (UN News Centre, 2017).

Corruption is a big problem in Colombia. According to Transparency International's Corruption Perceptions Index 2016 (Transparency International, 2016), which classifies corruption in countries around the world, Colombia scored 37 out of 100 index points, where zero corresponds to a highly corrupt country and 100 to a country without corruption.

### **1.3.2 Politics and Goals of the Education System**

Colombia was among the first Latin American countries to decentralize its education system. Today, it is one of the most decentralized countries in Latin America. In 2001, the Colombian government decentralized its education system. Thereby, the Colombian Constitution from 1991 and the General Education Act from 1994 laid the ground for the shift in responsibilities from the central to the departmental and municipal level- including the responsibilities from pre-primary to secondary education, education personnel, funding of the system and supervision of private education providers (OECD, 2016e).

The General Education Act from 1994 also gave schools autonomy over their curricula and assessment of skills. The Law 715 of 2001 further specified the responsibilities of actors by education level and regionalized the system of allocation of funds (ibid.).

In the process of decentralization, all departments, regardless of their capacity or whether they were located at the district or municipality level, had to go through a certification process. The criteria for certification included: adequate physical and financial resources, basic information system, and capacity to manage the teaching profession. Institutions that passed the certification process received the status of Certified Territorial Entities (*Entidades Territoriales Certificadas*, ETCs). Decentralization has contributed to increase enrolment rates, to enable

municipalities to expand the provision of education through a system of subsidized private education, to expand access to and quality of education. However, many ETCs have difficulties finding qualified personnel and sufficient funding for their activities, so that there are huge disparities in institutional capacity between regional and local governments (OECD, 2016e).

Consequently, the responsibility for the entire education system beyond compulsory school is shared between the MEN and CTEs, although several subsidiaries and institutions also play a major role in education (ibid.).

The decentralized system needs cooperation between the policy makers, implementing institutions and bodies. By setting education as one of the three priorities in the National Development Plan, the government is addressing issues within the education system and commits to education by having the ambitious vision of becoming the “most educated” country in Latin America by 2025 (ibid.).

## **2. Formal System of Education**

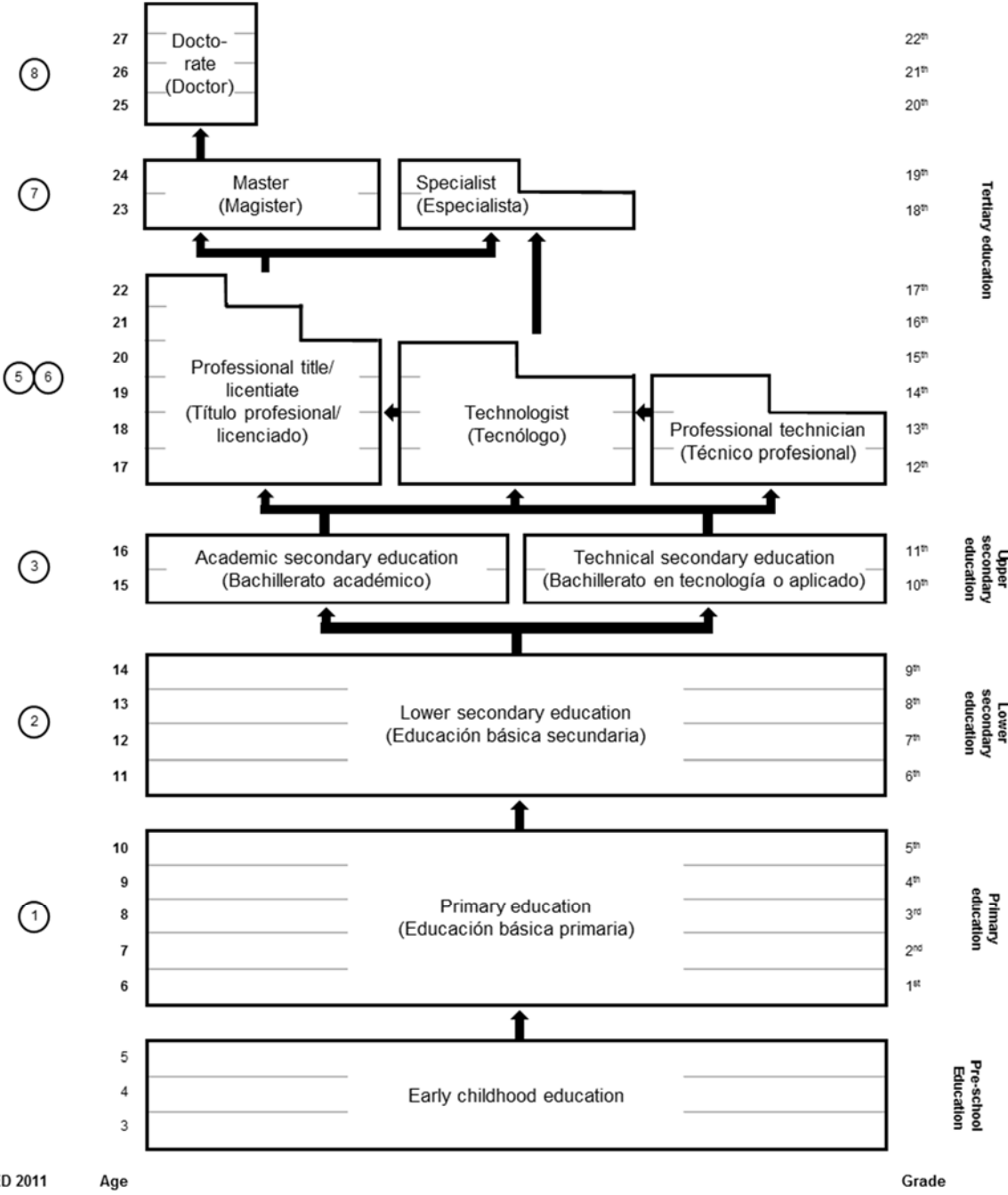
The constitution of 1991 and the general law of 1994 guarantees all Colombian residents the access to education (OECD, 2016e). Education is compulsory and free for all children aged 5 to 15 (Immerstein, 2015). This includes the last year of pre-school education up to the end of lower secondary education. Thereafter follow programs for upper secondary education and tertiary education. However, Colombia is thinking about extending compulsory education to include upper secondary education by 2030 (OECD, 2016e). Figure 3 displays the formal education system.

Children in Colombia may attend pre-school education for three years, whereby children aged five are required to attend. Primary education starts at age 6 and takes five years to complete. Pupils start secondary education at the age of 11. This education level is divided in lower secondary education lasting four years and upper secondary education lasting two years (Immerstein, 2015).

As compulsory education only includes lower secondary education, students finishing this level have the choice to continue with upper secondary education, enroll in a non-formal technical apprenticeship program or to enter the labor market (IQAS, 2010).



Figure 3: Overview of the Colombian Education System<sup>10</sup>



Sources: Own illustration based on (EP-Nuffic, 2015) (Immerstein, 2015).

Students continuing with upper secondary education can choose between general (so-called *académico*) and vocational education and training (VET, so-called *técnico*) (Immerstein, 2015). According to Table 4, about 76 percent of students follow academic programs and the other 24 percent VET programs. Both specializations on upper secondary education grant access

<sup>10</sup> The size of the boxes does not coincide with the actual size or importance of the program in the education system.

to the national ICFES entrance examination (SABER 11; EP-Nuffic, 2015; Immerstein, 2015; OECD, 2016). The achieved results in this examination are essential for the access into tertiary education programs (EP-Nuffic, 2015).

**Table 4: Enrolment and enrolment rate into education programs, 2014**

| Level & Type                                     | Enrolment (total or rate) |
|--|---------------------------|
| Upper secondary education                        | 1'100'000                 |
| ... of which in general academic programs        | 76%                       |
| ... of which in vocational programs              | 24%                       |
| Tertiary education institutions                  | 288                       |
| ... of which universities                        | 28%                       |
| ... of which university institutions             | 42%                       |
| ... of which technological institutions          | 18%                       |
| ... of which professional technical institutions | 13%                       |

Source: Own calculations with data of MEN (2015a), MEN (2015b) found in OECD (2016).

After upper secondary education, students have the choice of three programs at four different institutes. The three programs are professional title/licentiate, technologist, and professional technician (EP-Nuffic, 2015). The four types of tertiary institutes are universities (28 percent), university institutions (42 percent), technological institutions (18 percent), and professional technical institutions (13 percent; OECD, 2016). The university and non-university programs, however cannot sharply be differentiated in academic education and professional education and training (PET) as some programs contain elements of both (EP-Nuffic, 2015). At the universities, students start with acquiring a professional title (Immerstein, 2015). Thereafter, students have the possibility to earn a master’s degree, which takes one to two years or get a specialist degree (EP-Nuffic, 2015). For the entrance in a doctorate program, which takes about 4 years, students need a master’s degree. At the non-university institutes, students can enroll for a professional technician degree or technologist degree, the later giving access to the specialist degrees (ibid.). The professional technician programs last two to three years, whereas the technologist programs last three to four years.

Table 5 shows that enrolment in pre-primary programs was relatively low: only 84 percent of all children in the pre-primary school age attended pre-school. One reason for this low enrolment rate could be that parents send their children to pre-school only from the age of 5 onwards, when it is compulsory and free (since the GER of 84 percent refers to all children aged 3 to 5, this lowers the overall rate).

Table 5 shows the gross enrolment ratio (GER) by education level for the year 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.<sup>11</sup>

Table 5 shows that enrolment in pre-primary programs was relatively low: only 84 percent of all children in the pre-primary school age attended pre-school. One reason for this low enrolment rate could be that parents send their children to pre-school only from the age of 5 onwards, when it is compulsory and free (since the GER of 84 percent refers to all children aged 3 to 5, this lowers the overall rate).

**Table 5: Gross enrolment ratio (GER) 2015**

| Education level             | GER   |
|-----------------------------|-------|
| Pre-primary                 | 84.5  |
| Primary                     | 113.6 |
| Secondary                   | 98.1  |
| Lower secondary             | 105.9 |
| Upper secondary             | 82.3  |
| Post-secondary non-tertiary | 0.8   |
| Tertiary                    | 55.6  |

Source: (UNESCO, 2017).

In contrast, enrollment at the primary (113.6 percent) and lower secondary (105.9 percent) level was over-proportional relative to the respective age-cohort. This is not surprising, as it corresponds to compulsory schooling. However, the over-proportional enrolment rate indicates that a non-negligible part of the

students has to re-take grades, which could be a sign of a low-quality education system that does not manage to challenge and nurture students sufficiently. In fact, the OECD (2017a) states that 41 percent of 15-year-old students in Colombia have repeated at least one grade. Interestingly, enrolment drops after the end of compulsory education: only 82.3 percent of all children in the respective age group continue with upper secondary education. According to the OECD (2017a), many students and parents regard upper secondary education as “(...) optional stage of lower secondary education, with limited distinct value and use.” Accordingly, even less students of a cohort continue with post-secondary (0.8 percent) or tertiary level education (55.6 percent).

**2.1 Pre-Primary Education**

Early childhood education policy is set by the government but the implementation is provided by the Colombian Institute for Family Welfare (*Instituto Colombiano de Bienestar Familiar- ICBF*), the national body responsible for children under 5 years (OECD, 2016e).

---

<sup>11</sup> 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.

Pre-primary education in Columbia is defined for children aged 3-5 years. For 5-year-olds enrolment in a transition grade (grade 0) is compulsory (OECD, 2016e). Since 2011, the government committed to a new strategy regarding early childhood education and care (ECEC): “*Estrategia para la Atención Integral de la Primera Infancia – De Zero a Siempre*” (“*Early childhood comprehensive care strategy – from zero to forever*”). The current implementation of the strategy has already doubled enrolment rates in ECEC (from approx. half a million in 2010 to over one million in 2014) and has set the ambitious goal of over 2.4 million enrolled children by 2018 (OECD, 2016e). Pre-kindergarten and kindergarten are part of formal education. Other ECEC types are organized by communities (69 percent of all ECEC provision), family-based (25 percent of all ECEC provision) or within institutions (7 percent of all ECEC provision) (ibid.).

## **2.2 Primary and Lower Secondary Education**

Primary education (*Educación Primaria*) starts at age 6 and lasts five years. It comprises grades one to five. The MEN is responsible for the curriculum. It contains classical general education subjects, such as math, science, history, etc. Upon completion, students receive the *Certificado de Educación Primaria* (Immerstein, 2015).

Lower secondary school (*Educación Básica Secundaria*) lasts four years, from grade six to nine. The typical starting age is 11. Besides general education subject, students are also taught in vocational subjects. Upon completion, they receive the Certificate of Basic Bacallaureate Studies (*Certificado de Estudios de Bachillerato Básico* or *Certificado de Conclusión del Ciclo Básico*) (ibid.).

## **2.3 Upper secondary Education**

Upper secondary education lasts two years and serves students aged 15 and 16 (Grades 10 and 11). Students have the choice between general (so-called *Bachillerato académico*) and vocational education and training (VET, so-called *Bachillerato técnico/ Bachillerato en Tecnología o Aplicado*).<sup>12</sup> While general education programs impart general education in science, arts, and humanities, the VET program aims to prepare students for the labor market (EP-Nuffic, 2015; Immerstein, 2015). In 2014, 74 percent of the students at the upper secondary education level attended general education and 26 percent in VET programs (OECD, 2016a).

---

<sup>12</sup> In Colombia, the vocational education and training programmes are called technical education programmes.

Often, general education and VET programs are offered by the different institutions. Most of the subjects the students have to attend are same in the general education and the VET program, i.e. more than half of the curriculum contents are the same for both program types. Therefore, both education pathways are actually very much alike (OECD, 2016e).

While some upper secondary schools organize vocational courses on their own, others cooperate with external providers of vocational courses in order to provide vocational courses. Two examples of such providers of vocational courses are the National Learning Service (*National Learning Service, or Servicio Nacional de Aprendizaje*; SENA) and tertiary education institutions (OECD, 2016e).

Upper secondary school was not free of charge until 2012, which is one explanation for the tremendously low school attainment of the working age population. Only 40 percent of those aged 25-34 and 16 percent of those aged 55 to 64 have completed upper secondary school. Despite policy efforts, about 36 percent of all 15-19-year-olds are not in any form of formal education, which corresponds to more than two times the OECD average of 13 percent (ibid).

To be admitted to tertiary/ higher education, students only need a *Bachiller (Académico/Comercial/Técnico)*. However, in practice, in addition to holding the *Bachiller* degree students need to take the state exam SABER 11, which is administered by the Colombian Institute for the Evaluation of Education (*Instituto Colombiano para la Evaluación de la Educación*, ICFES), in order to be admitted to tertiary education (EP-Nuffic, 2015). Often, the SABER 11 is also required for successfully finding a job (ibid).

## **2.4 Postsecondary /Higher Education**

Almost half (47.9 percent) of all universities in Colombia are private. There are three types of undergraduate degrees: the Professional Technician (*Técnico Profesional*), which lasts two to three years and is offered by Professional Technical Institutions (*Instituciones Profesionales Tecnicas*), the Technologist (*Technologico*), which lasts three to four years and is offered by *Instituciones Tecnologicas*. Finally, the Licentiate (*Titulo Profesional/Licenciado*), which corresponds to the Bachelor degree, lasts four to six years is offered at normal or technical universities (Immerstein, 2015).

There three different degrees at the graduate level: Specialist (*Especialista*), which lasts one semester to four years. These include academic (one to two semesters) and medical programs (up to four years). The second degree is the Master (*Magister*) and the third the doctoral degree. All three degrees are offered by normal universities (ibid.).

In tertiary education, national policies are set by the MEN. The MEN is also responsible for the promotion, supervision and inspection of both, private and public tertiary education institutions. The 1991 constitution grants tertiary education institutions far-reaching autonomy that leaves the MEN little ground to fulfill and control its responsibilities (OECD, 2016e).

## **2.5 Continuing Education (Adult Education)**

Adult education in Colombia (*Educacion de Adultos/ Educacion para Adultos*) consists of courses that are often taught on a part-time basis on week-end or evenings. Most courses focus on literacy skills, formal and non-formal training. These are offered by private and public providers.

The SENA is one of Colombia's largest providers of vocational courses in general; it also offers vocational courses for adults- formal and non-formal ones. It also leads the institution that is responsible for the recognition of prior learning, the National System of Education for Work (SNFT). For more details, see section 3.1 ("*Non-formal vocational education*").

## **2.6 Teacher Education**

The prerequisites to become a teacher are different for each educational level. Before 1994, preschool and primary school teachers only had to complete upper secondary education at teacher training schools. Upon graduation, they were awarded a *bachillier pedagogico*. To teach at a secondary and post-secondary institutions, candidates had to have at least an undergraduate degree before 1994 (IQAS, 2010).

After reforms taking place in 1994, teacher training at regular secondary schools was phased out (including the title *bachillier pedagogico*). In order to become a teacher at a preschool and primary school, candidates now have to have a completed baccalaureate (*bachillerato*) and the post-secondary diploma cycle in teacher education. Their training takes place at *escuelas normales superiores* (ibid.).

The minimum educational requirement for candidates who want to teach at lower or upper secondary schools, is an undergraduate degree, preferably in education (*licenciatura*). Alternatively, the candidates can hold an undergraduate degree in a specific profession, preferably related to the subject they intend to teach, supplemented by additional teacher training of at least one year. The training either takes place at universities, university institutions or technological schools (*escuelas tecnologicas*). The training has a minimum duration of five years. In rare cases, undergraduate teacher training programs can also be offered by

professional technical institutions (*instituciones técnicas profesionales*) or technological institutions (*instituciones tecnológicas*) (ibid.).

Independent if teachers want to become a primary or secondary school teacher, theoretical instruction is always complemented by a teaching practicum (as teaching assistants and practicing teachers). Upon successful completion, all teachers are awarded a *licenciatura* (ibid.).

To be able to teach at post-secondary or tertiary level institutions, candidates must fulfill the same basic requirements as for the secondary education level. However, it is preferable to hold a graduate degree (Master) in addition (ibid.).

Independent of the level, all teacher training programs comprise four main areas (ibid.):

- General pedagogical training
- Subject-specific pedagogical training
- Scientific and research training
- Training related to social obligations, ethics and moral values associated with the teaching profession

### **3. The System of Vocational and Professional Education and Training**

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

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

At the upper secondary level, students have the choice between general (so-called *Bachillerato académico*) and vocational education and training (VET, so-called *Bachillerato técnico/ Bachillerato en Tecnología o Aplicado*). Typically, more than two thirds of all students at the upper secondary education level enroll in a general education program, while the rest enrolls in a VET program (OECD, 2016e).

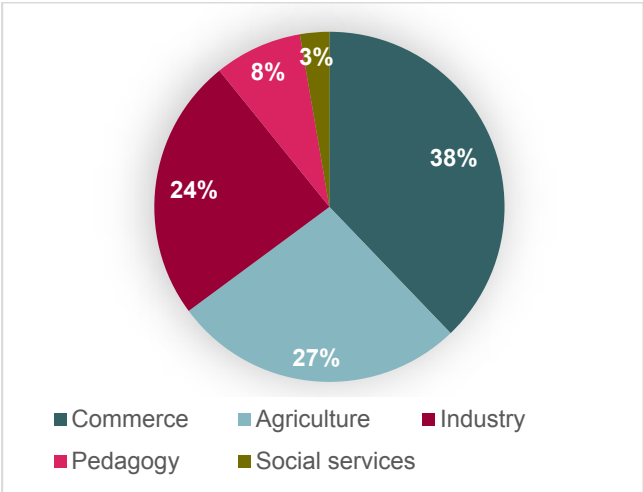
As mentioned earlier, most of the subjects the students have to attend are the same in the general education and the VET pathway. Besides these general education courses, students

following the VET pathway have to attend additional theoretical and practical vocational subjects (ibid.).

The number of schools offering VET programs is relatively low. According to data from the MEN, two-thirds of all public schools offer only general education programs, 1.5 percent of the schools offer both, VET and general education programs, while the remainder, roughly one third, offers only VET programs. Most of the schools that offer only VET programs are concentrated in rural areas, where the influence of local governments is low (ibid.).

Figure 4 shows the enrolment in VET programs by subject field in 2011. As in many countries, the majority of VET students were enrolled in programs belonging to the commercial sector (38 percent), followed by the agricultural (27 percent), and industry sector (24 percent). The large enrollment share in these latter two sectors reflects the fact that most of the schools that offer only VET programs are located in rural areas where agricultural and the mining sector are more present (OECD, 2016e).

**Figure 4: Enrolment in VET programs by subject field 2011**



Source: (OECD, 2016e).

While some upper secondary schools organize vocational courses on their own, others cooperate with external providers of vocational courses in order to provide vocational courses. Thereby, each school is free to choose to which extent it wants to collaborate with such providers, how it manages the recognition of skills and reassures the quality and relevance of the skills taught in these courses. One example of an external provider of vocational courses is the National Learning Service (*Servicio Nacional de Aprendizaje*; SENA). Since the government introduced the Program for Strengthening Technical and Technological Education (*Programa de Fortalecimiento de la Educación Técnica y Tecnológica*) in 2006, also some



tertiary education institutions provide vocational courses. They account for about one fifth of all upper secondary schools (ibid.).

According to the OECD (2016e), SENA is the largest provider of vocational courses at the upper secondary level, especially in rural areas and specific vocations such as agriculture, mining and industry. About 60 percent of the courses offered by the SENA are at the upper secondary level. In addition, the SENA is the largest provider of tertiary-level technical and technological programs and non-formal education.<sup>13</sup> Formally, the SENA belongs to the Ministry of Labor. The courses provided by the SENA are free of charge for all students. This creates the opportunity for many schools to provide tuition to students from lower social economic background, who could not afford attending upper secondary education otherwise (SENA & BiBB, 2016).

The majority of vocational courses at the upper-secondary level are school-based. Most of the courses provided by the SENA take place in its schools and inter-company course centers. In addition, students can participate in company-based practical placement or be involved in a company project on a voluntary basis (BiBB, 2017).

In case a student opted for the practical training in a company, he/ she would be employed on a training contract. Companies with more than 15 employees have to employ trainees and are obliged to pay 2 percent of their wage costs to the SENA as a levy grant. This is a prerequisite for that a company can offset its salary costs against corporation tax. The training contract obliges the companies to pay their trainees a monthly salary. Its level is tied to the unemployment rate: if it is at or above 10 percent, the companies have to pay their trainees 75 percent of the minimum wage during practice periods in the company and 50 percent when the trainees are at school. If the unemployment rate is below 10 percent, companies have to pay their trainees the full minimum wage (ibid.).

Students in the vocational pathway must obtain the necessary academic credits in order to earn the *Bachillerato técnico*. For the training received at the SENA or other institutions providing vocational training, students can receive an additional certificate, the so-called *Certificado the Aptitud Profesional (CAP)* (OECD, 2016e).

According to the OECD (2016e), just a small fraction of the vocational courses is done in cooperation with partners from the world of work. It mentions the National Federation of Coffee

---

<sup>13</sup> Known as education for work and human development (EWHHD).

Growers as one successful example of such a cooperation between the schools and companies where students have the opportunity to apply their skills.

Currently, the SENA offers dual vocational education and training in five pilot projects. It does this in cooperation with the German Federal Institute for Vocational Education and Training (BiBB). The dual VET programs resemble the German dual VET system. The pilot projects are offered in the following five sectors: automobile, food, textile, and aircraft sector and in poultry farming (SENA & BiBB, 2016).

The dual VET system combines school-based training in a SENA school and inter-company training centre with work-based training in a company. Students spend at least 50 percent of the time in the companies, but these are not allowed to employ them 100 percent of the time only in productive work. They have to provide the students with learning material and equipment, as well as specially trained staff who instruct the students. The instructors, who are usually skilled workers from the companies, are trained at the SENA during 80 hours (whereof 60 hours are classroom and 20 hours practical training). The examination of the students takes place in the SENA schools. Companies are not allowed to employ more than 30 trainees at the same time and have to pay them the minimum wage (BiBB, 2017).

The goal of this dual VET initiative is to become regular training and to form a fixed component of the Colombian educational system. The 2015-2018 SENA Strategic Plan states that the model of dual Colombian VET should be further developed, institutionalised, and established at a national level by 2018 (ibid.).

Testing the quality of skills taught in the vocational pathway against those provided by the general education pathway, provides mixed results. An analysis of the SABER 11 test results, which is a standardized exit exam for graduates of the 11<sup>th</sup> grade provided by the Colombian Institute for the Evaluation of Education (*Instituto Colombiano para la Evaluación de la Educación*, ICFES), shows that students participating in vocational courses provided by the SENA or tertiary education institutions perform more poorly than students in general education programs. However, this could be the result of the fact that normally, an over-proportional number of low-skilled students with a weak social economic background enrolls in the vocational pathway. The fact that the differences in outcomes between students in the general and vocational education pathway are lower in rural areas could be a further confirmation of such a selection effect. In rural areas, vocational schools are often the only providers of upper secondary education. Assuming that the students' abilities do not differ systematically between rural and urban areas, students in rural areas cannot self-select into the different pathways easily due to the constrained supply of schools offering the general education pathway. On the

contrary, other studies show that students participating in vocational courses provided by the SENA or tertiary education institutions are more likely to proceed to higher/tertiary education (OECD, 2016e).

Though the information about the labor market outcomes of former VET students is limited, the scarce evidence suggests that the quality and success of the programs varies across schools and regions. Besides the quality of students, also the low employer engagement and lack of nationally specified occupation-specific qualification standards (national qualifications framework) are responsible for the rather low quality of Colombia's VET sector. Some sources indicate that VET students have a hard time finding a formal job or to continue in further education with the skills learned at school (OECD, 2016e). However, not only the low skills of the workers, but also other factors such as high labor costs, make it general hard for youngsters to find a job in the formal labor market.

### ***Non-formal vocational education***

The SENA also provides non-formal VET programs organized in four semesters. These are for students who did not complete upper secondary education (EP-Nuffic, 2015). These certificates are at the level of the upper secondary degree (*Bachillerato*) and give access to the professional technician programs at the tertiary education level (UNESCO-UNEVOC, 2013). The programs last four semesters, however a certificate of occupational skills is already attained after one year (ibid.).

In 2006, the term "non-formal education" in the General Law of Education was replaced with the term "education for work and human development (EWHD)". The EWHD programs are free of charge, prepare for the labor market and end with certificates of occupational proficiency. Under the lead of the SENA, the National System of Education for Work (SNFT) is responsible for the standardization, evaluation and certification of work competencies, and for establishing an education system based on work competencies. The SNFT enhances the recognition of prior learning and thereby the connection between the formal and non-formal education system. The SNFT is operationalized through two bodies: the SENA, which standardizes and approves work competencies, and sectoral divisions, which propose policies to support the educational development of the workforce and the development of a national qualifications framework (UNESCO-UNEVOC, 2013).

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

There are four different professional education and training (PET) degree programs: two at the undergraduate level and two at the post-graduate level.

One of both undergraduate programs leads to the degree Professional Technician (*Técnico Profesional*), which aims to equip students with the skills that are needed to successfully exert a specific profession. The majority of these programs is associated with practical professions. The curriculum focuses on practical skills and specialized theoretical knowledge rather than general education. The minimum entry requirement to this program is the *Bachiller* (upper secondary level completion certificate). In addition, students must have a certain number of points in the standardized test SABER 11 provided by the ICFES. Applicants who are at least 16 years old and have a certificate of occupational or professional aptitude (*Certificado de Aptitud Ocupacional/Profesional, CAP*) from the SENA and have at least two years of work experience, can also enter the program. Graduates can either progress to study in a technological program or enter the labor market (IQAS, 2010).

The other program at the undergraduate level is the degree Technologist (*Technologico*) puts more emphasis on scientific and theoretical knowledge. Most often, it is offered in the following fields: business, management, engineering technology and communications. Students learn how to design, implement and manage processes involved in their profession. For admission, students need a *Bachiller* and a certain number of points in the SABER 11 test. It is also possible to enter this program after having completed the Professional Technician degree. Then, getting the title of a Technologist only takes one and a half instead of three to four years to complete. Students who were granted the degree Technologist can enter university to achieve the Licentiate (*Titulo Profesional/Licenciado*), which is equivalent to the Bachelor degree. Then, the Bachelor takes only one and a half instead of four to five years to complete (ibid.).

One of the post-graduate degree programs is the Professional Technical Specialist (*Técnico Profesional Especialista*). It allows students to explore a specific area of their field of study in more detail. Most common are the following fields: finance, management, agriculture and technology-related professions. The entry requirement to this program is the degree Professional Technician. After this program, most graduates enter the labor market (ibid.).

The other post-graduate degree program is the Technological Specialist (*Technologico Especialista*), which gives students the opportunity to specialize in their field of study. Most of these specializations are offered in the fields: business management, commerce, finance, technology and communications. The entry requirement to this program is the degree Technologist. Graduates can continue their studies at a university or enter the labor market. Holding the degree of a Technologist and a Technological Specialist is regarded as equivalent to holding a general education bachelor degree (ibid.).

PET is offered by different providers, which will be introduced in the following.

First, professional technical institutions (*Instituciones Profesionales Tecnicas*) mostly offer higher technical and vocational programs with a strong practical orientation. These institutions are:

*"Legally empowered to offer training programmes in occupations of an operational and instrumental character and of specialisation in their respective field of action, without prejudice to the humanistic aspects of this level"* (Law 30 art. 17, 1992). (SENA & BiBB, 2016).

At the undergraduate level, these institutions offer the Professional Technician degree, which lasts two to three years and the Professional Technical Specialist at the post-secondary level, which takes one to one and a half years to complete (Immerstein S. , 2015).

Second, technological institutions (*Instituciones Tecnologicas*) offer the same degrees, though the programs last a little longer. The degree Technologist lasts three to four years and the Technological Specialist takes one to two years to complete (ibid.). The technological institutions are:

*"Faculties which carry out training programmes for occupations, academic training programmes for professions or disciplines and specialisation programmes"* (Law 30 art 18, 1992). (SENA & BiBB, 2016).

Third, universities or university institutions also provide PET.

Lastly, besides these institutions, the SENA also offers programs at the undergraduate level leading to the degree Professional Technician and Technologist (IQAS, 2010). As mentioned earlier, students can participate in company-based practical placement or be involved in a company project on a voluntary basis as part of their training provided by the SENA. The duration of the practical training in SENA's *Técnico Profesional* program is 12 to 15 months, equivalent to a total of 1600 to 2000 training hours. Practical training for the *Technologico* lasts about 24 months (3200 hours) (BiBB, 2017).

### **3.3 Regulatory and Institutional Framework of the VPET System**

#### **3.3.1 Central Elements of VPET Legislation**

Colombia is one of the most decentralized countries in Latin America. The Colombian Constitution from 1991 and the General Education Act from 1994 laid the ground for the shift in responsibilities from the central to the departmental and municipal level- including the

responsibilities from pre-primary to secondary education, education personnel, funding of the system and supervision of private education providers (OECD, 2016e).

General Education Act from 1994 also gave schools autonomy over their curricula and assessment of skills. The Law 715 of 2001 further specified the responsibilities of actors by education level and regionalized the system of allocation of funds. However, the General Education Act does not trace out the difference between upper secondary and basic education and its role as serving as a bridge into the world of work. It does also not clearly define the roles of all actors involved, as for example the private sector. It assigns the responsibility for the social and technical skills development of the workforce to the SENA (ibid.).

In 1996, the Ministry for Social Protection put the SENA in the lead to establish the National System of Education for Work (*el Sistema Nacional de la Formacion por el Trabajo*, SNFT) and to propose policies for the development of a system for the professional development of the workforce to enhance lifelong learning (UNESCO-UNEVOC, 2013).

The National Government in the National Council of Economic and Social Policy (*Consejo Nacional de Política Económica y Social* (CONPES)) describes the SNFT as a framework within which training providers interact with industry and government to improve the skills of the workforce (in the Document 2945 of 1997) (ibid.).

Further, the Decree 933 of 2003 regulates Apprenticeship contracts and establishes the certification of work competencies, which are monitored by the SENA. And the Decree 1290 of 2009 provides for the evaluation of apprenticeships and the promotion of students to different levels of education (ibid.).

### **3.3.2 Key Actors of the VPET System**

The details explained in the following refer to Colombia's VET and PET system equally.

The responsibility for the education system is shared between the *Ministry of National Education* (*Ministerio de Educación Nacional*, MEN) and the Certified Territorial Entities (*Entidades Territoriales Certificadas*, ETCs).

The MEN establishes regulations and develops guidelines including learning objectives and subject areas for all education levels (Immerstein, 2015). Further, the MEN also inspects and evaluates the quality of the education system (OECD, 2016e). As advising and supporting agents the MEN has the National Council for Higher Education (*Consejo Nacional de Educación Superior*, CESU), the National Inter-Sectorial Commission for Higher Education Quality Assurance (*Comisión Nacional para el Aseguramiento de la Calidad de la Educación Superior*, CONACES) and the National Accreditation Council (*Consejo Nacional de Acreditación*, CAN) (EP-Nuffic, 2015; OECD, 2016e). The CESU consists of members from academia, business, science, and public agencies.

Each of Colombia's 32 departments has a Secretariat of Education. These administer the education system and overlook that the schools and institutions implement the regulations and guidelines of the MEN (Immerstein, 2015). Additionally, the secretariats have the duty to create VET institutions at the upper secondary level, thereby considering the local needs and the available resources (OECD, 2016e).

Each ETC is led by a Secretary of Education and an education development plan (*Plan de Desarrollo para la Prestación del Servicio Educativo*, PED). The ETCs are in charge of the development and implementation of education policy, quality assurance and provision of education at public and private schools, and the support of non-certified municipalities. In 2015, there were 95 ETCs (OECD, 2016e).

### ***Employer Engagement***

Employer engagement in Colombia's VPET system remains low. As mentioned in the previous section, companies with more than 15 employees have to take on trainees, which creates some kind of interaction of companies with the training sector. In addition, the SENA started a pilot project of offering dual VET in cooperation with companies.

The *National System of Education for Work* (*Sistema Nacional de Formación para el Trabajo*, SNFT) was developed to improve the Colombian VPET system and to strengthen its ties with the labor market. It is meant to be an actor that:

"(...) that oversees and combines companies, associations, education and technological development centers, technical and professional educational institutions, and the state in order to define and implement policies and strategies addressed to the continuing development and qualification of the national work force." (UNESCO-UNEVOC, 2013)

Under the lead of the SENA, the SNFT is responsible for the standardization, evaluation and certification of work competencies, and for establishing an education system based on work competencies. By enhancing the recognition of prior learning, the SNFT strengthens the connection between the formal and non-formal education system. It is composed of two bodies: the SENA, which standardizes and approves work competencies, and sectoral divisions, which propose policies to support the educational development of the workforce and the development of a national qualifications framework (ibid.).

### ***Education and Training Providers***

The key actor on the side of the training providers is the SENA, which was created in 1957 and is part of the Ministry of Labour (UNESCO-UNEVOC, 2013). It is the largest provider of VPET programs (upper secondary and tertiary level) such as technical secondary education,

professional technical education, technological education and non-formal education (EWHD) (ibid.). In the board of directors and its technical committee representatives of employers and trade unions are present. The SENA is also responsible for operating the National System of Education for Work (SNFT) (see further below for more info) (UNESCO-UNEVOC, 2013). The SENA provides 70 percent of technical training and technological education at the tertiary level. Also, its importance to deliver vocational education at the upper secondary level has been growing over time: here, it provides about 50 percent of all vocational courses. The SENA is autonomous in managing its funding and to decide about its own policy and regulation (OECD, 2016e).

According to the OECD (2016e), tertiary education institutions have started to provide vocationally oriented courses since the introduction of the Programme for Strengthening Technical and Technological Education (*Programa de Fortalecimiento de la Educación Técnica y Tecnológica*) in 2006.

The schools and institutions providing VPET have a large autonomy with respect to national and local governments, also because there is no national qualification system. They are free within the MEN guidelines to create educational programs, specify study plans, set admission requirements, grant degrees, and select teachers (Immerstein S. , 2015; OECD, 2016b). Besides, these schools and institutions are responsible for establishing relations to the labor market (OECD, 2016b).

### **3.4 Educational Finance of the VPET System**

In 2013, 6.6 percent of the Colombian GDP was spent on education, which was higher than the average of 5.2 percent of GDP spent in other OECD countries. Of the total spending for education, only 10 percent were allocated to the upper secondary education level. About one quarter was spent for lower secondary education and the rest distributed equally between primary and tertiary education (OECD, 2016e).

Most (almost 78.5 percent in 2011) of total secondary school enrollment was in public VET institutions- that is, the SENA or other public VET providers. This accounts for the importance of the public sector in providing VET. The financing of the VET system is carried out with the resources of the central government and regional entities (IADB, 2016).

As in the case of VET, most of the PET in the country occurs in public institutions. Also, most (approximately 78 percent in 2011) of the PET is offered at SENA or at state and official institutions and approximately half of the public programs are provided by the SENA. The distribution of financial resources for public bidders has traditionally been based on historical criteria. More and more, the resources are being allocated according to performance indicators (ibid.).



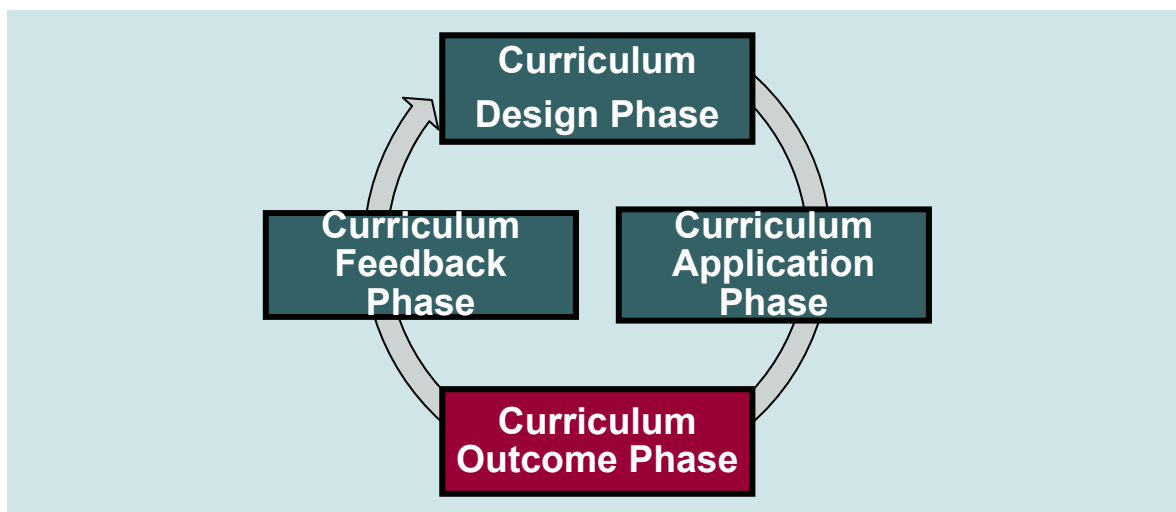
The programs offered by the SENA are free of charge for students. In addition to subsidizing the public offer, the government also helps students through a system of subsidized public credits for higher education, targeted at students based on their socioeconomic status and academic performance. This line of credit, administered by the Institute of Educational Credit and Technical Studies Abroad (*Instituto de Crédito Educativo y Estudios Técnicos en el Exterior, ICETEX*), can finance up to 100 percent of the enrollment in the PET programs. It provides student credits at low interest rates (UNESCO-UNEVOC, 2013).

As the SENA is the biggest supplier of VPET, it received most of the money in among all VPET institutions. Its financing comes from the income tax on equity and the one percent contributions associated with the payroll of non-reporting companies and legal persons. Its budget, which in 2014 amounted to 3 billion pesos, is well above that of peer institutions in the region: in 2012, Colombia spent about 0.37 percent of its GDP for vocational training, while for example Chile spent only 0.1 percent of its GDP for vocational training. However, this includes expenses for further training, which is the major business of the SENA. In general, this high level of spending for vocational training is a result of an extraordinary growth in SENA's investment budget in the most recent decade: the budget almost tripled in real terms between 2000 and 2012. SENA, in turn, distributes resources among training centers. Thus, it rather redistributes than incorporates the resources (IADB, 2016).

### **3.5 Curriculum Development**

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

**Figure 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.

### **3.5.1 Curriculum Design Phase**

The design phase is crucial for the whole curriculum process. In order to ensure that the skills taught in the VPET 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.

All schools (all levels) and tertiary education institutions have to be registered at the Ministry of Education. Only then, they are allowed to provide education programs and award degrees. To become registered, the MEN checks if the applicant fulfils basic quality requirements. Once registered, the Ministry of National Education only provides the guidelines for the curriculum development (Immerstein, 2015). Since 1998, the MEN publishes curricular guidelines for a number of subjects, such as social sciences, natural sciences, mathematics and physics.

Though they are not mandatory, schools have an incentive to follow these guidelines, since it is a benefit in case of external evaluations, which determine the financial resources schools receive. In addition, since 2003, the MEN has formulated competence standards. However, the flood of competence standards lead to a fragmentation rather than a standardization of the learning agendas (OECD, 2016e).

Apart from the guidelines provided by the MEN, the upper secondary and tertiary level institutions are free to develop their own curricula and graduation requirements. Yet, there is no national qualification system that would help to standardize the skills taught at the SENA or the tertiary institutions providing vocational training; both have a high autonomy in designing their vocational courses (ibid.).

The lack of a national qualifications framework and the high level of fragmentation of curricula in the Colombian education system has been criticized by the OECD (2016e), as well as the lack of a sufficient degree of differentiation between general and vocational education curricula. Thereby, one major concern is that students in vocational education would not acquire the skills they needed to be able to continue to the tertiary level (UNESCO-UNEVOC, 2013).

The involvement of companies or other labor market representatives in the curriculum design is in general very low. There are some areas of cooperation between the different labor market stakeholders, such as the National Association of Industrial Committees, the Private Competitiveness Council or sectoral groups organized by the SENA, in order to identify the skills needs of the productive sector (IQAS, 2010; SENA & BiBB, 2016).

### **3.5.2 Curriculum Application Phase**

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

As mentioned in sections 3.1 and 3.2, most of the training at VET and PET institutions is “school-based” or takes place in inter-company training centers, while workplace training is limited.

Career guidance services for students are scarce (OECD, 2016e). The SENA provides some entrepreneurship promotion programs in order to spur job creation and to help VET graduates to start their own business (SENA & BiBB, 2016).

### **3.5.3 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 *Decree 2020 of 2006* seeks to *establish* a system of quality assurance of VET programs, with the goal to certify that the provision of training for work has the means and capacity to provide training that responds to the needs of the labor market (SENA & BiBB, 2016). As stated by a joint report of the SENA and the BiBB (2016), the Training Directorate of the SENA shall set up an information system to track the quality of VET programs.

The National Council for the Quality Assurance of Higher Education (*Consejo Nacional de Aseguramiento de la Calidad de la Educación Superior*, CONACES) checks the quality of the tertiary education programs (EP-Nuffic, 2015). Thereby, the CONACES relies on the register of qualified programs, which sets the minimum quality standards, and the voluntary accreditation of schools and institutes (OECD, 2016e).

### **3.6 Supplying Personnel for the VPET System (Teacher Education)**

In general, teachers at the upper secondary education level have to have a Bachelor degree. With regard to the preparedness, skills and experience, teachers at lower and upper secondary schools- including vocational schools- actually have to meet exactly the same prerequisites. As a consequence, teachers often change between teaching at lower and upper secondary schools. However, specific subjects are often taught by upper secondary education teachers. Another consequence is that many teachers actually lack core pedagogical skills and vocational knowledge. According to the legislation, teachers at the lower and upper secondary education level have the same status. They also receive the same salaries (OECD, 2016e).

Only the SENA sets qualification standards for teachers: they have to have earned a degree that is higher than the level they teach, must have acquired pedagogical skills, participated in at least 140 hours of teacher education, have to have between six months to one year work experience in the professional area they are teaching and six months' experience as a teacher. For the purpose of training teachers and updating their skills, SENA has its own school. The SENA evaluates and certifies the skills and the competencies of its instructors. Thereby, it is not regulated by the MEN (ibid.).

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

### **4.1 Major reforms**

In 2001, the Colombian government decentralized its education system. The Colombian Constitution from 1991 and the General Education Act from 1994 laid the ground for the shift in responsibilities from the central to the departmental and municipal level- including the

responsibilities from pre-primary to secondary education, education personnel, funding of the system and supervision of private education providers (OECD, 2016e).

Responsibilities were shifted from the MEN to the Certified Territorial Entities (*Entidades Territoriales Certificadas*, ETCs). Decentralization has increased enrolment rates, enabled municipalities to expand the provision of education through a system of subsidized private education, allowed ETCs to expand access to and quality of education. Still, there are huge disparities in institutional capacity between regional and local governments (ibid.).

## **4.2 Major challenges**

Major challenges for the Colombian VET system are: providing access, funding and quality assurance in terms of standards. As mentioned in section 3, the number of schools offering VET programs is relatively low. Only roughly one third of all upper secondary education institutions offer VET, mostly in rural areas. Therefore, access to VET education is not granted for every student willing to enroll, unless he/ she has the financial means to travel or move (OECD, 2016e).

Government funding for the upper secondary level is in general very low, since it is not part of compulsory education. Furthermore, schools offering both, VET and general education, sometimes lack a clear distinction between VET curricula and general education. Even though practical training is foreseen, there are no national standards regarding the hours spent in practical training across professions. In addition, there are problems regarding the quality assurance of VET. Different studies state considerable differences in quality between different VET courses (CRECE, 2012). Also, many vocational students face challenges in transitioning to formal employment. In contrast to the general education exit exam SABER 11, there is no nationally standardized VET exit exam facilitating quality assurance and trust by future employers. Little governmental influence and a wide autonomy of VET providers further allows for differences in skills learned throughout the education (OECD, 2016e).

More standardization is currently enhanced at tertiary level, where the major challenge, besides quality assurance, is to grant equal opportunities to students from different regions. Due to low provision, the access to PET is difficult for students from rural areas. The government tries to tackle these issues with a reform aiming at establishing a National System of Tertiary Education. The objectives of the reform include the facilitation of access to and improvement of the quality of tertiary education institutes (ibid.).

## References

- BiBB. (2017). *Benchmark data on vocational education and training in Colombia*. Retrieved from Bundesinstitut für Berufsbildung (BiBB): <https://www.bibb.de/en/55099.php>
- Bolli, T., Caves, K., Bürgi, J., Pusterla, F., Rageth, L., & Renold, U. (2016). *The Curriculum Value Chain. A Theoretical Framework for Analyzing and Managing Education and Training Systems*. Zurich: KOF Studies.
- CRECE. (2012). *Valoracion del Marco Legal y Administrativo de la Educacion Media en Colombia: Informe Final*. Manizales: Centro de Estudios Regionales Cafeteros y Empresariales.
- Dutta, S., Lanvin, B., & Wunsch-Vincent, S. (2016). *The Global Innovation Index 2016: The Human Factor in Innovation*. Fontainebleau, Ithaca, and Geneva: Cornell University, INSEAD, and WIPO.
- Economist. (2015). *Democracy Index 2014: Democracy and its Discontents*. London: The Economist Intelligence Unit Limited.
- Economist. (2016, December 24). *Our country of the year*. Retrieved from [economist.com: http://www.economist.com/news/leaders/21712136-which-country-improved-most-2016-our-country-year](http://www.economist.com/news/leaders/21712136-which-country-improved-most-2016-our-country-year)
- Encyclopaedia Britannica. (2017). *Colombia*. Retrieved from Encyclopaedia Britannica: <https://www.britannica.com/place/Colombia/Transportation#toc25361>
- EP-Nuffic. (2015). *The Colombian education system described and compared with the Dutch system*.
- European Commission. (2010). *The Bruges Communiqué on Enhanced European Cooperation in Vocational Education and Training for the Period 2011-2020*. Brussels: European Commission. Retrieved from <http://ec.europa.eu/education/policy/vocational-policy/doc/br>
- European Commission. (2010). *The Bruges Communiqué on Enhanced European Cooperation in Vocational Education and Training for the Period 2011-2020*. Brussels: European Commission. Retrieved from <http://ec.europa.eu/education/policy/vocational-policy/doc/br> (September, 12, 2015).

- Eurostat. (2015a). *Gross Value Added and Income by A\*10 Industry Breakdown (nama\_10\_a10)*. Retrieved from <http://appsso.eurostat.ec.europa.eu/nui/show.do> (September 14, 2015).
- Eurostat. (2015b). *Employment by A\*10 Industry Breakdowns (nama\_10\_a10\_e)*. Retrieved from <http://appsso.eurostat.ec.europa.eu/nui/show.do> (September 14, 2015).
- IADB. (2016). *Avances y retos en la formación para el trabajo en Colombia*. Inter-American Development Bank.
- Immerstein, S. (2015). *Education system profiles. Education in Colombia*. <http://wenr.wes.org/2015/12/education-in-colombia>.: World Education News & Reviews (WENR).
- Immerstein, S. (2015). *Education system profiles. Education in Colombia*. Retrieved October 4, 2016, from WENR: <http://wenr.wes.org/2015/12/education-in-colombia>
- IQAS. (2010). *International Education Guide, For the assessment of education from the Republic of Colombia*. International Qualifications Assessment Service, Government of Alberta, Canada.
- KOF. (2017). *KOF Youth Labour Market Index (KOF YLMI)*. KOF Swiss Economic Institute, Swiss Federal Institute of Technology Zurich (ETHZ). Retrieved from KOF Youth Labour Market Index: <http://www.kof.ethz.ch/en/indicators/ylm-index/> (September 12, 2015).
- OECD. (2015a). *OECD Economic Surveys Colombia*. Paris: Organization for Economic Co-operation and Development (OECD).
- OECD. (2015b). *OECD Employment Outlook 2015*. Paris: OECD Publishing. Retrieved from [http://dx.doi.org/10.1787/empl\\_outlook-2015-en](http://dx.doi.org/10.1787/empl_outlook-2015-en).
- OECD. (2015c). *OECD Labour Force Statistics*. Retrieved from [https://stats.oecd.org/Index.aspx?DataSetCode=LFS\\_SEXAGE\\_I\\_R](https://stats.oecd.org/Index.aspx?DataSetCode=LFS_SEXAGE_I_R) (September 22, 2015).
- OECD. (2015d). *OECD Education Database: Population Who Attained Upper Secondary Education*. Retrieved from <http://stats.oecd.org/Index.aspx?QueryId=50386> (September 22, 2015).
- OECD. (2016a). *Education at a Glance 2016: OECD Indicators*. OECD Publishing, Paris.

- OECD. (2016b). *Education in Colombia. Reviews of National Policies for Education*. Paris: OECD Publishing.
- OECD. (2016c). *OECD Annual National Accounts. Gross Domestic Product (GDP)*. Retrieved from <https://stats.oecd.org/index.aspx?queryid=60702> (July 26, 2016).
- OECD. (2016d). *OECD Reviews of Labour Market and Social Policies: Colombia 2016*. OECD Publishing, Paris.
- OECD. (2016e). *Reviews of National Policies for Education, Education in Colombia*. Organization for Economic Co-operation and Development (OECD).
- OECD. (2017a). *Colombia's moment of truth*. Retrieved from Organization for Economic Co-operation and Development (OECD): <http://oecdeducationtoday.blogspot.ch/2016/04/colombias-moment-of-truth.html>
- OECD. (2017b). *Dataset: LFS by sex and age - indicators*. Retrieved from [https://stats.oecd.org/Index.aspx?DataSetCode=LFS\\_SEXAGE\\_I\\_R#](https://stats.oecd.org/Index.aspx?DataSetCode=LFS_SEXAGE_I_R#)
- OECD. (2017c). *OECD Employment Outlook- Statistical Annex*. Retrieved from <http://www.oecd.org/els/emp/employment-outlook-statistical-annex.htm>
- OECD. (2017d). *Short-Term Labour Market Statistics Dataset*. Retrieved from <http://stats.oecd.org/#>
- Renold, U., Bolli, T., Egg, M. E., & Pusterla, F. (2014). *On the Multiple Dimensions of Youth Labour Markets - A Guide to the KOF Youth Labour Market Index*. Zurich: KOF Swiss Economic Institute.
- Schneider, F., & Hametner, B. (2014). The Shadow Economy in Colombia: Size and Effects on Economic Growth. *Peace Economics, Peace Science and Public Policy*, 293.
- SENA, & BiBB. (2016). *Colombia data report on vocational education and training*. Servicio Nacional de Aprendizaje (SENA), Federal Institute for Vocational Education and Training (BiBB) .
- The White House. (2015). *Building American Skills Through Community Colleges*. Retrieved from [www.whitehouse.gov/issues/education/higher-education/building-american-skills-through-community-colleges](http://www.whitehouse.gov/issues/education/higher-education/building-american-skills-through-community-colleges) (August 30, 2015).
- Transparency International. (2014). *Corruption Perceptions Index*. Berlin: Transparency International.



- Transparency International. (2016). *Corruption Perceptions Index*. Berlin: Transparency International.
- UN News Centre. (2017, May 11). <http://www.un.org/apps/news/story.asp?NewsID=56732#.WR2o4IVOKUk>. Retrieved from un.org: <http://www.un.org/apps/news/story.asp?NewsID=56732#.WR2o4IVOKUk>
- UNESCO. (2017). *Education: Gross enrolment ratio by level of education*. Retrieved from the United Nations Educational, Scientific and Cultural Organization (UNESCO) : <http://data.uis.unesco.org/?queryid=142#>
- UNESCO-UNEVOC. (2013). *World TVET database, Colombia*. UNESCO-UNEVOC International Centre for Technical and Vocational Education and Training.
- WEF. (2017). *The Global Competitiveness Report 2016-2017: Full Data Edition*. Geneva: World Economic Forum.
- World Bank. (2015). *Colombia- Systematic Country Diagnostic*. The World Bank.
- World Bank. (2016). *World Development Indicators*. Retrieved from [http://databank.worldbank.org/data/reports.aspx?source=2&country=&series=NY.GD.P.MKTP.KD.ZG&period=\(July 28, 2016\)](http://databank.worldbank.org/data/reports.aspx?source=2&country=&series=NY.GD.P.MKTP.KD.ZG&period=(July%2028%2C%202016)).
- World Bank. (2017a). *Overview Colombias Economy*. Retrieved from <http://www.worldbank.org/en/country/colombia/overview>
- World Bank. (2017b). *World Development Indicators (WDI)*. Retrieved from <http://databank.worldbank.org/data/reports.aspx?source=2&series=NV.SRV.TETC.ZS&country=#>