Apprenticeships for the XXI Century

A Model for Latin America and the Caribbean?

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Inter-American Development Bank

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We dedicate this work to the young people looking for opportunities to unleash their potential and find their career pathways.

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Executive summary

Policy makers from Latin America and the Caribbean (LAC) are worried about the youth labor market challenges their countries face and, as a result, are seeking potential solutions to increase their access to quality jobs by improving their skills (the youth's) and enabling positive employability pathways. At the same time, companies in all sectors of LAC economies oftentimes complain about not being able to find the talent they require and are concerned about job applicants' lack of technical and soft skills. There are several tools to help the youth improve their skills and employability. Apprenticeships are one of those tools that have proven successful for countries outside of the region, making LAC countries increasingly interested in experimenting with this type of approach.

This study intends to decompose apprenticeships. First, based on an extensive review of existing literature, it proposes a formal definition of apprenticeships that differentiates this type of training modality from other types of skills training. Second, it explores core elements and principles in depth that are central to apprenticeship programs —both in terms of their design and delivery— and presents examples of best practices from around the world that LAC countries can use as potential instruments to apply within their contexts. Third, it assesses the status of apprenticeship-type programs in LAC and provides an overview of the specific challenges these programs face in the region. By providing potential solutions to address them, the study sheds light on the transferability of long-standing apprenticeship models (Germany, Austria, Australia, the United Kingdom, among others) and, more so, of the aforementioned core elements and principles to the LAC context. Finally, in an attempt to close the gap between the theoretical and the practical, it provides a hands-on tool kit for policy makers and employers to ask pertinent questions when considering the design of new programs or the revamping of existing ones.

Based on the extensive literature review conducted for this study, it can be concluded that innovative and effective apprenticeship programs around the world should be guided by 10 core elements. These are (i) alignment with country development strategies, (ii) adequate governance arrangements, (iii) high levels of employer engagement, (iv) appropriate funding and incentive structures, (v) robust curriculum design, (vi) robust curriculum delivery, (vii) robust assessment methodologies that are relevant to the occupation in which the apprentice is being trained, (viii) certification and opportunities for further progression for the apprentice, (ix) suitable support in the form of apprenticeship career services for apprentices, and last but definitely not least, (x) strong quality assurance mechanisms for the delivery of the apprenticeship program, which must take into account all of the aforementioned core elements and which should be highly articulated with countries' skills development systems overall.

The conclusions from the discussions on how apprenticeships are different from other modalities of training and on the core elements and guiding principles of apprenticeship programs tell us that countries in LAC are still far from the advanced experiences of apprenticeships because they lack both the basic characteristics of apprenticeship programs (that is, what differentiates them from other types of training programs) and the architectural functions of an apprenticeship system that make the apprenticeship delivery more sustainable and effective. There have been some steps toward designing and implementing these programs, but much more has to be done in order to establish efficient and sustainable programs. There is a clear indication that the region's countries have a valuable opportunity to improve their apprenticeship-type programs, whether it is via characteristics that are specific to apprenticeship programs (i.e., the employer-employee relationship of the firm-apprentice, structured training plans, the ratio of on-the-job to off-the-job training programs, etc.) or via characteristics that are important for the effective delivery of apprenticeship programs but that are part of a wider skills development system architecture (i.e., a national qualifications framework, public-private collaboration, curriculum development, a certification system, etc.).

Moreover, LAC's apprenticeship-type programs have the opportunity to move toward the attainment of three main features that stand out as key components for the successful implementation of apprenticeships. First, training providers and employers work together, not in isolation. Employers actively help to design curricula and offer their employees as trainers, while training providers know about the industry and collaborate with employers and students in the process of developing and delivering the curriculum for learning a skilled occupation. Second, in the best programs, employers and training providers fully invest in their apprentices at an early stage, even before they see productivity gains. That is, instead of following a linear sequence (enrollment leads to skills, which lead to employment), employers commit to formally hiring youth as employees before they build their skills through enrollment in the program.

Third, apprenticeships provide opportunities to progress upon completion such that apprentices can either continue on to obtain subsequent qualifications in their technical area or pursue higher education. Overall, countries showing good practices in apprenticeships have sustainable cooperation between the public and private sectors and have managed to find solutions to make apprenticeships a win-win-win for apprentices, employers, and countries.

In order to develop apprenticeship programs that take the core elements and the aforementioned features into account, LAC countries must understand that the region faces particular challenges for the implementation of these types of programs. These challenges are related to a variety of factors, including (i) economic (low economic performance of the region, high levels of informality, and high incidence of small and medium enterprises (SMEs)), (ii) educational (skills deficiencies), legal (outdated apprenticeship regulations and labor regulations that affect the costs of hiring workers), (iii) informational (lack of adequate labor market intelligence (LMI) and lack of or limited monitoring, impact evaluations, and cost-benefit analyses), (iv) institutional (lack of strong quality assurance mechanisms), and (v) social/cultural (lack of collaboration between public and private sectors and lack of trust in institutions).

In this regard, different countries' experiences with apprenticeship or apprenticeship-type programs suggest that there is an array of mechanisms they have used to address these challenges and get closer to fulfilling the core elements and principles of apprenticeships. The study, therefore, provides examples of best practices from around the world and closes with a practical tool kit to guide the design and revamping of new and existing programs, respectively. It provides the reader with a step-by-step guide to think about what would be necessary, contingent upon each country's particular context and needs, to achieve the best possible apprenticeship program that can contribute to national development goals.

We hope that this study, therefore, serves as a foundation to inform governments, employers, civil society, and other relevant actors as to what are the pieces of the puzzle that are essential for the design and implementation of well-functioning apprenticeship programs in LAC. More importantly, we hope that it can become a call to action for countries to gauge the appropriateness of the apprenticeship-type programs that they currently have and to continue experimenting, in an informed manner, with this promising training model that has proved to have positive impacts on increasing access to labor market opportunities.

Frequently Asked Questions: A Quick Guide to Reading This Study

This study will go over some of the **frequently asked questions** about apprenticeships, namely:

What are apprenticeships? Are they already present in LAC?

Chapter 1 provides a formal definition of apprenticeships, differentiating them from other kinds of skills and on-the-job training.

Why are they appealing to LAC countries?

Chapter 2 describes what we know about the impacts, costs, and benefits of apprenticeship programs worldwide.

What are the main challenges for developing apprenticeship programs in LAC?

Chapter 3 explains the different challenges faced specifically by LAC countries in the implementation of apprenticeship programs.

What are the key characteristics of apprenticeship programs?

Chapter 4 summarizes the main characteristics of apprenticeship programs along several criteria, including target population, duration, occupational coverage, gender, and wages and contracts, both in LAC and outside of the region.

What are the core elements and guiding principles of apprenticeship programs?

Chapter 5 displays 10 core elements and 25 guiding principles of apprenticeship systems and programs from around the world that can be used to inform the design of apprenticeship programs. It also provides examples of best practices to fulfill each of these core elements from around the world.

Bridging theory and practice: how to design an apprenticeship program?

Chapter 6 provides concrete guidelines to LAC countries that are considering designing or redesigning an apprenticeship program as a workforce development strategy.

Box 1. About the methodology of this report

Impact evaluation studies of the different components and core elements of apprenticeship programs are scarce. Most of the literature on apprenticeships refers to studies by country that review the main characteristics of their programs and how they are executed and assess the programs in terms of main performance indicators (i.e., apprenticeship completion, hiring, etc.), sustainability, institutional capacity, and cost-benefit analysis. With that information available, this study followed a three-step methodology to analyze existing apprenticeship cases and provide conclusions in terms of the core elements and guiding principles to be considered when developing apprenticeship programs in LAC:

1) By using the Delphi method*, 11 countries outside of the region were chosen based on the following criteria: (i) six well-established apprenticeship models (Australia, Austria, Canada, Germany, the United Kingdom, and the United States) that could serve as international references for standard features and (ii) five models that are in their experimental stage, including those present in emerging economies, so as to ensure transferability to the reality of LAC countries (Turkey, Lithuania, Malta, India, and France). A standard template was designed to capture comparable elements of the apprenticeship programs in each of the 11 countries (see summaries of country cases in Annex).

2) Ten core elements of apprenticeship programs were identified based on a comprehensive assessment of 15 existing international reviews, within which analyses of the countries of the case studies were included. The 10 core elements were organized into 25 principles that are highlighted in the literature for developing and improving the results of apprenticeship programs.

3) Finally, six countries with active or incipient implementation of apprenticeship at the national level from within LAC (Brazil, Chile, Colombia, Costa Rica, Mexico, and Peru) were chosen so as to provide an overview of the status of apprenticeship programs in the region and to understand the extent to which features from the long-standing apprenticeship models are included within these programs.

* The Delphi method is a research technique that is used to structure a group's communication and decision-making process with experts on a particular topic so that, through several anonymous iterations and with the help of a facilitator, the group can arrive at the "correct" solution to solve a complex problem. The main premise behind the Delphi method is that the decisions arrived at by a group in a structured manner are more accurate than those arrived at in an unstructured manner.

1 What are apprenticeships?

Defining what apprenticeship programs are is the first step in contemplating whether or not they can be useful tools to address countries' particular challenges. According to the experiences outside of LAC analyzed in this study, apprenticeships have four distinctive characteristics: (i) the apprentice has a job with structured training, (ii) the apprentices' training plan combines training in the workplace with a professional master and related in-class training, (iii) there is a written contract of employment between the employer and the apprentice setting out the rights and responsibilities of both parties, and (iv) the apprentice takes an assessment to receive an industry-recognized certification of acquired qualifications. The implementation of the apprenticeship model varies greatly across different experiences and countries. Given the variety of implementation modalities that exist and the fact that there are other types of vocational training that include on-the-job training but are not apprenticeship programs per se, it is important to distinguish the definition of apprenticeships from those of other types of on-the-job training in order to guide countries in pursuing the best practices in apprenticeship delivery. When analyzing the presence of apprenticeships programs in LAC specifically, it can be concluded that these programs have not fully abided by the elements contained in the definition of apprenticeships as proposed herein, but they do set an important basis for the delivery of robust apprenticeship programs in the future.

What is an apprenticeship?

According to the experiences outside of LAC analyzed in this study, an **apprenticeship** entails a job[1] that includes structured on-the-job training combined with a share of related technical off-the-job training to learn a skilled occupation that is certified and recognized by the industry upon completion. It is important to highlight the distinctive elements of apprenticeships compared to other on-the-job training methods:

1) **The apprentice has a job with structured training**, meaning that there is a training plan for the apprentices.

2) **The apprentices' training plan combines training in the workplace with a professional master** and related in-class training provided in a school, college, or training institution (usually on the basis of one-day or two-day release).

3) **A written contract of employment will normally exist** between the employer and the apprentice setting out the rights and responsibilities on both sides, reflecting that the arrangement is of mutual benefit.

4) **The apprentice takes an assessment to receive a recognized certification** of acquired qualifications upon completion of the apprenticeship. This certification is industry recognized as a means of verification that the apprentice has acquired a pertinent set of skills at a specified level.

The implementation of the apprenticeship model varies greatly across different experiences and countries along several aspects: institutional arrangements, duration, quantity (numbers trained), and quality (skill content); across sectors and occupations within countries; and in terms of provision and financing by employers. Given the variety of implementation modalities that exist and the fact that there are other types of vocational training that include on-the-job training but are not apprenticeship programs per se, it is important to distinguish the definition of apprenticeships from those of other types of on-the-job training in order to guide countries in pursuing the best practices in apprenticeship delivery (see Box 2).

Table 1 highlights the distinction between apprenticeships and other forms of training. Compared to trainees or interns in other programs, apprentices are taught by experienced workers

1. For purposes of this study, the authors refer to a "job" as the opportunity that an apprentice has to gain access, through an apprenticeship, to a job position as part of a company's formal recruitment processes. This typically entails the payment of a wage to the apprentice along with the granting of employment benefits as established within countries' formal labor regulations. However, it is important to note that some countries utilize apprenticeship-specific legal frameworks that regulate the relationship between the employer and the apprentice —and in some cases the off-the-job training provider— and that include special provisions that differentiate the status and benefits of an apprentice from those of a regular employee.

Box 2. Apprenticeships in the context of vocational education and training

Vocational education and training, and even more so on-the-job training, facilitates the school-to-work transition of students, as they are trained in skills that are valued by employers in a specific occupation. Australia, in a report about vocational education and training in this country, claims that "the VET sector has unique capabilities as the 'adaptive layer' of the Australian education system. More than any other education sector, it connects learning with the labor market, the workplace and community development, as well as with individual learner and employer aspirations."

Eichhorst et al. (2014) describe vocational education and training around the world. The authors characterize different types of vocational systems, based on a couple of characteristics: (i) the relative weight given to institutional learning versus workplace training and (ii) whether institutional-based learning is provided within formal secondary school frameworks (part of the education system) or at vocational training centers (which often have close ties to the private sector). Given these two characteristics, there is a continuum of types of vocational systems. In this continuum of options, there can be various forms of apprenticeships, which in general can take two main forms: (a) dual apprenticeship systems combining the school education system with a firm-based approach (as those of Austria, Denmark, Germany, and Switzerland) and (b) apprenticeships that target out-of-school populations (as those of the UK, the US, and Australia). Table 1 shows differences between apprenticeships and other types of training.

An important part of strong vocational education and training systems is the existence of national qualifications and credit frameworks, which bring together qualifications obtained through apprenticeships and other training programs and which allow comparison of the level of skills, knowledge, and thus labor market value associated with different qualification levels. This enables employers to more easily recognize the value of applicants' qualifications and allows apprentices to gain a clearer understanding of the pathways available to them in order to progress from entry-level positions to those requiring higher-level skills.

at the job site and practice their skills in real work assignments, following a structured training plan that is combined with off-the job training. Therefore, an apprenticeship provides **hands-on experience, a salary, and the opportunity to gain qualifications while at work —even a degree**. Apprenticeships help workers to master not only relevant occupational skills but also other work-related skills, including communication, problem solving, allocation of resources,

Table 1. Differences between apprenticeships and other types of training

	Characteristic/Type of training	Pre-apprenticeship or Traineeship	Internship	Informal apprenticeship	Workplace learning	Apprenticeship
1	Wage	Maybe	Maybe	Maybe	✔	✔
2	Contract agreement* (bilateral or tripartite)	✘	Maybe	Maybe	✔	✔
3	Legal framework	✘	✘	✘	✘	✔
4	Workplace based	✘	✔	✘	✔	✔
5	Structured learning plan	✔	Maybe	✘	Maybe	✔
6	On-the-job training	Maybe	Maybe	✔	✔	✔
7	Off-the-job training	✘	✘	✘	✘	✔
8	Formal assessment	✘	✘	✘	✘	✔
9	Industry-recognized certification	Maybe	✘	✘	✘	✔
10	Curriculum established with private sector at the industry level	Maybe	Maybe	✘	✘	✔
11	Duration	Minimum 3 months	From 2 months to 6 months	Variable	Minimum 3 months	At least 1 year
12	Target population	Young (or adult) job seekers who need preparation on soft skills and remedial education to be ready to work as apprentices	Either students or out-of-school youth looking for first job experience	Primarily young people employed in informal sector or in the formal sector but without a structured apprenticeship program	Either employed or unemployed youth and adults who take on-the-job training	Either students or out-of-school youth and adults who are prepared to take on apprenticeships in terms of soft skills and basic skills

Source: Own elaboration based on Steedman (2012).

*In most cases, the contract agreement between the apprentice and the employer includes the payment of social security contributions and payroll taxes, access to health insurance, and workplace accident coverage. In some cases, the state directly assumes part of these costs (e.g., Turkey).

Box 3. Apprenticeship Fact: Back to the Middle Ages

Despite their recently increasing popularity, it is important to note that apprenticeships have existed as long as societies have felt the need to transfer knowledge and skills to their younger generations. In fact, records indicate that apprenticeships —defined in their most basic form as the transfer of skills from a more experienced person to one who is learning new skills— date back to the 18th century BCE, when in Babylon, artisans were required to teach their crafts to the next generation. Then, by the 13th century, apprenticeships had developed in Western Europe in the form of craft guilds, which regulated craft production and were controlled by the master craftsmen and their members, who supervised product quality, methods of production, and work conditions for each occupational group in a town. Apprenticeships, which commonly lasted seven years, were a passport to enter these guilds.

Apprenticeships have certainly evolved over time, broadening their scope from the traditional craft industries to other sectors, industries, and fields; integrating more closely with countries' technical and vocational education systems; and including features and quality assurance mechanisms that were not present in their earlier stages, among others. Today, they are recognized as policy tools to facilitate the insertion of youth into the labor market primarily and in some instances to upgrade the skills of active workers.

and dealing with supervisors and a diverse set of coworkers. The typical career path for an apprenticeship goes from apprentice to journeyman, then master, with the possibility to even pursue higher studies upon completion in many countries (e.g., Switzerland, the UK, Germany). There is no other training model that comprises the typical elements that define apprenticeships (a job with a contract[2], wage, and a structured learning plan in the workplace with fixed duration, with an articulated off- and on-the-job training plan that is private sector led and that includes a formal assessment and industry-recognized certification).

As seen in Table 1, compared to apprenticeships, other models do not entail a job with a contract agreement, have enough duration to learn the breadth of an occupation, or combine the learning-on-the-job experience with related technical training. Some models provide on-the-job training but typically with less structure and not necessarily leading to a certification of skills acquisition.

2. In most of the cases examined outside of the LAC region, apprentices are also offered social security benefits as part of the contract arrangement.

Different programs for different objective populations: The different training models target different populations, depending on the individuals' level of readiness for the workplace in terms of skills (soft or socioemotional, numeracy and literacy, technical), experience, and age and the objective of the training per se. For instance, **pre-apprenticeships** are preparatory programs targeted at young (or adult) job seekers who need to strengthen their soft skills and basic numeracy and literacy skills before being ready to take on a job as apprentices (see Box 5). **Internship** programs are generally opportunities offered by employers to students interested in the industry for less than 12 months (typically three months), may not be paid or may only cover a stipend, may not have a training plan, and can be less structured than apprenticeship training. **Informal apprenticeships** are a typical model of training in informal economies. Variations in terms of practices are wide, yet the basic feature remains the same: there is a training agreement —albeit informal and outside of the scope of a regulatory framework— between a young learner and an experienced craftsperson to transmit the skills of a trade. **Workplace learning** can also have different varieties and is typically targeted at active workers within firms that provide training opportunities. Compared to the different types of training alluded to previously, **apprenticeships** are targeted at either young vocational education students (in the dual apprenticeship system) or youth and adults (in apprenticeships) who may be out of school and looking for a first job experience and who can demonstrate enough readiness to start working and learning as apprentices. They can also be used to reskill the adult population so that they can gain access to jobs in new occupations.

Box 4. Who is more likely to be an apprentice?

Based on the average apprentice experience across countries and sectors, apprenticeships tend to be the career pathway for out-of-school young people who are about 20 years old, may be unemployed, have interest in learning a skilled occupation while working, and may not have the economic opportunities or interests to pursue an academic career for more than four years. It is important to note, however, that given the strong emphasis of apprenticeships as an opportunity to gain access to a job position within a formal company setting, individuals must possess an adequate basis of soft and basic skills in order to be able to enter an apprenticeship program. Millions of young people in LAC fit this profile, and as such, apprenticeships could provide a career opportunity for them.

Box 5. Pre-apprenticeships as a way to prepare more people to start apprenticeship programs

In some countries (i.e., the UK, the US, Canada), apprenticeship programs are often complemented by pre-apprenticeship programs as a first step to prepare groups from different populations who may need to strengthen their basic and soft skills to meet the qualifications to enter an apprenticeship program. Pre-apprenticeship programs are a type of preparatory program that teaches basic technical and job-readiness skills for a designated apprentice occupation or occupational sector to prepare participants for apprenticeship training.

Pre-apprenticeships normally feature a classroom and/or lab setting but may also involve worksite visits, internships, job shadowing, or other activities outside the program facility to provide exposure to the work environment for the targeted occupation(s). The model for pre-apprenticeship training varies depending on the targeted group recruited for training. The different models include both out-of-school and in-school youth but also adults who may need support in strengthening their skills training to find a new job.

The training context for youth in LAC: Apprenticeships vs. other youth training programs

Apprenticeships are just one of the possible types of youth training interventions that have been used by countries worldwide to enhance young persons' probabilities of employment. In LAC specifically, while youth training programs have been implemented since the early 1980s, they have not fully abided by the elements contained in the definition of apprenticeships as proposed herein. Training programs in LAC have several characteristics in common, which include the following: (i) they have tended to target less educated youth —either unemployed or underemployed from middle or low socioeconomic backgrounds; (ii) they have had a noteworthy focus on the development of socioemotional skills; (iii) they have been mostly publically financed; (iv) they have increasingly and positively incorporated demand-oriented training; (v) they have been low cost —fluctuating between USD400 and USD750

per participant; and (vi) they have provided training services with a duration of one to three months either on the job or off the job (Ibarrarán and Rosas 2009; González et al. 2011).[3]

Given these characteristics and comparing them with those of apprenticeship programs, it can be concluded that LAC countries have not yet used apprenticeships as a central tool to enhance the labor market opportunities of youths. There are several key differences that stand out when comparing the traditional training programs in LAC to apprenticeships, namely that (i) apprenticeships do not tend to target youth with the lowest skill base (for that, apprenticeships typically include feeder pre-apprenticeship programs that enhance certain basic and soft skills that need to be acquired before joining and performing in an apprenticeship program)[4]; (ii) they are both publically and privately financed; (iii) they are higher cost due to the longer duration and higher intensity of the on-the-job plus off-the-job training; and (iv) at the minimum, they last one year so as to see gains in the apprentice's productivity levels.

Apprenticeships in Latin America and the Caribbean

Several countries in LAC currently utilize their own national apprenticeship-type programs. Some of these countries are making important efforts to revamp their programs, taking into account lessons learned through international experience. Other countries in the region, contrastingly, are just starting to think more systematically about developing completely new programs or updating existing apprenticeship laws for redeveloping an apprenticeship program —this is mostly the case of Caribbean countries such as Jamaica, the Bahamas, and Trinidad and Tobago[5]. The countries shown in this analysis were selected due to the fact that they are actively implementing or redesigning the expansion of apprenticeship-type programs (i.e.,

3. Impact evaluations of short-term training programs for youth in LAC show that they can generate positive impacts on the labor insertion conditions of their participants (Gonzalez-Velosa et al., 2012). Such impacts are often restricted to certain groups of the population or to specific regions of the country (Ibarrarán and Rosas-Shady, 2009; Puentes and Urzúa, 2010). The evidence from Panama (Ibarrarán and Rosas-Shady, 2007) and Colombia (Attanassio, Kugler, and Meghir, 2011) shows impacts on employment, working hours, and labor income for women. There is evidence from the Dominican Republic (Ibarraran, Ripani, Taboada, Villa, and Garcia, 2014) and Colombia of an increase in formality for men. Some randomized control trials in LAC utilize long-term analyses (Alzua, Cruces, and Lopez, 2015; Attanasio, Guarín, and Meghir, 2015; Kugler, Kugler, Saavedra, and Herrera, 2015; Ibarraran, Kluve, Ripani, and Rosas-Shady, 2015; Diaz and Rosas-Shady, 2016), and they find that there are sustained impacts of the programs in the long run. Even though these benefits often increase over time, they are still small in size.

4. The United States' Registered Apprenticeship Program, for example, identifies sponsors (individual businesses or employer associations that may be partnered with labor organizations) that have, among their roles, to identify the minimum qualifications for individuals to apply into their apprenticeship programs. Based on the selection method utilized by the sponsor, additional qualification standards, such as fair aptitude tests and interviews, school grades, and previous work experience, may be identified.

5. The case of the Bahamas is presented in Chapter 6.

Brazil, Chile, Colombia, Costa Rica, Mexico, and Peru). The individual summary tables for each country are presented in the Annex. From the analysis of these countries, and making use of the definition of apprenticeships as stated in Chapter 1, the main conclusion that can be drawn is that countries in the region integrate some but not all of the compulsory elements of apprenticeship programs. In this way, there are some countries that have training experiences that have a closer approximation to what is defined as apprenticeships within this study. These experiences could be used as a basis to build new programs.

The following table summarizes whether or not the countries studied comply with the compulsory elements of the apprenticeships definition proposed herein.

Table 2. Compliance of LAC programs with definition of apprenticeships

COUNTRY	A job (contract/ agreement between employer and apprentice)	With structured training (defined training plan)	On-the-job + off-the-job training	Assessment and industry-recognized certification of acquired competencies/ qualifications
BRAZIL	Yes	Yes	Yes	No
CHILE	Yes	Yes	No	No
COLOMBIA	Yes	No	Yes	No
COSTA RICA	No	No	Yes	No
MEXICO	No	Yes	Yes	Yes
PERU	Sometimes	Yes	Yes	Yes

As can be gathered from the previous table, half of the countries classify apprenticeships as a job and have a structured training plan while the other half do not. On the other hand, the majority of programs have both on-the-job and off-the-job training, with the exception of Chile —although it has an off-the-job training component, the minimum duration is set to 80 hours, and in practice, evidence shows that there is a strong imbalance in favor of the on-the-job training portion. Finally, most countries also lack strong quality assurance in the form of assessments and resulting certification of competencies/qualifications that is widely recognized by employers in their recruitment processes.

The next chapter will further explore why the apprenticeship model can continue to be particularly attractive to countries in LAC.

2 Why are apprenticeships appealing to LAC countries?

There are several reasons that can explain the rising interest in apprenticeships from governments, young people, current workers, and employers. First, countries with a long tradition of advanced apprenticeship models have managed to maintain lower unemployment levels for youth. Second, today's challenges of youth unemployment and underemployment, coupled with employers' increasing concerns about their ability to find talent, require a sustainable solution for both enhancing the skills of the workforce and improving access to jobs. Third, the evidence from different apprenticeship programs shows gains for both apprentices and employers in terms of better employability prospects and wages for young people, productivity increases for firms, and economic benefits for both compared to other types of vocational training. Fourth, there is a wave of new experiences in developing or expanding apprenticeship programs adapted to 21st-century needs.

Specifically, LAC countries are interested in apprenticeships for a variety of reasons, including: (i) the productivity reason (apprenticeships help boost productivity, and LAC needs to increase its productivity levels), (ii) the innovation reason (apprenticeships prepare workers with the skills needed for innovation to take place, for firms to adapt and develop new technologies, and for human capital to be brought closer to firms' needs), (iii) the mismatch reason (apprenticeships align skills demand and supply), and (iv) the career ladder reason (apprenticeships give workers access to a stable career ladder).

Why do LAC countries show interest in the apprenticeship model?

Apprenticeships have been considered an effective training model to prepare the labor force for better jobs while meeting the business needs for a skilled workforce. As the demands for improving youth employability and for developing the right skills of the labor force increase in the fast-changing 21st-century economies, the apprenticeship concept has gained momentum as a way to train millennials and centennials, both within LAC and around the world.

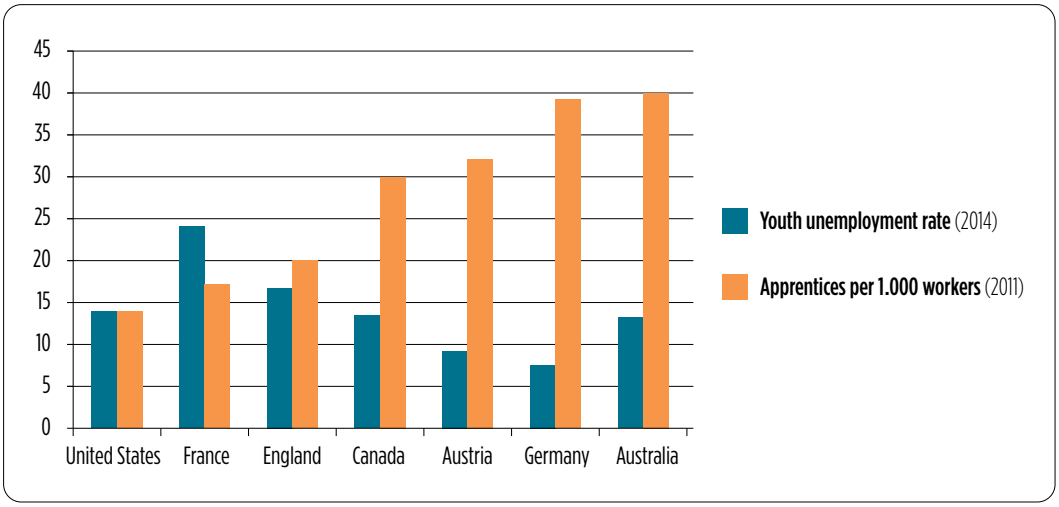
There are several motives that can explain this rising interest from governments, young people, current workers, and employers. First, countries with a long tradition of advanced apprenticeship models, such as Germany, Austria, and Switzerland, have managed to maintain lower unemployment levels for youth (Lerman, 2015), along with higher completion rates in a high number of apprenticeship occupations (see Figure 1), despite the economic crisis in Europe. Second, today's challenges of youth unemployment and underemployment, coupled with employers' increasing concerns about their ability to find talent (Manpower, 2015), require a sustainable solution for both enhancing the skills of the workforce, and improving access to jobs. Third, the evidence from different apprenticeship programs shows gains for both apprentices and employers in terms of better employability prospects and wages for young people, productivity increases for firms, and economic benefits for both, compared to other types of vocational training. Fourth, there is a wave of new experiences in developing or expanding apprenticeship programs adapted to the 21st-century needs in countries such as the United States, United Kingdom, Canada, and Australia. Finally, some countries in LAC (including Brazil, Chile, Colombia, Costa Rica, Mexico, and Peru) have been experimenting with this type of training modality, and more countries are interested in replicating the good practices of apprenticeship models around the world.

Specifically, LAC countries are interested in apprenticeships for a variety of reasons:

1. The productivity reason: Apprenticeships help boost productivity. LAC needs to increase its productivity levels.

Raising productivity implies finding better ways to more efficiently use the existing labor, physical capital, and human capital of the region (Pagés ed., 2010). Over the last few decades, LAC's productivity has grown at a slower pace than that of the rest of the world; its performance is lagging behind not only that of developed countries but also that of developing and emerging economies (IDB, 2013; Pagés ed., 2010). A low level of productivity means

Figure 1. Youth unemployment in advanced economies with apprenticeship systems



Source: Own elaboration. **Youth unemployment rate:** World Bank Development Indicators (2014). **Apprentices per 1000 workers:** ILO Overview of Apprenticeship Systems and Issues (2011).

that the region's economies are not making an effective use of its resources. In other words, other countries in the world are able to produce more outputs with the same inputs. This slow productivity growth is the main cause of the growing gap between the incomes in the region and those of developed economies (Daude and Fernández-Arias, 2010). Apprenticeships are a way to ensure that one of those resources —human capital— can be better equipped to be productive in the workplace. In the UK, 70% of employers have reported increases in their productivity and in the quality of their products/services as a result of apprenticeship programs, and they indicate that on average they recover their investment in one to two years if they retain the apprentice (UK Department of Education). In Italy, apprenticeship reform had a positive and significant impact on all measures of productivity (Cappellari et al., 2012).

2. The innovation reason: Apprenticeships prepare workers with the skills needed for innovation to take place, for firms to adapt and develop new technologies, and for human capital to be brought closer to firms' needs.

Closely linked to the reasons for productivity, productivity gains can be achieved by increases in innovation, which in this day and age are commonly linked to the adoption and adaptation of new and advanced technologies, and to the creation of new ones. This reality and the results of skills anticipation exercises point to the idea that the jobs of the future will require skills

that will have a highly technological and technical component.[1] The effects of human capital can be separated into two main channels: invention (radical innovations or novelties for the global market, defined as those that can push forward the technological frontier) and adaptation (innovation that brings products and processes closer to a pre-established technological frontier) (López Bóo, 2009). The connection between human capital and innovation in developing countries and its corresponding impact on productivity is primarily derived from the contribution of qualified workers that adapt existing technologies; in other words, they move closer to the technological frontier instead of expanding it. Apprenticeships can represent a tool for countries to instill skills needed for innovation to take place, for workers to be able to adapt and develop new technologies, and for human capital to be brought closer to firms' operational needs for increasing productivity and competitiveness.

3. The mismatch reason: Apprenticeships align skills demand and supply.

Employers consistently indicate that the lack of qualified human capital is a limiting factor for their businesses (Bassi et al., 2012; González-Velosa et al., 2014.; Fazio and Pinder, 2014; De Mendoza et al, 2014; Baptista et al, 2014a 2014b). On the other hand, youth have a hard time finding quality employment. One out of four youth are either unemployed or not in education, employment or training (NEET). Youth have difficulties finding a job because they have inadequate skills, lack of information about employment opportunities, or insufficient job experience. Countries with advanced apprenticeship systems like Germany, Austria, and the Netherlands have shown relatively low levels of youth unemployment and have reduced their skills gaps, improving youths' transition from school to work (CEDEFOP, 2014; Lehrman, 2013; Steedman, 2012; European Commission, 2013; OECD, 2014).

4. The career ladder reason: Apprenticeships give workers access to a stable career ladder.

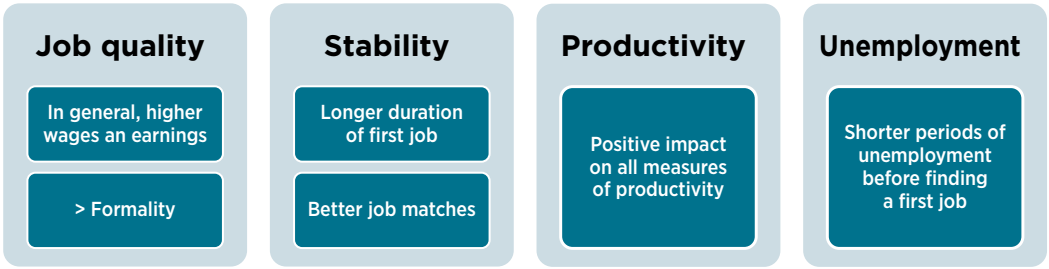
This means that, as apprentices increase their levels of skills and experience, they have greater responsibilities, increase their pay, and move up on the career ladder. Countries in LAC that are worried about youth labor market challenges are interested in programs and systems that enable positive employability pathways.

1. As shown by Nelson and Phelps (1966), the propensity to innovate and the intensity of an economy's innovation tend to have a relationship with the quantity and quality of skills accumulated in its labor force.

Evidence on apprenticeships: Do they work?

Evidence on the impact of apprenticeship programs on the employability and quality of employment of their beneficiaries is limited even in European countries, where these programs have had a long history. Moreover, where evidence exists, it is difficult to compare results between countries due to differing methodologies. For the evidence that exists, however, it has been shown that apprenticeship programs **can help achieve a more effective labor market insertion of the youth** (see Figure 2 for a summary of the main impacts of these programs).

Figure 2. Summary of the main impacts of apprenticeship programs



Source: Own elaboration.

In Europe and the United States, apprenticeship systems included within a broader system of lifelong learning can improve **the school-to-work transition** (Clark and Fahr, 2002; Reed et al., 2012; Lerman, 2013; OECD, 2014). Countries with dual education systems have lower rates and duration of youth unemployment (Quintini and Manfredi, 2009; Quintini, Martin and Martin, 2007; Eichhorst, 2015; Riphahn and Zibrowius, 2015). Comparing dual education programs with other types of technical education, the former have better results in terms of employment (Winkelmann, 1996). There are also positive impacts on innovation (Rupietta and Backes-Gellner, 2015).

Apprenticeship programs can also be **a good passport to better jobs for young people outside the school system.** Some countries have developed apprenticeship programs as a way to promote structured learning of an occupation for people who are already out of school. These programs have proven to provide access to more stable and better-paid jobs compared to other programs with less exposure to training in the workplace (Reed, Yung-Hsu, Kleinman, Mastri, Reed, Sattar and Ziegler, 2012; Ryan, 2001), shorten the period of unemployment before getting the first job (Ryan, 1998; Bonnal, Mendel and Sofer, 2002), have a positive ef-

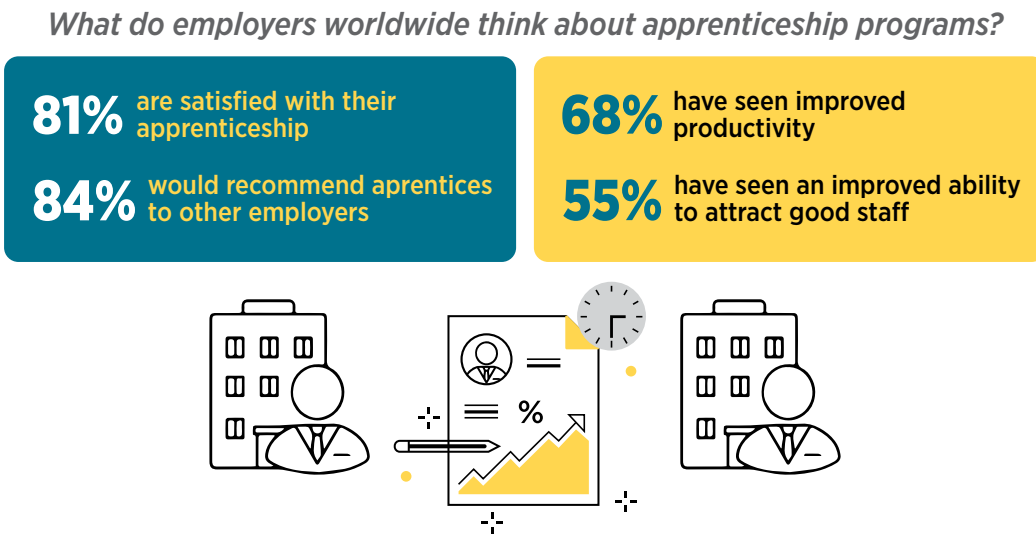
fect overall on the reduction of the duration of unemployment compared to classroom-based programs, and improve wages (Eichhorst, 2015).[2]

Apprenticeship programs improve not only occupation-specific skills but also socioemotional skills (Rose, 2004; Halpern, 2009). Evidence is also found that program graduates can move between a wide range of occupations (Clark and Fahr, 2001).

For LAC, there is evidence for the case of Brazil, where an impact assessment of the Apprentice Act shows that trainees, after completing the program, have a greater chance of finding a non-temporary formal job and earn higher wages in the short and medium term relative to comparable people who did not benefit from such a program (Corseuil et al., 2014).

So far, quantitative studies have been cited. In terms of qualitative information, the opinions of employers with respect to these programs are usually positive (see Figure 3).

Figure 3. Employers' opinions about apprenticeship programs

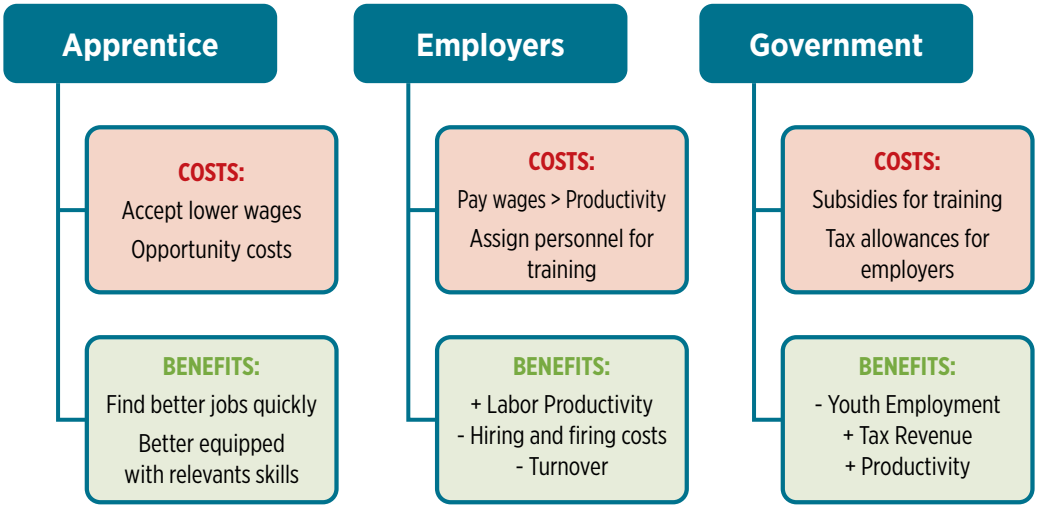


Source: Own elaboration based on Manpower, 2015.

2. In terms of wages specifically, studies have demonstrated a positive impact of apprenticeship programs on salaries, but only when results are compared to those for workers with low education levels and who have not participated in apprenticeship programs (Ryan, 1998; Clark and Fahr, 2002; Hofer & Lietz, 2004; Mc Intosh, 2007; Festerer et al., 2008). Moreover, an evaluation of the Registered Apprenticeships in the United States, which are directed at youth who have graduated from the school system, finds that those registered in the program obtain relatively high returns, with considerable effects on their income as well as their probability of being employed, even nine years after having graduated from the program (Reed and others, 2012). In Germany, on the other hand, an evaluation of the German Apprenticeship Training (GAT) directed at youth dropouts from the school system finds similar returns to those estimated for general education.

Cost-benefit analyses: Government, apprentices and employers share costs and benefits from an Apprenticeship program. Figure 4 shows the main costs and benefits of participating in an apprenticeship program for each of these three actors. Cost-benefit analyses are scarce, but when existent, estimates of cost-effectiveness of these programs are broadly positive, even in the most pessimistic scenarios (Lerman, 2013, 2014), for both workers and employers.

Figure 4. Costs and benefits of participating in an apprenticeship program



Source: Own elaboration based on European Commission, 2013.

Focusing on employers, specifically, the main costs are related to: (i) the payment of the apprentice's **wages**, which should be lower or equivalent to the productivity of the worker in order to act as an incentive for firms to participate, and (ii) **other resource costs**, which can include training costs for supervisors —actual training costs and opportunity costs of time of experienced workers— remunerations of training staff, mistakes by inexperienced trainees, wasted resources, and administrative costs. Other costs are related to the fact that contracting a new employee implies a risk that can be perceived as higher in the case of a young person. Other risks are related to the potential "displacement effects" that targeting young people can have on other groups of the population, namely adults. Benefits, on the other hand, include: (i) **recruitment benefits** related to the employer's ability to recruit the best from among the pool of apprentices, enabling it to use this information advantage to pay salaries below the individual's post-training productivity (Acemoglu and Pischke, 1998; 1999a; Leuven, 2005), and (ii) **productive benefits**, or the increases in productivity that the apprentice generates over the course of the program, which are calculated through the costs of employing someone else —typically a full-time worker— to generate the same output. In two-thirds of cases examined

in one study in Switzerland, the productive contributions of apprentices were more than or at least equal to the costs of training (Schweri et al., 2003 and Muhleman et al., 2007).

The majority of cost-benefit analyses have been conducted in Germany and Switzerland. In Germany, the costs and benefits for companies vary depending on the apprentice's occupational category and the size and sector of the firm (Mohrenweiser and Zwick, 2009). Moreover, the results depend on the firm's motivation: for some companies the apprenticeships program represents a long-term investment, whereas for others it represents a substitution for cheaper labor (Mohrenweiser et al., 2010; Cappellari et al., 2012). According to Lerman (2013), the cost-benefit ratio for companies is highly dependent on the quantity of time in which the apprentice directly carries out a productive function. In Switzerland, for example, where salaries for apprentices are relatively low compared to those in other countries, participation of firms in apprenticeship programs has proved to be effective in terms of net costs and productivity increases. Firms in this case have combined training with higher intensity of productive functions for apprentices. Quantitative results from the available evidence are summarized in Box 6.

Box 6. Some Figures on Costs and Benefits of Apprenticeship Programs

Cost-benefit analyses of apprenticeship programs are scarce. Even when it is clear that a firm's decision to engage in an apprenticeship program is largely determined by the cost-benefit ratio of such an investment compared to alternatives, there is little empirical evidence on the topic. The available evidence shows that, in general, in a well-functioning apprenticeship training system, a large share of training firms can recoup their training investments by the end of the training period (Muehlemann and Wolter, 2014), but net benefits often vary across occupations and sectors.

Swiss firms on average have generated a net benefit from training apprentices. More than 60% of all firms in Switzerland find that offering apprenticeships is cost-effective. That means that the average firm does not need to recoup training expenses after the end of an apprenticeship (Muehlemann et al., 2007; Muehlemann and Wolter, 2014). Similarly, an evaluation of the US Registered Apprenticeship (RA) program, which targets the same population, finds that (i) program participants obtained substantially higher earnings than non-participants (nine years after the program, RA participants earned on average $5,389 more than similar non-participants), and (ii) the benefits of the RA program appeared to be much larger than the costs (over the career of an apprentice, the estimated social benefits of RA exceeded the social costs by more than $49,000) (Reed et al., 2012). An extensive study of Canadian employers sponsored by the Canadian Apprenticeship Forum (2006) estimated that Canadian employers earn a positive return on their apprenticeship investments during the training period (average benefit 1.38 times the average cost). Finally, a study of 60 employers in Australia found that net costs were nearly 1.4 times the benefits (Dockery et al., 2001), but this discrepancy declined sharply over time: by the fourth year, the benefits exceeded costs.

Evaluations of Germany's apprenticeship program (German Apprenticeship Training—GAT) show a less positive outcome, but the analyses show improvement over time (Muehlemann and Wolter, 2014). Evaluations conducted up to the year 2000 show that nearly 90% of training firms were traditionally willing to bear substantial net costs. Later on, with data from 2007, there was a significant decrease in net training costs across many occupations. Even though 70% of all firms still experience net costs by the end of the training, average net costs fell by 36%. The main reason was that apprentices were used more extensively for productive activities in 2007 than in 2000 (Pfeifer et al., 2009; Jansen et al., 2012). Therefore, while German firms still incur net costs on average, we observe now that, for a significant share of training firms (30%), apprenticeships are in fact profitable. Similarly, in Austria, a cost-benefit analysis reports net costs on average (Muehlemann and Wolter, 2014). However, 35% of firms in Austria were able to generate a net benefit from training apprentices.

3 What are the main challenges for developing apprenticeship programs in LAC?

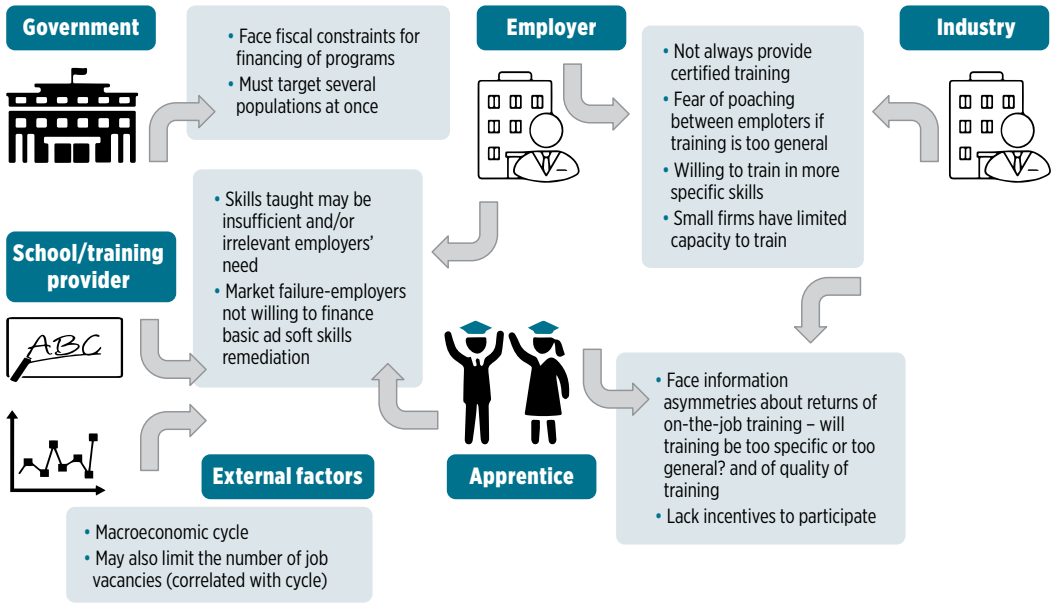
The design of apprenticeship programs requires a good understanding of the challenges that these programs are trying to solve and an anticipation of the implementation issues of these programs. Among the key challenges are those intrinsic to apprenticeships, including: (i) the market-failure problem/free-riding problem, which is intrinsically linked to the incentives for firms to train for industry-specific skills rather than general skills; (ii) the signaling problem, whereby employers will prefer not to signal competences of the apprentices for fear of poaching; and (iii) informational asymmetries regarding the abilities of workers (firms) and quality of training received (individuals) that may discourage parties to get involved in apprenticeships. In addition to these challenges, however, the Latin American and Caribbean region faces a variety of other challenges for the design and implementation of apprenticeships, including economic, educational, legal, informational, institutional, and social/cultural barriers.

A framework: Understanding incentives to participate in an apprenticeship program

Firms and individuals will decide to participate in apprenticeship programs if they see benefits in doing so. Firms will engage and invest if they can retain individuals they have trained with firm-specific skills (provided that they perform well). Individuals will engage in apprenticeships if the opportunity cost of engaging is low (need to exit unemployment and apprenticeships provide them with a job or good chances of being hired in the near future) or if they see it as a way to obtain quality general and basic skills that will enhance their employability in the future (Wolter and Ryan, 2011; Dionisius et al., 2009; Lerman, 2014; Acemoglu and Pischke, 1998, 1999, and 2000; Katz and Ziderman, 1990; Dustmann and Schonberg, 2012). Even if individuals, firms, and the government have enough incentives to participate in apprenticeships, oftentimes individuals and firms are not aware of the availability of opportunities or of how to access them.

The design of apprenticeship programs requires a good understanding of the challenges that these programs are trying to solve and an anticipation of the issues that can be arrived at when implementing such programs. Figure 5 shows the typical challenges that apprenticeship programs address in the path from education to employment for young people, but also for workers who may need reskilling in order to remain and progress in their employment paths.

Figure 5. Conceptual Framework



Source: Own elaboration.

Challenges of Apprenticeship Programs

1. Market-failure problem/free-riding problem: Incentives for firms to train on industry or firm-specific skills rather than general skills. The education and school-based vocational systems usually provide general skills, while employers tend to prefer industry or, in extreme cases, firm-specific skills. The free-riding problem in the case of apprenticeship programs refers to the fear of poaching by firms: if firms invest time and resources in training apprentices (especially in general skills if the education system has failed to provide them fully, but also in industry skills), they will be afraid that other firms will "poach" apprentices by offering them higher wages. Therefore, they will tend to want to teach apprentices firm-specific skills that are not easily transferable to other firms to make sure that they are recouping their investment and combatting this free-riding problem. If firms are able to have market power due to industry and occupation-specific skill requirements, dispersed regional location of firms and lower product market competition, they are more likely to engage in training (Lazear, 2003; Smits, 2007; Gersbach and Schmutzler, 2006). In countries with well-established apprenticeships systems, this free-riding problem certainly does not disappear, but firms are willing to think of their investments as a public good (e.g., Germany). In countries where this is not the case —due to cultural factors or otherwise— then the state has to play a larger role in providing incentives for employers to participate.

2. Signaling problem. Apprentices invest their time in apprenticeships if they think that doing so will contribute to signaling of newly acquired competencies that can then lead to higher wages. Employers will prefer not to signal competences of the apprentices they trained because, if they signal them, they might fear that other employers may hire the apprentice and therefore they may lose the returns of their investment in the apprenticeship program. If, however, the employer thinks at the industry level, then he or she would possibly prefer signaling of apprentices to ensure that the quality of workers in the industry is high and contributes to the industry's and thus the firm's growth.

3. Informational asymmetries regarding abilities of workers (firms) and quality of training received (individuals) may discourage parties from getting involved in apprenticeships. The apprentice is not 100% sure about how relevant the certification from the company will be in the labor market upon completion of the apprenticeship program. On the other hand, the company is not 100% sure whether the apprentice will be competent enough during the apprenticeship and —under the understanding that his/her productivity will be low at the beginning— whether he or she will be able to increase productivity as time progresses. This type of asymmetry is relevant to both the contractual arrangement of wages —fixed wage throughout the duration of the apprenticeship vs. gradual wage increases as a result of expected produc-

tivity increases[1]— and to whether the apprentice is eventually hired or not. Agreeing on the certification of competences that is valued and recognized by employers at the industry level plays a central role in reducing information asymmetries between apprentices and employers.

4. Lack of information available to policy makers on the returns of new programs. The uncertainty about the returns to investments in apprenticeships (in terms of increased employability and employment for trainees, level of formality of jobs, crime and violence rates, etc.) can act as a barrier to invest in these programs. The cost-benefit analysis and evidence from impact evaluations are important tools for making informed investment decisions. Policy design thus needs to incorporate an incentive structure that increases effectiveness and efficiency and minimizes the possibility of firms using incentives provided by the state to finance training that they would have financed anyway in their absence or providing training that essentially uses the apprentice as cheap labor (ILO, 2012a).

5. Different incentives to participate by firm-size and sector. Small and medium firms (SMEs) have a higher cost of participating in apprenticeships, since having one person dedicating time to train an apprentice would be relatively more costly or not possible.[2] Also, smaller firms may not be ready to face complex administrative procedures that large firms are used to facing if they have well-established training programs and administration. The provision of apprenticeships also varies across sectors and occupations: positive effects on gross profits in the short term are found for trade, commercial, craft, and construction occupations, while firms with apprentices in manufacturing occupations face net training costs during the apprenticeship period itself but gain from the long-term employment of former apprentices (European Commission, 2013). Moreover, due to the limited range of tasks that may take place in an SME, apprentices may be limited in the scope of their learning programs.

6. Lack of credible mechanisms to ensure that employers have the right incentives to hire the apprentice after training. From the apprentice's viewpoint, he or she needs a credible commitment device that signals that employers will consider hiring him or her at the end of the apprenticeship in order to ensure the quality of on-the-job training to be received. If the firm has a motivation to hire, it will make sure it is properly investing in the apprentice's training. Where credible commitments are not in place, government regulation needs to step in to ensure that the apprentice is in fact learning valuable skills for the labor market.

1. This is the case in Costa Rican legislation (Law No. 4903 of 1971), where the company is mandated to pay the apprentice 50% of the minimum wage in the first stage of the apprenticeship, 75% in the second, and 100% in the third.

2. Empirical findings for Germany show that costs and benefits vary according to both apprenticeship-related occupational categories and the size and sector of the training firm (Mohrenweiser are Zwick, 2009).

7. Macroeconomic and regulatory factors: it is a well-known fact that economic pressures can impact the willingness of employers to participate in apprenticeships. During economic downturns, firms limit the number of apprenticeship places that they offer (Theolen, 2007; Sager, 2008; Juul and Jorgensen, 2011). Another factor affecting employers' decision to provide employment opportunities is related to the regulatory framework for labor relations. As stated in Alaimo et al (2015), labor regulations can adversely affect income and economic growth, while higher labor costs —wage and non-wage— relative to the value of production can reduce the creation of formal employment. Loayza, Oviedo, and Servén (2005) conducted an aggregate study of 75 countries (including 15 from Latin America) to measure the impact of regulation on economic growth and the relative size of the informal sector. They observed that a higher regulatory burden (especially in the labor and goods markets) reduces growth and promotes informality, but that these effects can be mitigated to the degree that countries' overall institutional frameworks improve.

Given this framework, what are the particular challenges LAC faces in implementing apprenticeship programs?

In addition to facing challenges that are intrinsic to apprenticeships, apprenticeship programs in Latin America and the Caribbean are also confronted with a series of challenges that are particular to the region (a summary is presented in Table 3).

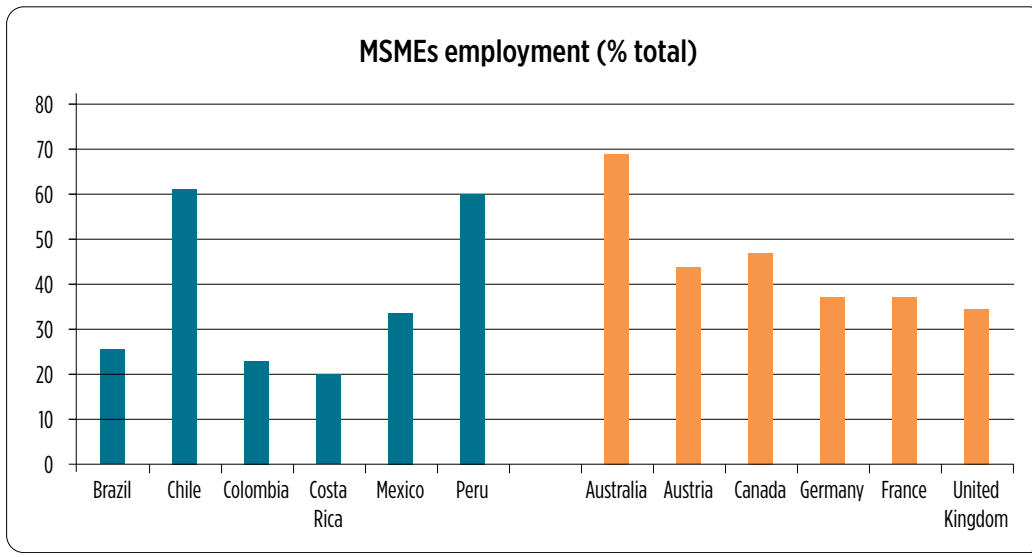
Table 3. Challenges in LAC

Type of Challenge	Challenge
Economic factors	• Low economic performance of the region, which typically leads to decreased demand for apprentices by employers. • High presence of micro, small, and medium enterprises, which have more difficulty absorbing the costs of getting involved in apprenticeship programs. • High levels of informality, leading to the predominance of informal or un-registered apprenticeships that do not comply with quality standards.
Educational	• Students exit the school system with a low level of general numeracy and literacy skills and soft skills, making employers reluctant to receive apprentices.
Legal	• Outdated legal frameworks to regulate apprenticeships. • Perceived risks by employers. • Labor regulations that affect the costs of hiring workers.
Informational	• Lack of consistent generation, use, and dissemination of labor market intelligence to inform apprenticeship placements. • Lack of or limited monitoring, impact evaluations and cost-benefit analyses of apprenticeship programs, which increases the hesitation of governments and firms to get involved.
Institutional	• Lack of strong quality assurance instruments, including a credible certification framework.
Social/Cultural	• Lack of collaboration between employers and between the public (government institutions and public training providers) and the private sector.

Economic Factors

Low economic performance of the region, which typically leads to decreased demand for apprentices by employers. Economic growth projections for LAC in the short to medium term are less favorable than those of the last decade, during which the commodity boom (2003-2008) brought important gains for the labor market. These gains included a reduction in the region's unemployment rate, the creation of formal jobs, and a significant increase in wages. Contrastingly, recent data show that output declined 0.7% in 2015 and is expected to contract another 1.3% in 2016 (World Bank Global Economic Prospects, 2016), followed by low growth in the medium term (IDB, 2016b). This reality has important implications for the relevance of apprenticeship programs in the region, as the existing albeit scarce empirical evidence on the relationship between apprenticeships and economic downturns suggests that the ratio of apprentices to employees has a general tendency to be pro-cyclical and to decrease during a recession. The literature suggests that this is due to the fact that firms may have incentives to train current employees during a downturn —especially during a temporary vs. prolonged downturn and when there are significant costs of adjusting labor— while at the same time reducing the recruitment and training of young employees, especially those who are undergoing the transition between school and work (Brunello, 2009).

Figure 6. MSME Employment



Sources: OECD, 2010; Holt, 2012; House of Commons, 2012.

High presence of micro, small, and medium enterprises (MSMEs), which have more difficulty absorbing the costs of getting involved in apprenticeship programs. In some of the reference countries studied for this analysis (Australia, Austria, Canada, Germany, France, and the United Kingdom) 44.8% of total employment is generated on average by MSMEs. While the same average for countries in the region considered for this analysis (Brazil, Chile, Colombia, Costa Rica, Mexico, and Peru) is marginally lower at 37.2%, (see Figure 6), it is nonetheless important for LAC countries to pay close attention to how to promote apprenticeships in micro, small, and medium enterprises. The literature shows that training and skills development occurs at a lower rate in MSMEs than in larger firms and that for SMEs, this can be up to 50% less when compared to larger firms (Flores Lima, Gonzalez Velosa and Rosas Shady, 2014; OECD, 2010). Concretely, MSMEs, as evaluated through a review of apprenticeships in England, face several difficulties, including: (i) lack of awareness (not being sufficiently aware of the benefits of apprenticeships for their business), (ii) insufficient SME empowerment (challenges in choosing and having access to quality apprenticeship training provision), and (iii) poor process (MSMEs are overwhelmed with the bureaucratic hurdles involved in the process of accessing apprenticeship training and public funding) (Holt, 2012).[3]

High levels of informality, leading to the predominance of informal or un-registered apprenticeships that do not comply with quality standards. Over the last two decades, the regional formality rate in LAC increased from 41% to 46%, at a rate of less than 0.25 percentage points annually. Ever since 2013, advances in formalization have stagnated, and today more than half of jobs in the region continue to be informal. Research indicates that, at this rate, in order to reach universal formalization, it would take the region approximately 180 years (Alaimo et al., 2015). Even though there is no concrete measure of the incidence of apprenticeships in the informal sector in LAC, the high levels of informality in the region point to a high probability that like in other developing countries, informal apprenticeships —whereby young people acquire experience and skills under the mentoring of an experienced craftsperson—

3. Other barriers also include (i) the overspecialization of micro-enterprises, which limits them from offering apprentices the full range of on-the-job training as set by regulations (Schweri and Muller, 2008); (ii) the fact that apprentices typically choose larger, better-known companies to increase their chances of employment in the future (which is why having industry-recognized assessment and certification is so important for small companies); (iii) the tendency of MSMEs not to have a dedicated HR department to manage apprenticeship programs within the firm; (iv) the fact that staff time dedicated to training and supervising an apprentice represents a greater loss of productivity for the firm; and (v) the limited number of staff within the company, which makes it more burdensome for the company to allow the apprentice to leave for the off-the-job portion of his or her program (House of Commons, 2012).

are widespread.[4] This in turn poses challenges for the development of formal apprenticeship structures that can effectively increase beneficiaries' chances of being placed in quality jobs —that is, in formal jobs that are regulated by a written employment contract through which employees receive benefits and protections such as social security, paid annual leave, and sick leave.

Educational

Many students exit the school system with a low level of general numeracy and literacy skills and soft skills, making employers reluctant to receive apprentices. Evidence shows that there is insufficient human capital in the labor force and an unsatisfied demand for skills from employers in the region. According to the Program for International Student Assessment (PISA) 2012 results, which evaluate 15-year-old students who are enrolled in school across 65 countries, scores for students from LAC countries are in the bottom third across all subjects (Bos, Ganimian and Vegas, 2014). More than half of students of the region do not reach basic competency levels, and less than 2% reach high competency levels. If these results are compared to those of countries of similar income levels, the results for the region continue to be unfavorable. Even though there are scarce measures of the stock of skills of LAC's labor force, evidence suggests that decades of low educational quality have negatively affected the quality of the region's labor force. Both general and technical education need to re-adapt to the demand for new skillsets. Furthermore, the lack of skills could be a bottleneck for growth. In effect, a higher percentage of employers in LAC —compared to the global average— expresses difficulties in hiring workers with the skills they require (Manpower, 2015). Around 90% of business persons in Argentina, Brazil, and Chile indicate that they do not find the competences they need to be able to produce competitively (Bassi and others, 2012). Similarly, a series of surveys conducted by the IDB in firms in the Bahamas, Honduras, Panama, Paraguay, and Uruguay point to the fact that between 40% and 70% of employers report difficulties with soft skills (behavior and work attitudes) as the main reason for dismissals, and between 15% and 30% report absenteeism as the main cause (which is related, as well, to a lack of socioemotional skills).

4. In fact, we know that out of the 45 million youth who work in the region, 29 million do so in informal jobs. As the literature shows, particularly in Africa and South Asia, where informal apprenticeships are common and in fact the most important source of skills training, these kinds of schemes are disconnected from formally recognized national training systems and do not abide by labor regulations as formal apprenticeships do. As a result, the quality of the training is compromised. Moreover, informal apprenticeships present the following challenges: (i) gender segregation seems to be more pronounced along occupational lines and (ii) apprentices are oftentimes exploited as there is no set duration for the apprenticeship, no structured program of training, very low or no allowances, and no social protection in case of occupation accidents or illness, and employers can choose what and when to teach to keep the apprentices working for them for longer periods of time (ILO, 2011).

Legal

Outdated legal frameworks to regulate apprenticeships. The region has been experimenting with apprenticeship programs for decades and has in place legal frameworks that regulate their delivery. Countries such as Peru (Law 28.518 from May 3rd, 2005) and Colombia (Law 789 from December 27th, 2002) have legal frameworks that are relatively recent and that reflect 21st-century labor standards. Other countries such as Costa Rica (Law 4903 from November, 1971) and the Bahamas (Apprenticeship Act from 1968), however, have outdated legal frameworks. A well-functioning apprenticeship program should be based on updated legal frameworks that reflect the evolution that apprenticeships have experienced over time in terms of rights and responsibilities of the different parties involved, new institutional structures that have emerged over the years within the countries, and even adhesion to and consistency with current labor legislation. Furthermore, adequate legal frameworks that have been the result of a process of dialogue and consultation with employers, unions, and other social partners are key to establishing clear rules of the game and to incentivizing different parties' participation.

Informational

Lack of consistent generation, use, and dissemination of labor market intelligence to inform apprenticeship placements. LAC suffers from skills systems that have low capacity to identify the skills requirements demanded by the private sector. LAC countries do not yet count with a well-established and regular system that captures —through employer surveys, skills anticipation models, or other forecasting instruments— and disseminates the current and future skill needs of the productive sector. Moreover, they do not have established systems that consolidate and give voice to employers in terms of their skills needs and that allow for the translation of these needs to competency standards that training providers can use to develop curricula. It is important to note, however, that there have been some relevant advances in this area (for example, the first steps for the creation of sector skills councils in some sectors in Chile and Peru, or the inclusion of skills forecasting models in some skills systems, like that of Brazil). The lack of data about skills demand makes it difficult to plan an apprenticeship program.

Lack of or limited monitoring, impact evaluations and cost-benefit analyses of apprenticeship programs, which increases the hesitation of governments and firms to get involved. Evidence on the performance and impact of apprenticeships program is limited in the region, and as such it is difficult to estimate the real benefits for workers (in terms of employability, employment, and quality of employment in the short and long run) and for firms (in terms of productivity and profitability) that apprenticeships can bring to program participants. Moreover, cost-benefit analyses for firms and the government are nonexistent, and the lack of conclusions in this regard represents a potential barrier for both actors to invest in the design and

delivery of apprenticeships. Out of the six Latin American countries studied, only Brazil has an impact evaluation, whose findings indicate that after having completed the program, apprentices have a higher probability of finding a formal non-temporary job and obtain higher salaries in the short to medium term compared to a comparable group of people who did not benefit from the program (Corseuil et al., 2012). Lack of studies and analyses about apprenticeships increases the hesitation of governments and firms to get involved.

Institutional

Lack of strong quality assurance instruments. One of the most pressing problems faced by the region in terms of skills development is its lack of robust quality assurance mechanisms that help establish whether or not the skills building system is reaching desired objectives with respect to degree of learning achieved, labor trajectories, and/or firm productivity. The most established system in the region is that of the accreditation of training providers (which in some countries only apply to a select group of institutions like universities or technical institutions), which is not always mandatory. On the other hand, the certification of institutions is a necessary condition, albeit insufficient due to the fact that graduates from certified institutions do not necessarily have better labor trajectories than those who are not certified (González-Velosa et al., 2015). In terms of labor trajectories specifically, the region's use of instruments like national qualification frameworks is limited, which represents a challenge for countries to establish learning pathways, facilitate permeability between academic and vocational routes at different levels, and allow for the recognition of competences learned informally on the job. Furthermore, the lack of credible certification frameworks represents a challenge for the recognition by employers of the skills gained by apprentices during their training programs and for apprentices' mobility and career progression. A comparative analysis of countries shows that effective skill-building systems incorporate quality assurance at all levels: qualifications, institutions, instructors, on-the-job training, monitoring and evaluation, accreditation, and certification.

Social/Cultural

Lack of collaboration between employers, the public sector (government institutions and public training providers), the private sector, unions, and other social partners. LAC suffers from a series of market failures that justify interventions by the state to increase the stock of skills in the labor force (Bassanini et al., 2005; Bassi et al., 2014). In the case of apprenticeship programs, it is essential to ensure collaboration between private sector employers and the government. However, many times we observe that this collaboration presents challenges. The lack of collaboration between employers and between the public and private sectors may be

related in part to mistrust between them. Social and cultural factors play a role in this relationship. While countries in Europe (e.g., Germany) have a longstanding private-public sector trust that favors an effective implementation of apprenticeship programs, LAC countries face more difficulties in this relationship. According to data from the 2015 Global Competitiveness Index, which captures employers' perspectives on competitiveness indicators, the LAC countries included in this analysis rated the quality of public institutions lower (a score of 3.5) than the reference countries did (a score of 5.1), as did the private institutions (a score of 4.2 vs. 5.4).[5]

Box 7. The role of unions in apprenticeships

Cooperation between schools and social partners (employers and trade unions, and public authorities) to develop skills is a defining feature of apprenticeships and dual skills systems, and it is what makes the apprenticeship program a more beneficial and sustainable practice for both apprentices and employers. The role of trade unions in this partnership varies among the different experiences of apprenticeship analyzed in this study, ranging from participating in the consultations for defining the working conditions of apprentices, to actually providing the apprenticeship training in consortium with employers and training institutions.

In designing apprenticeships, it is important to include the experience of the trade unions by making consultations with the specific trade unions and agree on their role in the definition of the different elements of the program, including the legal framework, the contract agreements, the curriculum design and even the delivery of the training within the firms. The typical role is to participate in consultations about the legislation, which establishes the rights of apprentices in order to negotiate and ensure fair pay and equal treatment in the workplace for apprentices. In some countries the collaboration between trade unions and employers' associations may be smoother than in others, but it is important to understand the perspective of the unions in designing an apprenticeship.

In the United States, for decades, some programs have been operated by trade unions representing those trades. For example, manufacturing unions have provided workers with rigorous apprenticeship programs that equip them with the skills to maintain and operate machinery. Unions represent workers across multiple locations and employers, so they're well positioned to identify and train workers for in-demand skills. Operating their own apprenticeships also enables the unions to recruit new members.

5. Values are on a 1-7 scale, with 7 being the best performing.

4 What are the key characteristics of apprenticeship programs?

This chapter analyses the 6 key characteristics of apprenticeship programs, including target population, duration, occupational range, gender balance, wages, and lastly incentives and funding. In terms of target population, apprenticeships can cater to in-school and out-of-school populations. Duration-wise, some countries use a competency-based system, while others use a time-serving system with a fixed duration of programs depending on the occupation. In terms of occupations, those that are included within apprenticeship programs are a reflection of the change in demand of occupations and skills over the years, with service-oriented occupations attracting more female participation. Moreover, the formal payment of wages by the employer is considered to be one of the key features of apprenticeship programs, while cost-sharing has been proven to ensure the active participation of the four main actors involved in apprenticeship programs. Lastly, incentives play an important role in successful apprenticeship delivery, with two main types being those that are directed at apprentices and those that are directed at employers.

Target population - expanding from youth to adults

Apprenticeships can cater to two distinct populations: (i) **in-school** individuals enrolled in the formal education system and (ii) **out-of-school** drop-outs from the formal education system or in some cases adults who graduated from the formal education system and have been either active or inactive in the labor market.

Apprenticeship facts from LAC: In Latin America, more than half of the national apprenticeship programs (67%) target both in-school and out-of-school populations. Among the countries studied, Mexico is the only program that is currently exclusively integrated into the education system due to the fact that, in order to be considered an apprentice, students must be in the third semester of their 3-year training in the public upper secondary technical education system. For programs that target out-of-school populations like those of Brazil, Chile, Colombia, and Costa Rica[1], the off-the-job training portion is often provided by national training organizations or institutes that are funded by a percentage of employer payroll taxes (like the SENA in Colombia, the INA in Costa Rica or the S-System agencies in Brazil) or in the Chilean case, by the OTECs, which are accredited by the National Employment and Training Service (SENCE), which administers apprenticeships nationally.

As we have seen, apprenticeships may be used as instruments to achieve a wide variety of objectives, from easing the school-to-work transition for youth who may otherwise have difficulty entering the labor market upon completion of their studies, to improving the employability of those who have left school, to reskilling older workers whose jobs may have been compromised due to technological changes that may have led to the substitution of old job roles for new ones. From the countries considered for this study, some programs or systems, like those of Australia, Germany, Canada, Costa Rica, England, India, Malta, Colombia, and the United States, are open to people of all ages, as they have no upper age limit, while others are confined to young people and as such have a stronger focus on easing the school-to-work transition and solving countries' youth employability challenges, as it is the case in Brazil (with the exception of disabled students), Chile (15-25 year olds), France (16-26 year olds), Mexico (students older than 16 years old), and Turkey (14-22 year olds). It is interesting to note,

1. In addition to carrying out apprenticeships as part of the programs offered by its national training institute (INA), Costa Rica is currently in the process of integrating dual education within its technical-professional colleges at the secondary level. This initiative, however, is outside of the purview of proposed new apprenticeship legislation.

however, that for those countries that do not have an upper age limit to their programs, the majority of apprentices end up being young people. Such is the case in Australia, where 70% of apprentices are 20 or over, 40% are over 25 and only 10% are over 45, or in Germany, where the average age of apprentices is 20 years.

Apprenticeship facts from LAC: In Latin America, specifically, 50% of the countries studied have apprenticeship programs that have no upper age limit, while programs in Brazil, Chile, and Peru have upper age limits of 24, 25, and 29, respectively. Colombia, Costa Rica, and Mexico, on the other hand, do not have an upper age limit, although implicitly, Mexico's program is limited to students who are enrolled in the public upper secondary technical education system, and as such tend to be up to 18 years of age.

Duration

The duration of apprenticeship programs must comply with two main criteria: (i) that it is sufficient for the apprentice to adequately learn the required skills of a particular occupation and (ii) that it allows enough time for the apprentice to become sufficiently productive such that the firm is able to recover its investment and the apprentice is able to signal his or her ability to perform on the job. For the first criteria to be met, some countries, such as Australia and England, use a **competency-based system** and assessment approach, whereby the duration of the apprenticeship program is contingent on whether or not the apprentice has attained a particular set of demonstrated, observable, and measurable competencies agreed by the industry. This has the particular advantage that the apprentice's successful completion of the program and his or her workplace performance is directly related to the skills (competences) that are required in the labor market.

Other countries, such as Germany and Austria, use a **time-serving system,** whereby the successful completion of an apprenticeship depends on whether or not the apprentice has complied with a fixed duration that has been determined as the necessary amount of time to be trained in a particular occupation. As in the competency-based system, an assessment also determines whether or not the apprentice has achieved the necessary level of skills proficiency during the predetermined time period. From the countries outside of the Latin American region studied for this analysis, Austria (2-4 years), Canada (2-5 years or more), England (1 year minimum), France (1-3 years), Germany (2-3.5 years), India (6 months - 4 years), Lithuania (none specified), Malta (2-4 years), Turkey (2-4 years), and United States (1-6 years), 50% have a minimum requirement of 2 years, while the remaining group have a minimum of one year and in the case of India, a minimum of 6 months.

Apprenticeship facts from LAC: In Latin America, 2 out of the 6 countries analyzed have no mandatory minimum duration, namely Brazil and Colombia, both of whose apprenticeship systems are regulated by laws mandating firms to hire a certain percentage of their employees as apprentices. Chile has the lowest minimum of 6 months, while the duration of apprenticeship programs in Costa Rica and Peru varies by occupation and by industry in Mexico (2 years for apprenticeships in the manufacturing industry and 1-1.5 years in the service industry).

The question about whether or not apprenticeship programs must have a mandatory minimum duration is a highly contested topic. The Richard Review, published in November 2012, is a document that has been widely utilized as a compass to reform apprenticeships in England with the objective of delivering a program that can best meet the needs of the country's changing economy and deliver high-quality training for learners and employers while obtaining the best possible value for public money. Under this review, one of the main recommendations is that to promote good-quality delivery, a minimum duration for apprenticeships of one year should be mandatory. Another similar review from Ireland that outlines statutory quality assurance guidelines for apprenticeship, however, states that "Apprenticeship training should be substantial in depth and duration... [and that] for a programme to be classified as an apprenticeship at entry level, it should have a duration of no less than two years."[2] The literature suggests that the positive effects of apprenticeships on labor market conditions are related to the quality of the apprenticeship (e.g., training intensity, duration, and type of training, occupational field and sector of apprenticeship).

Box 8. The US Registered Apprenticeship program – The employer-led experience

In the United States, the Registered Apprenticeship (RA) system offers a framework for developing and registering apprenticeship programs. RA is a career-training program, created in 1937, that offers structured on-the-job training combined with related technical instruction tailored to industry needs in the United States. RA is administered by the Employment and Training Administration (ETA) Office of Apprenticeship (OA) within the U.S. Department of Labor (DOL), in conjunction with State Apprenticeship Agencies (SAAs).

2. Quality and Qualifications Ireland. White Paper for Consultation. Statutory Quality Assurance Guidelines for Apprenticeship. February 2016.

Main feature: The employer-led and main feature of the Registered Apprenticeship program is that the OA and SAAs register existing apprenticeship programs within the 50 states. These programs must meet parameters established under the National Apprenticeship Act that are designed to protect the welfare of the apprentice. OA and SAAs also issue certificates of completion to apprentices; conduct outreach to potential sponsors; monitor programs for compliance and quality assurance; provide technical assistance; and build partnerships with sponsors, employers, education providers, and the workforce development system.

The sponsors: The Registered Apprenticeship can be sponsored by an individual business or an employer association and may be partnered with a labor organization through a collective bargaining agreement. Upon finishing the training program, an apprentice earns a "Completion of Registered Apprenticeship" certificate, an industry-issued, nationally recognized credential that validates proficiency in an apprentice occupation. Sponsors recruit, screen, and hire apprentices; develop formal agreements with them identifying the length of the program, skills to be learned, wages to be paid at different points in time, and required classroom instruction; and work with SAAs to make sure that their registered apprenticeship programs meet state and federal requirements. Employers cover the costs of training, wages paid to apprentices, costs of managing the program, and costs associated with time spent by senior employees to mentor and train apprentices. Up to 97% of sponsors would recommend the program, and the most frequently cited benefit of apprenticeship, identified as very important by over 80% of sponsors, was that it helped meet their demand for skilled workers (Lerman et al., 2009).

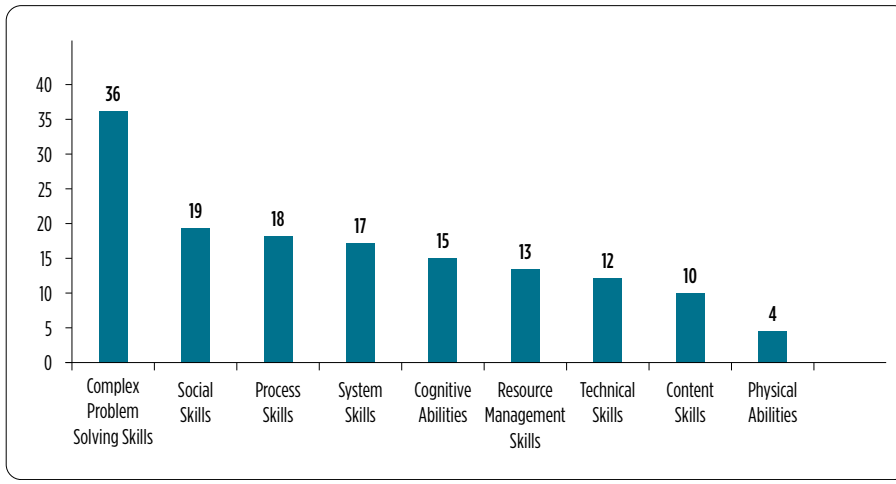
The evidence: RA participants had substantially higher earnings than did nonparticipants (Reed, 2012). The benefits of the RA program appear much larger than the costs. Women also had a positive experience, although the experience suggested that to promote the success of women in RA, there is a need for targeted outreach and information, support for basic skills development, and assistance with child care.

Best practice within the US: *"We can have clever initiatives, clever people, and willing technical colleges, but if we don't have business, we don't have an apprenticeship program. Business is the key to this whole thing."* (Brad Neese, Director Apprenticeship Carolina). Apprenticeship programs have rapidly increased in South Carolina over the past seven years due to heavy promotion, accessible consultation, a skills gap, and registering of existing training programs. The presence of Apprenticeship Carolina, an initiative that helps promote and facilitate apprenticeship, has also contributed to South Carolina's success (Banashefski, 2014).

Occupational Coverage of Apprenticeship Programs

The occupations included within apprenticeship programs are a reflection of the change in the demand for occupations and skills over the years. The literature suggests that middle-skill jobs, defined as those required of occupations that are in the middle segment of the average wage distribution and that do not require a BA or a higher degree (Lerman, 2013), have been found to be decreasing as a percentage of employment relative to high-wage occupations (Goos et al, 2009)[3] as many of the tasks that middle-skill occupations require have been increasingly automated. Such is the case of the United States, which shows a steady decline of "routine cognitive" work (e.g., data entry clerk) and "routine manual" work (e.g., packing goods in a warehouse) and in occupations associated with the traditional apprentice trades and an increase in job roles that are knowledge-intensive, "non-routine interpersonal," and analytic (Autor D. and Price, B., 2013).[4] In fact, the occupational areas that have experienced the largest growth in developed economies have been those in services (finance, insurance, real estate, domestic, hospitality, and business services).[5] Moreover, a recently published report from the World Economic Forum on the future of jobs indicates that by 2020, complex problem-solving skills will be required by 36% of jobs, followed by social skills (19%) and process skills (18%) (see Figures 7 and 8).

Figure 7. Share of jobs requiring skills family as part of their core skill set (%)



Source: Own elaboration adapted from World Economic Forum, The Future of Jobs, Employment, Skills and Workforce Strategy for the Fourth Industrial Revolution. January, 2016.

3. Goos, Maarten, Alan Manning, and Anna Salomons. 2009. "Job Polarization in Europe," American Economic Review 99 (2): 58-63.

4. The Changing Task Composition of the US Labor Market: An Update of Autor, Levy, and Murnane (2003).

5. OECD. 2010. STAN Indicators Rev. 3, 2009 - STAN: OECD Structural Analysis Statistics -OECD iLibrary. [online] Available at: http://dx.doi.org/10.1787/data-00031-en.

Figure 8. Top 3 Skills Demanded by 2020

Complex Problem Solving Skills

- Developed capacities used to solve novel, ill-defined problems in complex, real-word settings

Social Skills

- Coordinating with others
- Emotional Intelligence
- Negotiation
- Persuasion
- Service Orientation
- Training and Teaching others

Process Skills

- Active Listening
- Critical Thinking
- Monitoring self and others

Source: Own elaboration adapted from World Economic Forum, The Future of Jobs, Employment, Skills and Workforce Strategy for the Fourth Industrial Revolution. January, 2016.

The occupations that are usually part of an apprenticeship program differ if we consider all countries versus LAC only. As can be seen from Figure 9, LAC countries tend to concentrate in services, contrary to other countries where most apprenticeships take place in manufacturing and construction in addition to having an important presence in services.

Figure 9. Occupational Coverage in Apprenticeships: All Countries vs. Latin America only

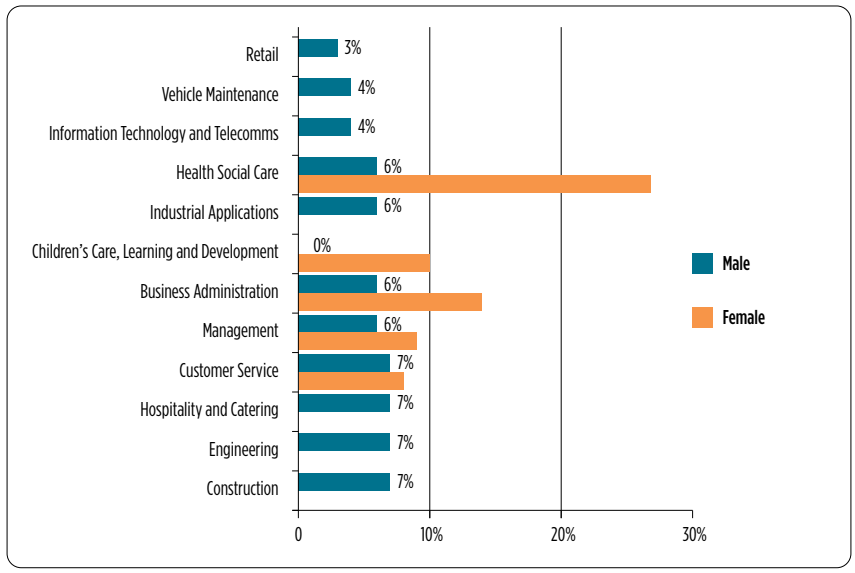
Source: Own elaboration based on country case studies.

Integrating Females into Apprenticeships

Some empirical studies suggest that apprenticeships benefit women less than men with regard to entry rates, occupational access, and labor market outcomes upon completion of the program. Ryan (1998, 2001) finds that females tend to benefit less from apprenticeships than men, at least in the US and the UK. In contrast, in Germany, entry rates and pay benefits are similar for both males and females even though occupational differences remain.

In a study reviewing the apprenticeship systems of Australia, Canada, England, Ireland, and the United States, data on ratios of males to females in apprenticeships indicate that England, followed by Australia, has been able to best achieve well-balanced gender participation. The study concludes that countries offering a broader range of apprenticeships, such as England[6] and Australia[7] —that is, those that include traditional trade occupations and non-trade occupations[8]— generally have higher female take-up, as they offer more apprentice opportunities for females, particularly in the service sector (see Figure 10). In fact, research has found that there is a strong correlation between the number of female apprentices and non-trade apprenticeships such that the greater the number of non-trade apprenticeships, the greater the number of females that participate.

Figure 10. Apprentices by Sector and Gender in England



Source: Young Women's Trust. Making Apprenticeships Work for Young Women. 2016.

6. 75% of apprenticeship starts were in non-trade occupations in 2012.

7. 71% of apprenticeship starts were in non-trade occupations in 2012.

8. Non-trade occupations refer to those primarily in the service sector, including business, administration, law, public services, care, and retail.

England has a target of creating 3 million apprentices by the end of 2020 and has expanded the range of apprenticeship occupations to non-trade sectors to ensure that both females and males have equal access to apprenticeship opportunities. According to a recently published report by the Young Women's Trust, in 2015, 264,750 females and 235,140 males began apprenticeships in England, which suggests positive results for these efforts. However, while it is true that based on these numbers female participation is higher than that of males, the report notes that great gender disparities persist, as females get paid less than male apprentices, are less likely to receive training, have low representation in certain male-dominated occupational areas, and are less likely to be hired upon completion of their apprenticeship. There are, for example, 25 men for every female starting an apprenticeship in engineering and 74 men for every female apprentice in plumbing; male apprentices get paid 21% more per hour than female apprentices; and female apprentices are more than twice as likely to be out of work upon completion of their apprenticeship. It is noteworthy that male-dominated industries such as information technology (IT), engineering and construction tend to offer higher pay and better progression routes than others like health and social care, business administration, and children's care, which are female dominated.

This reality, however, is not unique to England. The United States, for example, through its Registered Apprenticeship program, also concentrates a higher number of female than male apprenticeships in social services occupations such as child care and nursing aides, whose duration (one or two years) is shorter than those of other male-dominated occupations such as electricians, plumbers, and carpenters (four or more years).

Both government and employers can take a more active role in promoting female participation in apprenticeships. Government, for example, can provide additional incentives for employers to hire female apprentices in the form of grants or higher tax credits or deductions and make an explicit effort to measure gender participation and completion in apprenticeships, while employers could take actions such as setting diversity strategies and/or corporate targets for number of female apprentices, providing mentoring services to females —possibly by females who have succeeded in nontraditional roles to prevent program desertion[9]— providing childcare facilities and support, or adapting job advertising to make it more appealing to women (see Box 9 for an example of promoting female participation in Registered Apprenticeships in the US).

9. Young women in male-dominated sectors are also more likely to leave their apprenticeship before completion. See Gambin, L., & Hogarth, T., (2015): 'Factors affecting completion of apprenticeship training in England', Journal of Education and Work, DOI: 10.1080/13639080.2014.997679

Box 9. Female Participation in Registered Apprenticeships in Nontraditional Sectors

Since 1994, the Department of Labor of the United States, through the Employment and Training Administration's Office of Apprenticeships (OA) and the Women's Bureau, has jointly administered the Women in Apprenticeship and Nontraditional Occupations (WANTO) grant program. Under WANTO, community-based organizations receive grant funds that are used to provide technical assistance to employer and labor unions with the objective of recruiting, training, placing, and retaining women in apprenticeships in nontraditional occupations.

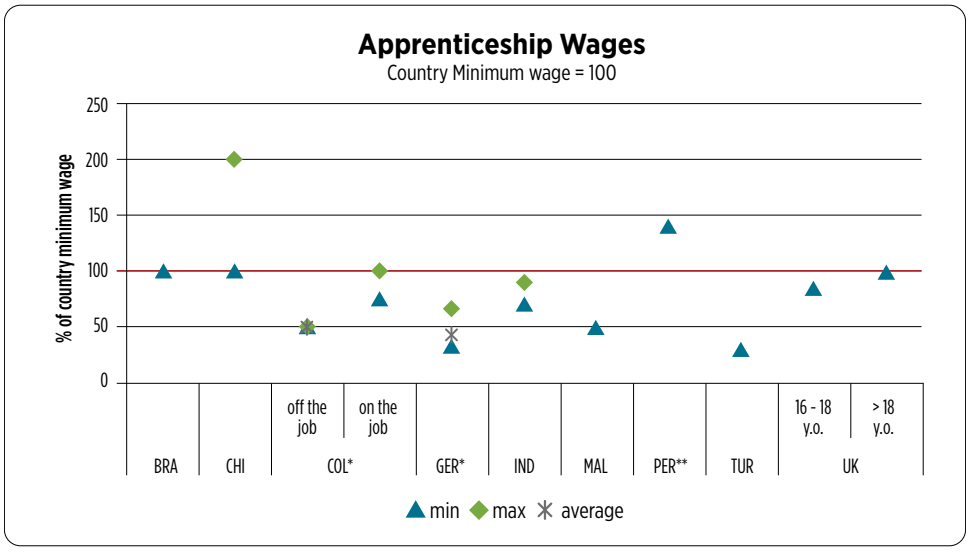
Several lessons learned have emerged from the WANTO program's implementation, including the following observations: i) targeted, tailored, and systematic outreach to females in the form of career fairs, summer camps, subsidized summer employment programs, and visits to schools is useful in breaking down stereotypes about females' ability or capacity to work in traditional trade occupations such as construction; ii) pre-apprenticeship programs help women gain trade-related math skills, occupation safety, and health administration training that better prepare them for the skilled trades and are an effective way of communicating expectations to help them decide if they really want to enter the trades; iii) additional support in the form of childcare subsidies, developing childcare plans, flexible class schedules, and/or online learning are helpful strategies in promoting participation and retention of female apprentices; iv) addressing the culture of male-dominated construction worksites through creation and enforcement of policies to prevent harassment and discrimination, setting goals for enrolling females in apprenticeships and increasing monitoring of sponsors and employers for compliance with equal employment opportunity laws can improve working conditions for women; and v) connecting women with effective mentors and peer support —both female and male— increases the probability of having female apprentices stay engaged in the program.

Source: Reed et al (2012). An Effectiveness Assessment and Cost-Benefit Analysis of Registered Apprenticeship in 10 States. Final Report. July 25, 2012.

Wages and Contracts

The formal payment of wages to the apprentice by the employer is considered to be one of the key features of apprenticeship programs. Since apprenticeships entail a job, the apprentice works (part time) for the training firm and receives a payment for the value of his or her productive contribution that varies over time as productivity increases and as more skills are acquired while learning on the job (Lerman, 2013; European Commission, 2015). In most countries wages are set as a percentage of the minimum wage (i.e. in Germany wages are first set as 60% of the minimum wage), especially at the beginning of the contractual relationship, and increase over time as productivity increases. In the UK, on the other hand, the degree to which the apprentice wage is below the minimum wage depends on the age of the apprentice. See Figure 11 for an analysis of wage dynamics for countries included in this study.

Figure 11. Apprenticeship Wages as a % of Countries' Minimum Wage



Notes: *Colombia and Germany apprenticeships' remuneration increases along the different phases of the program
**Peru data refers to a pilot program
Source: Own elaboration based on country case studies.

Apprenticeship facts from LAC: The existence of a formal wage under apprenticeship-type programs by LAC countries is highly dependent on whether the program is targeted to in-school vs. out-of-school youth and is intimately linked to the type of contract that regulates the relationship between the apprentice and the employer.

In programs like that of Mexico, which are fully integrated into the formal education system, employers do not pay a wage to the apprentice, as the apprentice is legally considered a student and not an employee. In the Mexican case, a framework cooperation agreement formalizes the relationship between the firm, the school, the upper secondary technical education subsystem and the employer's association chapter, while a learning contract formalizes the link between the student and the firm.

In other countries, however, apprenticeship contracts grant very similar labor rights to apprentices as they do to any other worker while providing special provisions in terms of the number of hours worked, duration of "employment" period, holidays, and remuneration.

In Brazil, for example, the apprentice has access to social security contributions, unemployment insurance, and to the savings/severance fund (*Fundo de Garantia do Tempo de Serviço – FGTS*), a fund accessible in case of illness, purchase of a house, or sudden termination of employment. At the same time, however, the apprenticeship contract contains special stipulations in terms of number of working hours. Apprentices who have not finished secondary school are limited in their work journey to 6 hours a day, which includes both in-class training and on-the-job practice, while those who have already finished secondary school can work up to 8 hours a day. Vacations should also fall within the schooling holiday period for those less than 18 years of age.

Overall, an analysis of the Latin American countries included in this study indicate that two countries (Mexico and Costa Rica*) do not provide wages, two countries provide apprentices with the countries' minimum wage (Brazil and Peru under the "apprenticeship agreement" modality), one country, Peru (under the "apprenticeship contract" modality) requires employers to pay apprentices a monthly wage no less than 50% of the minimum wage, and one country provides apprentices with wages above the minimum wage (Chile, which provides a gross remuneration greater than a minimum monthly wage but lower than two monthly minimum wages). Colombia is a special case, through which the law stipulates that the apprentice should receive a living stipend of approximately 50% of the minimum wage during the classroom training phase and 75% of the minimum wage if the national unemployment rate is above 10%, and 100% of the minimum wage if the unemployment rate is below 10% during the on-the-job training phase. In the case of university students, the law states that they should always receive at least 100% of the minimum wage.

* Even though Costa Rica's proposed apprenticeship legislation does not suggest full integration with the education system and instead mostly targets the out-of-school population, current debate in Congress establishes that the apprentice will be considered a student and not an employee. As such the apprentice will not receive a wage (currently under the most widely accepted law project 19.019).

Funding and Incentives

Apprenticeship programs involve four main actors: the government, employers, training providers, and apprentices, each of which has the responsibility to assume certain costs. In order to ensure the active participation of all parties, international experiences show that there should ideally be some level of cost-sharing between employers and the government. In models like that of Austria, Germany, and Australia, the employer typically assumes the on-the-job training costs (apprentice's wages in addition to materials, staff time for supervisors/mentors, training equipment and facilities, etc.), while the government absorbs the developmental and delivery costs, including those associated with governance and oversight, monitoring and evaluation, and marketing. Oftentimes, the costs associated with the off-the-job training component within apprenticeship programs are also covered by the government, especially when apprenticeship programs are integrated within the public upper secondary education system as an option within technical and vocational education tracks —in which case schools and colleges are directly funded with public resources— or when they are directed at populations outside of the school system such as school dropouts or the unemployed, in which case publicly funded professional technical institutes like those common in the Latin American and Caribbean region play a more prominent role. In our review of apprenticeship programs around the world, it is important to note that some employers also contribute to the off-the-job training indirectly through the payment of levies that help fund public training institutions. In other cases, in addition to covering off-the-job training costs, governments also contribute to the financing of apprenticeship programs by providing incentives to both firms and apprentices to participate.

Apprenticeship facts from LAC: In Latin America, the degree to which the government and employers cover costs related to apprenticeships is dependent on whether the program is targeted to the out-of-school vs. in-school population. Beneficiaries of the out-of-school apprenticeship programs —particularly those with limited resources— can receive support from the government in the form of stipends or scholarships to cover the costs related to participation in the program, including transportation, food, and learning material, while the employer assumes the costs of on-the-job training, including costs related to the status of the apprentice as employee (wages, vacation time, transportation, social security) and those related to the training of the apprentice (staff time dedicated to training, monitoring, mentoring, assessing, and certifying the apprentice and enabling adequate facilities for learning to take place). Since oftentimes the off-the-job training for the out-of-school population is provided by national training institutes, which are funded by a tax on employers' payrolls, the off-the-job training is also funded indirectly by employers.

For apprenticeship programs that are targeted to the in-school population, such as that of Mexico, where students must be enrolled in the public technical vocational educational system in order to participate in the program, the government covers the entirety of the off-the-job training, including the cost of the state education coordinators, tutors, and other staff dedicated to the delivery of the program at the school level, and provides a monthly stipend to students. The employers, on the other hand, cover a monthly quota to their respective union to cover the costs of coordination, supervision, and management of the apprenticeships program and any in-house training costs of trainers within the firm.

There are two main types of incentives to promote participation in apprenticeship programs: i) **those that are directed toward apprentices** and ii) **those that are directed toward employers**. Those directed to apprentices typically cover learning materials, allowances for learning away from home, and food and transportation in the form of stipends. In some cases governments also provide additional support to vulnerable populations such as indigenous groups and disabled people that as a result of their condition have a harder time being absorbed by employers. Those directed to employers, on the other hand, contribute to a reduction of the on-the-job training costs that must be assumed by the firm during the apprenticeship program given the apprentice's status as an employee, which implies the granting of appropriate benefits under each particular country's labor regulations. Incentives can also include reductions in the tax burden of employers, start and completion payments for firms, signing bonuses, and the covering of costs related to the delivery of the program, including the training of staff within the firm.

Apprenticeship facts from LAC: How do incentives work in the region?

In Latin America, the main public incentives for apprentices are subsidies to cover their costs of participation in the program, while the main incentives for firms include tax breaks, reduced dismissal costs, and training and wage subsidies. In the case of Apprenticeship Law Systems like that of Brazil, in which firms must hire 5% of their workforce as apprentices, negative incentives in the form of payment of fines for noncompliance —equal to up to 5 minimum wages per apprentice not hired except in the case of reoccurrence when the fine is doubled— may also act as a motivating factor for some firms to take up apprentices (see Box 10 for an explanation of the Apprenticeship Law in Brazil). Similarly, in the case of Colombia, where the hiring of apprentices is compulsory for firms that have more than 15 employees with the exception of firms in the

public and construction sectors, noncomplying firms must pay a fee equal to 5% of the total number of full-time employees times the value of the minimum wage.

Incentives to Apprentices:

Mexico: Monthly stipend to students over the duration of the apprenticeship.

Incentives to Employers:

Waiving/reduction of labor costs of apprentice under employee status:

Brazil: Reduction of wage earmarked toward severance emergency fund (*Fundo de Garantía do Tempo de Serviço*) for formal workers from 8% to 2% for apprentices. Waiving of dismissal costs.

Chile: 50% of the minimum monthly wage over the period of a minimum 6 months, maximum 1 year.

Tax breaks

Brazil: Tax breaks to medium and large firms that hire apprentices.

Negative incentives

Colombia: The law makes the hiring of apprentices compulsory for firms that have more than 15 employees, with the exception of firms in the public and construction sectors. If firms do not comply with this obligation, they must pay a fee used to finance an entrepreneurship fund (multiplying 5% of the total full time employees of the firm by the value of the minimum wage).

5 What are the core elements and guiding principles of apprenticeship programs?

This section presents 10 core elements, 25 guiding principles, and examples of best practices to take into consideration when designing an apprenticeship program. The 10 core elements include the following: (i) alignment with the country's development strategy; (ii) appropriate governance arrangements at the legal and institutional levels; (iii) adequate level of employer engagement; (iv) sustainable funding mechanisms and incentive provisions; (v) adequate curriculum design; (vi) adequate curriculum delivery; (vii) robust assessment methodologies; (viii) existence of industry-recognized certification, which can lead to career progression; (ix) complimentary support services to program beneficiaries, including but not limited to labor intermediation; and (x) strong quality-assurance mechanisms. The principles and best practices consider these core elements and provide operational guidelines for their implementation.

What are the core elements and guiding principles in the design of apprenticeships?

As explained in Chapter 2, impact evaluations about the specific effect of the different components and core elements of apprenticeship programs are scarce. Most of the literature on apprenticeships refers to studies by country that review the main elements of the programs and assess the programs in terms of main performance indicators (e.g., apprenticeship completion, hiring), sustainability, institutional capacity, and cost-benefit analysis. With that information available, this study followed a three-step methodology to analyze the existing apprenticeship cases and provide conclusions in terms of the core elements and guiding principles in developing an apprenticeship program to inform LAC countries:

1) **By using the Delphi method, 11 countries outside of the region were chosen based on the following criteria:** Six well-established apprenticeship models (Germany, Australia, Austria, the United Kingdom, the United States, and Canada) that can serve as international references for standard features, and five models that are in their experimental stage, including those of emerging economies in order to ensure transferability to the reality of LAC countries (France, Turkey, Lithuania, Malta, India).

2) **Ten core elements of apprenticeship programs were identified based on a comprehensive review of 15 existing international reviews, which included the countries in the case studies**[1]**.** The ten core elements were **organized into 25 principles that are highlighted in the literature for developing apprenticeship programs and improving their results.**

3) **Finally, six countries from within the region (Brazil, Chile, Colombia, Costa Rica, Mexico, and Peru) were chosen to provide an overview of the status of apprenticeship programs in the region and to understand the extent to which features from the long-standing apprenticeship models are included within these programs.**

The core elements in apprenticeship program delivery, together with the principles to execute them, are described in Table 4. The core elements include alignment with country development strategies, governance arrangements, employer engagement, funding and incentives, curriculum design, curriculum delivery, assessment criteria, certification and further progres-

1. CSLS., (2005); Cedefop, (2016); Department for Business, Innovation and Skills, UK Government. (2015); European Commission (2013); European Commission (2015); Eichhorst, W., N. Rodriguez-Planas, R. Schmidl, and K. F. Zimmermann. (2015); Eichhorst, W., (2015); Federation for Industry Sector Skills and Standard. (2014); Gospel, H. (2009); Hoffman, N. (2011); Ryan, Paul, Karin Wagner, Silvia Teuber, and Uschi Backes-Gellner. (2010); Smith, Erica, R B. Kemis (2014); Steedman, Hilary, (2012); US Department of Labor. (2014); What Works Center for local economic Growth. (2015).

sion, apprenticeship information services, and quality assurance. Examples of good practices in executing these core elements are shown in this chapter.

A note about apprenticeship programs vs. apprenticeship systems

When talking about apprenticeships, it is important to differentiate between apprenticeship "programs" and apprenticeship "systems." Although both are intertwined, as apprenticeship programs should form part of a wider apprenticeship system (i.e., "architecture") and apprenticeship systems should provide apprenticeship programs with the foundations to ensure their success, there are important differences between the two. Programs, for the purposes of this study, refer to training interventions that consider, within their design, the compulsory elements of apprenticeship programs, namely (i) a contract/agreement between the employer and the apprentice, (ii) a structured training plan, (iii) a combination of on-the-job and off-the-job training, and (iv) an assessment and industry-recognized certification of acquired competencies/qualifications. At the same time, they should make sure to integrate certain core elements within their design, including (i) alignment with the country's development strategy; (ii) appropriate governance arrangements at the legal and institutional levels; (iii) adequate levels of employer engagement; (iv) sustainable funding mechanisms and incentive provisions; (v) adequate curriculum design; (vi) adequate curriculum delivery; (vii) robust assessment methodologies; (viii) existence of industry-recognized certification, which can lead to career progression; (ix) complimentary support services to program beneficiaries, including but not limited to labor intermediation; and (x) strong quality-assurance mechanisms for training programs in general.

Apprenticeship systems, on the other hand, should provide the enabling conditions in which apprenticeship programs can operate successfully —and thus, the program's core elements should be embedded within them— and should be part of a country's broader skills-development system. Systems should be robust enough to ensure the effective delivery of apprenticeship programs and should account for components such as (i) the identification of private-sector skills needs, (ii) budget planning and fund assignment, (iii) curriculum development based on qualification and certification of competences, and (iv) quality-assurance mechanisms.

Figure 12. The Complementarity of Apprenticeship Programs and Systems

PROGRAM

Key Characteristics

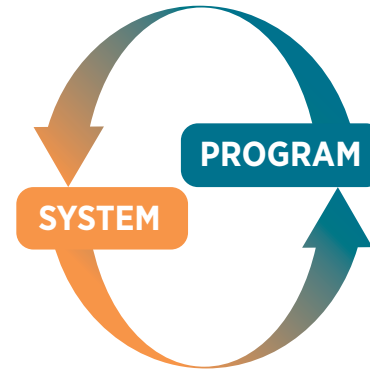
- Contract/agreement between the employer and the apprentice
- Structured training plan
- Combination of on-the-job and off-the-job training
- Assessment and industry-recognized certification

Core Elements

- Alignment of skills strategy (and within it apprenticeships) with the country's development strategy
- Appropriate governance arrangements at the legal and institutional levels
- Adequate level of employer engagement
- Sustainable funding mechanisms and incentive provisions
- Adequate curriculum design and delivery
- Robust assessment methodologies
- Existence of industry-recognized certification, which can lead to career progression
- Complementary support services to program beneficiaries, including but not limited to labor intermediation
- Strong quality-assurance mechanisms for training programs

SYSTEM

- Identification of private-sector skills needs
- Budget planning and fund assignment
- Curriculum development based on qualification and certification of competences
- Quality-assurance mechanisms
- Adequate regulatory frameworks embedded within the system



Source: Own elaboration.

Table 4. Ten Core Elements and Principles to Deliver Apprenticeship Programs

Functional Category*		Core Element		Guiding Principle
1.IDENTIFICATION OF PRIVATE-SECTOR SKILLS NEEDS	1	Alignment with country development strategy	1	Define the main objectives that the program is intended to achieve (i.e., reduce [youth] unemployment, decrease skills mismatches, reskill workers, increase productivity, prepare for the jobs of the future).
			2	Seek to establish a long-term and broad consensus across political spectra and social partners (employers, trade unions, training institutions).
			3	Use labor market intelligence on skills needs by sector to support decision-making on apprenticeships.
			4	Determine target age group of apprentices, consider equality and diversity (e.g., tackling gender segregation; targeting underrepresented groups in particular industries).
	2	Employer engagement	5	Promote the value of apprenticeships among employers by communicating the benefits and returns of participating as part of the apprenticeship delivery and/or its governance structure.
			6	Given the governance arrangements, employers or employer-led organizations provide inputs for determining occupational standards, and apprenticeship curriculum design and delivery.
			7	Provide support to firms (especially SMEs) to implement apprenticeship programs.
	3	Governance arrangements	8	Define a clear, comprehensive, and consistent legal framework that establishes specific rights, responsibilities, and roles for each of the apprenticeship partners (government, employer, trainers, apprentices, and others).
			9	Agree on mechanisms for structured dialogue between the apprenticeship partners, including social partners like employer associations and unions. Employers and employee union representatives should play a central role in providing inputs for the design, delivery, quality assurance, and assessment methods.
2.BUDGET PLANNING AND FUND ASSIGNMENT	4	Funding and Incentives	10	Determine how employers and government will fund the apprenticeship program costs. Typically, government covers the off-the-job training, the employer covers the on-the-job training, including wages, and the apprentice agrees to receive a lower wage in the training phase.
			11	Provide financial incentives to firms to participate in providing quality training to apprentices.

Functional Category*		Core Element		Guiding Principle
3. CURRICULUM DEVELOPMENT BASED ON QUALIFICATION AND CERTIFICATION OF COMPETENCES	5	Curriculum design	12	Given the governance arrangements, develop pertinent curricula with employers or employer-led organizations and training institutions, making sure that the on-the-job and off-the-job training complement one another and that the duration of the training program is sufficient for the apprentice to acquire a set of portable skills.
			13	Design apprenticeship curricula in such a way to maximize portability and applicability in a range of work contexts. Curricula needs sufficient breadth to provide competence in a range of skilled tasks relevant to occupations.
			14	Establish ratios of on-the-job to off-the-job training depending on the theoretical/ academic vs. practical needs of specific occupations. The typical ratio is 80% on-the-job to 20% off-the-job.
	6	Curriculum delivery	15	Employers provide on-the-job training within a structured training plan that is combined with off-the job training provided in partnership with a school, college, or training institute, public or private.
			16	Ensure trainers within the firm are assigned to on-the job training. Off-the-job trainers must have industry knowledge.
	7	Assessment	17	With the input of employers, establish standardized content and timing of occupation-specific assessments so that upon completion, apprentices' knowledge and skills are positively recognized by employers.
			18	Determine which assessment best fits each particular occupation as defined by employers and training providers, given governance arrangements (typically, assessments can be summative or formative).
	8	Certification and further progression	19	At the industry or sector level, agree upon industry-recognized qualifications and certifications issued by a reputable body, which ideally should be linked to a National Qualifications Framework.
			20	Ensure certification can provide a passport not only for labor insertion but also for opportunities for continuing education.
	9	Apprenticeship career services	21	Provide preparation for apprenticeships through pre-apprenticeship for groups in need of remedial education and soft-skills training.
			22	Provide labor intermediation services, including information on available apprenticeship opportunities, career counseling, and mentoring support. Share the benefits with potential beneficiaries (e.g., young people) and their influencers (parents, teachers, etc.).
4. QUALITY ASSURANCE	10	Quality Assurance	23	Establish a clear framework for apprenticeship quality assurance at the system/program, training provider, and company levels, ensuring systematic feedback.
			24	Determine assessment mechanisms and program indicators through which it is possible to reach a sufficient level of assurance that the apprenticeship delivery is meeting its goals.
			25	Determine monitoring and evaluation strategies to measure results and/or impact of the apprenticeship over time.

* See "A note about Apprenticeship Programs vs. Apprenticeship Systems." The functional categories included within this analysis are consistent with the findings of a study led by the Labor Markets and Social Security Division of the IDB on the required functions of successful skills-development systems (forthcoming).

Alignment with country development strategy and best practices

Countries with sustainable and effective apprenticeships have developed and expanded apprenticeship strategies that are embedded in wider economic and social policy development strategies. In general, the apprenticeship strategy has a defined objective in terms of workforce development of specific target populations and is rooted in labor market intelligence.

Table 5. Countries with good examples of implementation of Core Element 1

- **Defined objectives:** *'English apprenticeships: Our vision for 2020'* sets out the policy aims for apprenticeships in England. They are to deliver the skills, knowledge, and behaviors that employers need; provide substantive training in a professional or technical route with transferable skills and competency in English and Maths; be available across all sectors of the economy and at all levels including degree level; and be open to all ages.


- **Integrated skills system:** Developing major reforms to apprenticeships requires an integrated skills strategy. In 2015, India set out a new *National Policy for Skill Development and Entrepreneurship*. This general plan explains how the government will work with employers to extend apprenticeships to the service sector and achieve a tenfold expansion of apprenticeship places.

- **Labor market intelligence:** In Austria, the development of new apprenticeship programs and the modernization of existing ones continually are adapted to meet changing economic and technological developments. The decision to undertake is led by the affected sector alongside the Ministry of Economy or the social partners, while research support is provided by the IBW, a specialist agency. In Australia, labor market intelligence is used to clarify where there might be an oversupply of trainees. In Canada, the Sectoral Initiatives Program funds partnership-based projects that are national in scope and/or nationally significant and that support the development of labor market information, national occupational standards, and certification/accreditation regimes to address skills shortages in strategic sectors of Canada's economy.



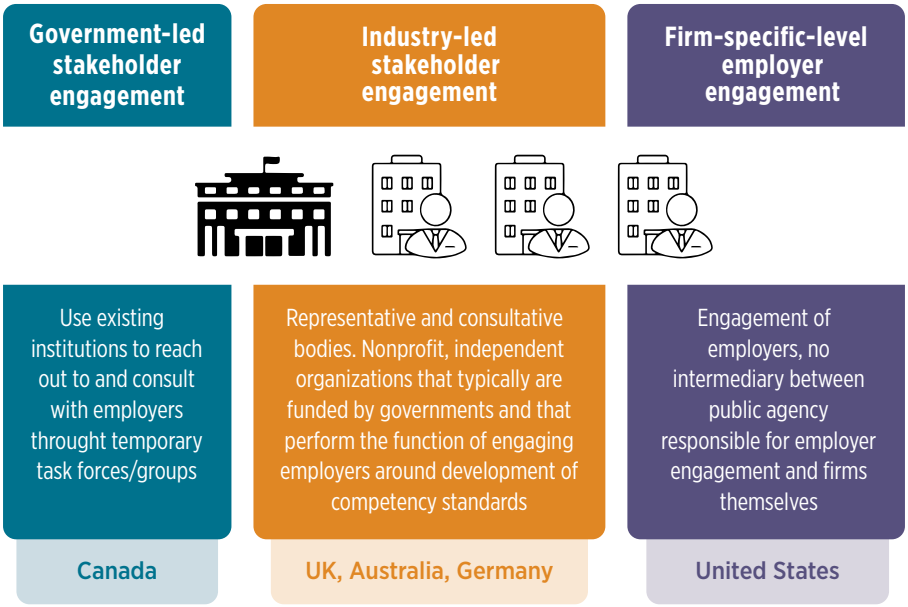
- **Consensus:** In Germany, the government delegates authority for the content, assessment, and other apprenticeship-related issues to the social partners (trade unions and national umbrella employer associations) and the chambers. All cooperation is based on consensus: No regulations may be issued against the declared will of either of the social partners.

- **Target population:** The targeting of apprenticeship programs, which varies across countries, from all-age programs to those more specifically targeted at younger people, is dependent on a country's strategic priorities and investments. Austria, which has decided to invest heavily on vocational education and training (VET) has decided to focus its efforts on the youth. As a result, after completing their compulsory schooling period, around 80% of Austrian pupils at the age of 15 opt for VET. About 40% of these young people train in a legally recognized apprenticeship occupation.

Employer engagement and best practices

Progressively, countries with different levels of tradition and employer participation in apprenticeships have emphasized employer engagement as one of the core elements for the development, sustainability, and expansion of apprenticeship programs. Achieving the employer engagement core element includes different strategies depending on whether the government or employers lead the apprenticeship program (from communication strategies to reach employers to strategies for articulating public–private partnerships among governments, employers, and training providers in developing the training contents of the apprenticeship). The participation of business associations, chambers, and councils is important to ensure the participation of individual firms. Figure 13 shows different examples of models of public–private sector collaboration in apprenticeships.

Figure 13. Models of public–private sector collaboration in apprenticeships



Source: Own elaboration.

Table 6. Countries with good examples of implementation of Core Element 2

- **Promoting benefits:** A major strength of the dual system is the high degree of engagement and ownership on the part of employers and other social partners. As well as appealing to a more collective sense of social responsibility, Germany promotes the benefits at an individual company level, stressing the savings on induction and retraining; that apprentices are employees who are loyal, productive, and innovative; and that they competently fulfill their tasks and duties.

- **Identifying occupations:** In Germany, the system of recognized training occupations requires each job role to comprise a training standard, occupational characteristics, a training plan of two or three years, and a qualification framework. The dual apprenticeship system covers around 350 officially recognized occupational areas, defined by following the advice of employers and trade unions. The main sectors are industry and commerce (59%) and craft occupations (28%).

- **SME support:** Group training organizations (GTOs) have been pioneered in Australia, where they are particularly successful. GTOs employ Australian apprentices under a Training Contract and place them with host employers. The GTO undertakes the employer responsibilities for the quality and continuity of the Australian apprentices' employment and training, including payment of the Australian apprentices' wage. The GTOs are also part of the German and Indian apprenticeship.

Governance arrangements and best practices

Finding the appropriate mechanisms for managing and coordinating activities of different key actors (i.e., government, employers, training centers, and the apprentices) is crucial in the implementation of apprenticeships. Good practices in apprenticeships have a clear role for the different main actors and a legal framework that establishes the rights and responsibilities of the actors for apprenticeship delivery, including the way apprentices are paid, categorized, and treated during the training process.

Depending on the country, the role of government might occur at the federal and/or regional levels, with countries like Germany bestowing important responsibilities for apprenticeships at both levels (the off-the-job training and education and curriculum development are the responsibility of the regions, or the Länder, while the federal government sets the national policy on apprenticeships, conducts research, and provides resources to the Länder through the Federal Institute for Vocational Education and Training, or BiBB) and others, like the United States, delegating more responsibilities at the regional level, or to employers, as in the case of registered apprenticeships (see Box 8). Employers, on the other hand, might be involved in apprenticeships independently or in an organized manner through participation in business associations, chambers, or sector-based councils. Finally, what is referred to as training centers can either be publicly funded institutions that are part of the formal education system (e.g., technical schools and vocational colleges), publicly funded professional training institutions (e.g., National Training Institutes like the SENA in Colombia, the INA in Costa Rica, or HEART in Jamaica, among others), or private training institutes that have been formed by employers themselves and that already provide structured on-the-job training for active workers.

Table 7. Countries with good examples of implementation of Core Element 3

- **Legal framework:** In Austria, the Vocational Training Act (1969) provides regulations on the vocational training of apprentices in skilled trades. The legislation requires employers to meet a range of requirements in their capacity as trainers and prohibits employers who have violated provisions from training more apprentices. Every company that wants to train apprentices needs to go through an accreditation procedure.

- **Dialogue between partners:** The organization of dual training in Germany requires a complex but clear division of responsibilities. Employers and unions play a central role in initiating change, because the structure of vocational training must meet the demands of the industry. However, if there is a need for change, the federal government, the Länder (regional government), the industry, and the trade unions must all reach agreement on what is to be done.

- **Industry leadership:** The Australian Industry and Skills Committee (AISC) consists of industry leaders providing leadership and guidance to the VET system to enhance responsiveness, quality, and relevance within the sector. The AISC draws on advice from the new Industry Reference Committees (IRCs) that are responsible for the development of training packages that reflect the needs and priorities of employers and are supported by skills-services organizations that help the IRC consult with employers, analyze key trends and emerging issues, identify skills sought by employers, and develop the technical content of training packages.

Box 10. The case of the Apprenticeship Law (*Lei do Aprendiz*) in Brazil

In an attempt to break the vicious cycle of informality, high rotation, and lack of relevant skills of the younger generation (Cunningham & Bustos, 2011; IDB, 2015; Corseuil et al., 2012), Brazil approved the Apprenticeship Law in 2005. The law aimed to facilitate the school–to–work transition for young workers at the beginning of their careers. However, the law has not achieved the expected results one decade after its enactment. With high demand for skilled workers (The World Bank Enterprise Surveys; Aedo and Walker, 2012; CNI, 2013) and sizable returns for apprentices (Corseuil et al., 2014; Silvia, Almeida and Strokova, 2015), the law was expected to be successful. Yet, firms have managed to fill only one-fourth of the minimum mandated by the law (Silvia, Almeida and Strokova, 2015).

Should apprenticeships be mandated by law?

There are three hypotheses that could explain the low results associated with the application of the law. The first is that the law forces the participation of the firms horizontally rather than providing a flexible package of incentives vertically by understanding the business needs of firms and the profiles of apprentices (Silvia, Almeida and Strokova, 2015). For example, Ceará is a state in which the service sector stands out. There, students take a dim view of mechanical engineering compared to computer engineering, even though in the former, they can learn to manipulate high-tech machinery. Thus, in Ceará, it is harder to find an apprentice for the industry sector than for services. Yet, the law forces firms from both sectors to hire 5% of their workforce as apprentices. The second hypothesis is that apprentices depart from a very low educational and socioemotional skills base that discourages employers to hire them. As Corseuil et al. (2014) suggest, given the pool of potential apprentices, firms might end up selecting apprentices that must start their training with very basic skills. The last hypothesis is that the level of productivity of the apprentice and the reduced dismissal costs for the apprentice (set as incentives for employers to absorb apprentices) do not offset the hiring costs —the same as those for a formal worker— and training expenses. Consequently, some employers end up preferring paying a fine (up to 5 minimum wages per apprentice not hired, except in case of reoccurrence, in which the fine is doubled) rather than hiring apprentices.

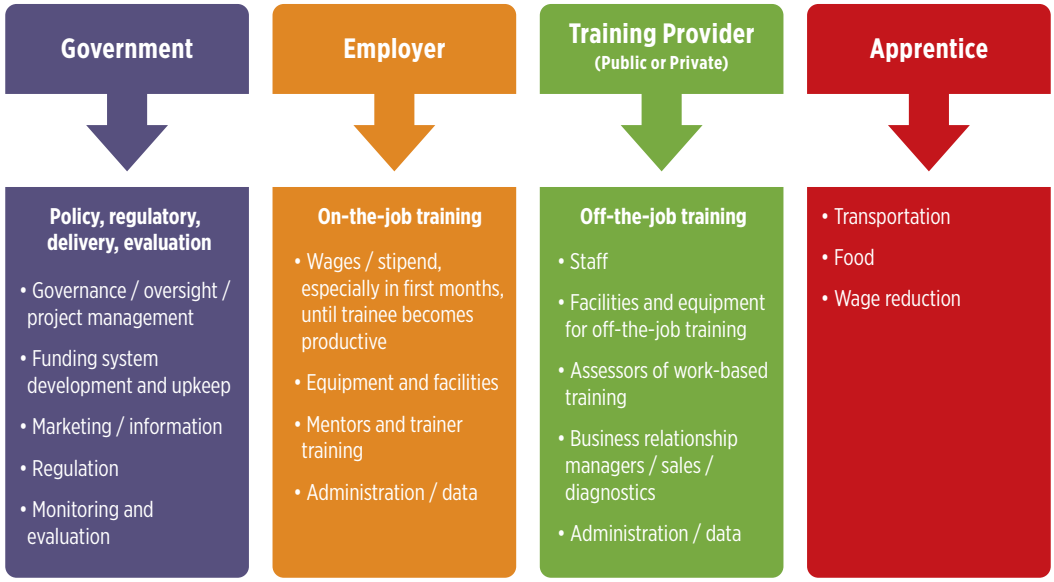
Whether apprenticeships should be mandated by law is hard to determine, but with such high demand for trained workers and high returns for training, incentives should be realigned clearly to reduce the mismatch between business needs and apprentices' skills. The law should be re-engineered periodically using its own logic: learning by doing. In times when Brazil and other countries in the region are struggling to create jobs, a strict law can send the wrong signals and be perceived as an additional hiring cost rather than an opportunity to have more productive workers in the future.

Funding and incentives and best practices

Good practices in apprenticeship programs include a funding strategy that allows for cost sharing among government, employers, and apprentices. As CEDEFOP (2015) argued, the desirable state of affairs in the area of financing arrangements is that all three stakeholder groups are contributing. The co-financing structure plays an important role in creating a balanced set of incentives for the participation of apprentices and employers. The concept of co-financing also is related to employer engagement. In programs in which employers provide only a slight share of the costs, employers tend to be less accountable for the results of the program. For instance, one of the available comparative cost-benefit analyses of apprenticeship compares the case of Germany with Switzerland and shows that Swiss apprentices are paid relatively less than German apprentices, and thus, Swiss employers obtain a net benefit sooner than the German employers. However, the apprenticeship hiring rate is higher in Germany, given the relatively higher investment of German employers in the program.

Figure 14 describes an example of cost-sharing between apprentices and employers. Incentives to apprentices typically cover learning materials, learning-away-from-home allowances, and food and transportation in the form of stipends. In some cases, governments also provide additional support to vulnerable populations —such as indigenous groups and disabled people— that, as a result of their condition, have a harder time being absorbed by employers. Incentives to employers, on the other hand, contribute to a reduction of the on-the-job training costs that must be assumed by the firm during the apprenticeship program, given the apprentice's status as an employee, which implies the granting of appropriate benefits under each particular country's labor regulations. Incentives also can include reductions in the tax burden of employers, start and completion payments for firms, signing bonuses, and covering costs related to the delivery of the program, including the training of staff within the firm.

Figure 14. Cost-sharing between apprentices and employers: Some examples



Source: Own elaboration.

Table 8. Countries with good examples of implementation Core Element 4 – Incentives to employers

INCENTIVES TO EMPLOYERS

- **Cost-sharing:** Historically, apprenticeships in England were funded through a "deal" among the government, which funded off-the-job training, the employer, which funded the wages, and the apprentice, who accepted a wage lower than the minimum wage. However, pressure on government finances has led to proposed changes in which the off-the-job element will be funded by large employers through a payroll levy.

- **Waiving/reduction of labor costs of apprentice under employee status:**
  Austria: In the first two years of apprenticeship, health insurance contributions and accident insurance for apprentices are waived for the employer.
  Turkey: Social security insurance premiums and insurance contributions (for occupational accidents, diseases, and sickness) are paid for by the state.

England: Employers don't pay national insurance contributions for apprentices under 25.
Malta: Government supports companies by contributing directly to the apprentice's wage, making the cost lower than for other employees. In addition, direct financial incentives have been introduced through tax rebates of €1,200 per apprenticeship.


- **Signing bonus:** Canada: Business grant of up to $2,000 for employers registering to hire and train apprentices.

- **Incentives for additionality:** Austria: Payments are made to employers for each additional apprentice over the previous year or for firms that return to apprentice training after a period of non-activity.

Table 9. Countries with good examples of implementation of Core Element 4– Incentives to apprentices

INCENTIVES TO APPRENTICES

- **Milestone and completion grants:** Canada: For the Red Seal trades, once the first and second years of the apprenticeship are completed, apprentices can be eligible for a $2,000 grant from the federal government. Apprenticeship Completion Grant: $2,000 upon completion of the program.

- **Remuneration:** Turkey: A minimum apprentice wage is fixed as a proportion of the adult minimum wage and increases with age. Wages paid by the enterprises cannot be less than 30% of the minimum wage. When apprentices are put under contract, their social security insurance premiums and the insurance contributions (for occupational accidents, diseases and sickness) are paid by the state.

- **Additional support to vulnerable populations:** Australia: Additional funding is offered to indigenous and disabled people to cover the costs associated with tutors providing individualized attention, interpreters, and mentor services.

Curriculum design and best practices

The development of the curriculum contents in apprenticeship programs is typically a process in which employers and training providers have central roles in determining the contents and standards of the training plans. The process typically is guided by training specialists who transfer employers' needs into a training plan for the apprentice. It is important to highlight that curriculum design should be intertwined closely from the outset with a unified system of assessment, accreditation, and certification, as it is particularly the case in Australia, for example.

Table 10. Countries with good examples of implementation of Core Element 5

- **Relevance:** In Australia, apprenticeship curricula are based on training packages, which are collections of competency standards and qualifications with specific core and elective competencies. These must be achieved by apprentices enrolled in the relevant qualification. Currently, a greater emphasis is placed on cross-industry skills standards, recognizing that many core skills are common across industries.

- **Portability/breadth of scope:** In the UK and Germany, in addition to specific skills and technical competences related to a specific job role or function, there is a strong focus on the attributes most valued by employers for many occupations (e.g., functional competence in literacy, numeracy, and, increasingly, ICT, as well as soft skills).

- **Structured on and off-the-job training:** In Canada, around 20% of the training is technical and takes place in a college, and 80% of the training is on the job. The order in which an apprentice completes the on-the-job and in-class portions of their training depends on the trade, location, and whether the training occurs in a skill-shortage area.

Curriculum delivery and best practices

One of the most important features of apprenticeships is the fact that the programs are delivered both in the workplace and outside of it. Employers that sponsor apprentices provide on-the-job training, while related classroom instruction might be dictated either in a training

center or at the employer's facilities in a classroom format. An essential part of curriculum delivery is ensuring that both the on-the-job and off-the-job trainers —teachers/instructors and company staff, respectively— receive the necessary training themselves in order to deliver the curriculum successfully and transfer both theoretical and practical knowledge and skills.

Table 11. Countries with good examples of implementation of Core Element 6

- **Structured training:** In Austria, training is carried out in the workplace for the apprentice to carry out productive activities and in vocational schools and workshops or laboratories to receive theoretical training. General subjects make up around 35% of the off-the-job component and include general education and subject-related foreign language training. Austria has introduced a modular apprenticeship to provide more optional specializations.

- **Skilled trainers:** In France, the role of apprenticeship supervisors is critical. They help the apprentice acquire, in the work environment, the skills required for the relevant target qualification. The tutoring function can be shared (under a single team leader) so that each person in the tutorship team is able to pass on specific know-how based on his or her function.

- **Pilots for curriculum delivery:** In Australia, pilots are designed to learn more about opportunities and barriers to increased industry use, acceptance, and validation of alternative apprenticeship-training delivery arrangements. The pilots test and open up alternative training approaches on a broader scale, providing greater skills development and choices for industry involvement.

Assessment and best practices

This core element refers to defining and conducting the tests that best suit the different types of skills and competences apprentices are being trained in, in order to determine the acquired level of qualifications of the apprenticeship that leads to a certification.

Table 12. Countries with good examples of implementation of Core Element 7

- **Employer endorsement:** Apprenticeships in England require a holistic assessment of the knowledge, skills and behaviors (KSBs) acquired. Employers themselves set the required standards, giving them confidence that apprentices are job-ready and assessed consistently, regardless of where they are undertaking their apprenticeship.

- **External verification:** In Germany, assessment is summative, comprising an interim and end-term practical examination that tests required knowledge and skills through an integrated "work piece." The chambers are responsible for developing the tasks and supervising the process. A local examination board is assembled and must include an employer expert, a trade unionist, and a teacher but usually not the employer of the apprentice.

Certification and further progression and best practices

This is an important element both for apprentices and employers. The recognition of the skills acquired by the apprentices with a certificate allows them to signal their acquired level of mastery in different occupations. It is also important for employers looking for workers with particular qualifications. In some countries, the certificate also allows apprentices to pursue other studies when there is a link to a national qualifications framework.

Table 13. Countries with good examples of implementation of Core Element 8

- **Universal recognition:** In Canada, the Red Seal Program ensures consistent standards and interprovincial mobility. A common set of standards and competencies for a trade is developed through National Occupational Analysis, allowing the effective harmonization of training and assessment.

- **Progression routes:** In France, apprenticeships give access to all levels of certification by means of successive contracts or via bridges with higher education courses. The target vocational certification must lead

to a professional diploma or title included in the National Directory of Vocational Certifications. France also has professional apprenticeships, leading to qualifications recognized under national sectoral agreements.

Apprenticeship services and best practices

This is a necessary core element to make sure that potential apprentices and apprentices can get the information and counseling they need to make important career decisions before, during, and after the apprenticeship.

In countries with strong traditions in apprenticeships, such as Germany, Austria, and the Netherlands, public employment services (PESs) play an important role in securing apprenticeship places and supporting the transition from school to work. Well-developed contact with employers is key to opening apprenticeship opportunities for young people. In Austria, for example, PESs are in charge of informing employers about support and existing subsidies, and checking for targeted use of subsidies. Special employer services operate with specialized teams, and one-third of the PES staff is dedicated to employer services (EC 2011). Additionally, cooperation with schools always has been a cornerstone of PES in Austria. An example of this is that local PES offices invite school classes into their career information centers, where young people are introduce to the services offered by the PES. In 2010, 2,460 school classes visited the Austrian PES with around 50,500 students.

Table 14. Countries with good examples of implementation of Core Element 9

- **Soft-skills preparation:** Pre-apprenticeship programs (See Box 5) prepare individuals to enter and succeed in registered apprenticeship programs in the United States, combining industry-based training with classroom training. Similarly, traineeship programs in the UK prepare people who might not be ready to take on a full apprenticeship program.


- **Opportunities:** Australian Apprenticeships Centres (AACs) provide free information and advice to apprentices. A new apprenticeship network also has been set up in Australia to target support services to the specific needs of apprentices from pre-commencement to completion. Pre-com-

mencement services help get assisted clients into the right apprenticeship with the right employer.

- **Promoting benefits:** In the UK, television advertising and social media have played a significant role in promoting apprenticeships. For example, the government and top employers launched a *Get In, Go Far* TV campaign for teenagers collecting their school results. Apprentices were shown taking selfies in their workplaces and speaking about their experiences, which were also featured on posters, in print media, and on YouTube.


- **Career advice:** In Lithuania, guidance and counseling services for general education students place a strong focus on vocational activation, a policy approach that involves organizing visits to enterprises for students to become familiar with real work places. It is also a regular tradition for VET providers to organize career days and visitor days in which students present advantages of VET to their peers from general education.

- **Incentives:** In France, there have been numerous initiatives at local and national levels, backed by legislation, to boost the image of apprenticeships. These include providing apprentices with a professional student card, giving them access to various price reductions and benefits similar to those enjoyed by students in full-time education

Quality assurance and best practices

Ensuring that program delivery is achieving the highest quality standards is an essential component of the apprenticeship strategy. The quality control mechanisms should include periodically measuring the quality of teaching, facilities, and learning, among others.

Table 15. Countries with good examples of implementation of Core Element 10

- **System-wide quality control:** In France, there are three levels of quality assurance and evaluation: system level, provider level, and certification level. The quality assurance of the certification of learning outcomes is concerned with assessment, validation, and recognition. This is undertaken within a framework of a mixed model of regulation (prescription of required standards) and autonomy (cooperation to achieve and improve).

- **Indicators:** In the UK, studies assess the wage and employment returns of individuals who hold particular qualifications. This enables comparisons to be made between apprenticeships vs. leaving education or other learning routes. They are derived from the Labour Force Survey (LFS) or from cohort studies that follow individuals throughout their lives.

- **Monitoring:** A biannual survey of employers is undertaken to understand why employers make the training decisions that they do (including the amount of training provided) and whether they use and are satisfied with nationally accredited training, including apprenticeships. Both the federal Department of Education and Training and state governments monitor, review, and evaluate apprenticeship providers' performance and contractual compliance.

Box 11. The Mexican experience with apprenticeships: An example of quality assurance

One of the greatest challenges of any work-based learning initiative is quality assurance, the set of mechanisms to ensure that training will take place in such a way that the trainee will engage in a learning process that sets out clear objectives of what he/she is expected to learn and do, and formally assesses that he/she has acquired the related skills. In Mexico, adopting the apprenticeship program within the formal technical education system has facilitated this process. Based on the German Dual System, apprentices are students enrolled in the upper secondary technical education track (which normally lasts 3 years). Upon conclusion of their first year, they may opt to engage in the apprenticeship program, through which they can join a firm for 1 or 2 years (according to their field of study) to continue their training mostly on the job. As this particular level of studies was subject to a recent reform to make curricula competency-based —in which competencies usually are defined as learning objectives described in terms of tasks— it is to some extent easier to determine which competencies they can learn at school and which ones they can develop on the job.

Program delivery: Each apprentice has an individually designed training plan that establishes all of the learning activities that he/she is expected to engage in, alternating between classroom instruction (20% of their time during the apprenticeship period) and work-based learning (80%). Each activity responds to a workplace-specific context and details the academic requirements, job skills, expected learning results, learning settings, and timing in which each of these will be developed. The learning plan involves a rotation to various workstations in different units of the firm, all of which are related to the required curriculum content for the selected area of study or career track followed by the student. Throughout their rotation, apprentices are expected to develop a combination of the required skills of their career track (academic, generic, and professional), with emphasis on the professional/job skills and with the benefit of the supervision of a company trainer. In-plant learning is articulated at all times, with the required learning plan established by the educational institution. In some cases, apprentices might need to attend school more regularly for a period of two to three weeks to receive intensive academic training in areas that they might not have the chance to develop while in the firm or to strengthen certain skills that employers might report are still weak.

Assessment: The evaluation process is ongoing. It occurs during classroom and work-based learning. Work-based learning is monitored through the continuous measurement of the attainment of learning objectives and established results identified in the

rotation plan. For this purpose, there are weekly reports that detail the apprentice's individual in-firm progress on the basis of the rotation plan. The apprentice is required to submit a weekly report describing all of the activities performed and the learning he/she has acquired in the process. These reports are validated by the company-assigned trainer and reviewed by the tutor assigned by the school. Once the apprentice has met all of the requirements of his/her learning plan (including school credits) and based on all of the evaluations and reports submitted, the corresponding academic credential is granted (upper secondary technical degree).

Quality assurance: The program is executed by a technical–pedagogical team that operates in every participating school. The team is led by a manager of outreach relations who is responsible for interacting with participating enterprises and liaising with both school tutors (in charge of supervising student progress on an ongoing basis) and the enterprise trainer (trained to supervise the apprentices' learning in the workplace). Each firm agrees to implement a quality-assurance process, which aims to track the quality of the student's in-firm learning process. This process allows one to follow student performance and progress through each workstation or learning activity. The weekly progress reports record and grade student learning and provide the necessary information to document student progress. The key aspect of quality assurance mainly relies on public educational institutions, particularly school tutors. It is their responsibility to ensure that learning plans comply with the requirements of the competency-based curriculum framework; negotiate with firms the exact sequence of rotation plans and verify that the latter provide a developmental path to apprentices; monitor student and firm compliance with the learning and rotation plans; and collect, in collaboration with the firm trainer, weekly reports on the apprentice's performance.

6 Bridging theory and practice: How to design an apprenticeship program

The previous chapters of this study were dedicated to understanding how apprenticeship programs work outside of the region, what their core elements are, how they fit within a broader skills-development system, and what the state of these types of programs is in LAC. An analysis of these factors reveals that countries in Latin America and the Caribbean still face the challenges of implementing an efficient and sustainable apprenticeship program.

This final chapter provides a tool kit for LAC countries to design or revamp their current programs and, in doing so, explores the question of how transferrable the core elements and principles are to the region's context.

The purpose of this chapter is to provide policy makers and employers with practical guidelines to either improve existing apprenticeship programs or to design them from scratch. As discussed in previous chapters, this study proposes 10 core elements and 25 principles to inform the adequate design of apprenticeship programs based on evidence from international experiences. It is important to remember that there is no single formula to follow and that any direct, one-to-one application of international experiences to different contexts is oftentimes a recipe for failure. Apprenticeships as potential solutions to youth unemployment and to workforce development challenges must be understood as one of many policy options that necessarily must be contextualized to the characteristics and conditions of each particular country. As stated in Chapter 3, macroeconomic conditions are also an important challenge for many countries in the region, affecting hiring decisions. Therefore, the results of any apprenticeship program design can be enhanced with sound macroeconomic management that allows for creating new jobs. It is also important to highlight the role of labor regulations and their enforcement in creating incentives for formal hiring.[1]

This chapter presents a step-by-step guide or tool kit to inform the design of apprenticeship programs, following the 10 core elements identified throughout this study. It presents the reader with key questions that should be asked when exploring the best alternatives to fulfill each of these core elements. While an attempt was made to provide a structure for the questions that should be asked in chronological order, it is important to remember that actions can be taken simultaneously. More importantly, however, in order to fulfill some of the core elements, systemic issues oftentimes need to be addressed, as apprenticeships are a piece of a country's broader skills-development system. As explained in Figure 12, systems must provide the enabling conditions for apprenticeships to be able to deliver high-quality training that fits both the apprentices' and the employers' interests.

Finally, while using the tool kit, the reader is encouraged to look back at Chapter 5, as it provides best practices regarding what other countries with well-established apprenticeship systems have done in order to satisfy the core elements and principles of apprenticeship programs. LAC countries, in particular, should explore how these best practices can help them solve the challenges they face, which might be different from those faced by other, more-developed economies. Finally, Box 12 showcases an example of how one country in the region, the Bahamas, has made use of the questions embedded within the tool kit to re-invigorate apprenticeships as a potential solution to bring opportunities to its youth.

1. For recommendations on policies to increase and equalize opportunities for access to formal jobs with a sound regulatory framework, see Alaimo et al. (2015), Jobs for Growth.

TOOL KIT 10 Steps for Action

Figure 15. Ten steps for action

Source: Own elaboration.

1. ALIGN

Alignment with the country's development strategy is the first stepping stone toward the design of a program that can become a key contributor to the advancement of national priorities and goals. Along these lines, a clear diagnosis of the country's current and future situation, through the use of labor-market intelligence, is key in determining which challenges the apprenticeship program will address and how it will address them. Alignment also implies bringing together different stakeholders to achieve a common goal and building consensus around the idea that apprenticeships can be a promising instrument to reach common goals. Key questions to be answered in this stage include the following:

1.1 Strategize

- Which national strategies exist in the country (e.g., national development plan; labor, youth, education national strategies)?
- What is the country's vision and how can apprenticeships contribute to it?

1.2 Gather Data

- What is my country's current situation in terms of youth unemployment vs. adult unemployment? How have these indicators evolved over time?
- What is the level of skills mismatch in my country (measured possibly through employers' surveys or work-permit data)?
- If there are mismatches, which sectors are being affected by the mismatch?
- What are my country's *current* and *future* skills needs? By sector/industry?
- What are current and future foreign direct investment (FDI) attraction projections? Does this affect the level and type of skills needed now and in the future?
- What are employers saying?

1.3 Target

- Once I have collected data, which population would be the ideal target for the apprenticeship program?
- Which sectors should be prioritized, if any?
- Should my apprenticeship program be targeted at the out-of-school vs. in-school population or both?

1.4 Build Consensus

- Once I know whether and why apprenticeships are a potential solution to my country's challenges, how do I engage other stakeholders to build support for apprenticeships in my country?
- Who do I need to engage with in the government?
- Who do I need to engage with in the private sector?
- Who do I need to engage with in the civil society?
- What is the best way to engage these groups?
- Can I identify champions to help me lead this engagement process?

2. ENGAGE EMPLOYERS

One of the most challenging but important elements of well-established apprenticeship programs is the engagement of employers of all sizes in the design and delivery of apprenticeship programs. Employer engagement is key at many different levels, starting, as discussed earlier in Step 1 "Align," with listening to what they perceive as generators of employment opportunities in the labor market in terms of which skills they need to remain productive and competitive. Secondly, engagement is also crucial for employers to be able to provide inputs to determine occupational standards that will later be developed into curricula for apprentice-

ship training. Thirdly, active engagement of employers translates into an increased willingness to open their doors to apprentices and even more importantly, to commit to the delivery of quality training that will develop apprentices' skills and their own future stock of qualified employees. The bottom line is that employers know what they need, and as such, training providers should pay close attention to adapt and adopt curricula expeditiously to fit those needs. Key questions to be answered in this stage include the following:

2.1 Pitch

- What experience do employers have in delivering on-the-job training?
- Has this experience been positive for them overall? Why or why not?
- What experience do employers have in working in public–private partnership with the government and with both private and public training providers?
- Can successful experiences/testimonies be highlighted?
- What do employers identify as their main challenges and opportunities for on-the-job training?
- What are the main motivating factors for employers to engage in apprenticeships?
- How can the benefits to employers be communicated most effectively through key messages?

2.2 Sell

- Once communication materials have been developed, which are the most effective channels to reach out to employers?
- How often should employers be contacted?
- How can employer engagement increase over time?

2.3 Support

- What support do employers and workers' representatives need in order to facilitate the process of participating in apprenticeship programs?
- Who should employers reach out to in order to learn more about how to set up an apprenticeship program or register one?
- How do employers find out about special support services to be able to receive vulnerable populations as apprentices (e.g., females in nontraditional occupations, the disabled, youth who need extra mentoring throughout the apprenticeship process)?
- How can employers partner with each other to learn from their experiences with apprenticeships?

2.4 Listen

- Which level of education do employers require from their incoming apprentices?
- Which occupational standards do employers consider appropriate?
- Which spaces are available for employers to communicate their skills needs to training providers?
- What are the processes, if any, through which employers help shape curricula?

3. SET STRUCTURE

In order for apprenticeships to pass from the drawing board to reality, it is necessary to ensure that appropriate governance arrangements are set in place. Namely, countries should count with adequate legal frameworks that provide a nationally recognized definition of apprenticeships and that provide a common basis for the rights and responsibilities of each of the apprenticeship partners (government, employer, trainers, apprentice, trade unions, etc.). Setting structure also implies, however, enabling spaces that promote dialogue among all apprenticeship partners, emphasizing the importance of having employers and/or employer and employee representatives take an active role in the design, delivery, quality assurance, and assessment of apprenticeships nationally. Key questions to be answered in this stage include the following:

3.1 Legalize

- Does apprenticeship legislation currently exist in the country?
  - If so, when was it created?
  - If so, does it reflect 21st-century labor standards or does it need to be modified?
  - If so, what are the rights and responsibilities of the parties under the law?
  - If so, does it define the contractual status of the apprentice with the employer?
  - If so, does it define who is responsible for quality assurance?
  - If so, does it establish who/which institution will make decisions regarding national apprenticeship policy?
  - If not, does new legislation need to be drafted?

3.2 Institutionalize

- Which governance structure is in place for apprenticeships in the country?
- Which institutions are involved in apprenticeship design and delivery?

- What are their legal mandates, and, under these mandates, what would they be responsible for?
- Which institutions are the most influential and have the most funding?

3.3 Dialogue

- Are there currently any spaces in place to promote dialogue among social partners (employer associations or trade unions), employers or employer representatives, training providers, and government?
  - If so, how can they be strengthened?
  - If not, how can these spaces be created?
- Who should be among the groups responsible for deciding the following?
  - Setting policy
  - Deciding the funding of the program
  - Designing and delivering curricula
  - Assessing and certifying
  - Providing career services to apprentices
  - Ensuring quality

4. FUND AND INCENTIVIZE

Where will the money come from to fund all that is involved in the delivery of apprenticeships, and more importantly, how can it be ensured that this funding is sustainable over time and administrations? Funding is evidently a core piece of the apprenticeship puzzle, and important decisions need to be made in terms of which cost components both the state and employers will cover. Typically, the government covers off-the-job training, the employer covers on-the-job training and apprentice wages, and the apprentice agrees to receive a lower wage within the context of a win-win-win scenario that will allow all parties to reap the benefits of their investment. Key questions to be answered in this stage include the following:

4.1 Agree

- Which costs are involved in the delivery of the apprenticeship program for the *state*?
- Which costs are involved in the delivery of the apprenticeship program for the *firm*?
- Which costs are involved in the delivery of the apprenticeship program for the *training provider?*

- Which costs are involved in the delivery of the apprenticeship program for the *social partners* (chambers, labor unions, etc.)?
- Who will assume each of these costs?
- For how long will each partner assume each of these costs? (At a programmatic level, the answer to this question depends on national budget allocation; at the technical level, it depends on the duration of the apprenticeship contract and the number of beneficiaries to be targeted.)

4.2 Identify bottlenecks

- What are the main bottlenecks that prevent each of the apprenticeship actors (the state, apprentices, training providers, and firms) from participating in apprenticeship programs

4.3 Incentivize

- Which incentives should be put in place by the state to alleviate these bottlenecks (e.g., grants, tax credits, tax deductions)?
- Should state incentives be directed at the apprentice, the firm, or both?
- Should state incentives be used to promote particular milestones for the apprenticeship program (e.g., start bonus, completion bonus for the apprentice and/or the firm)?
- Should state incentives promote participation of vulnerable groups?
- How will incentives be delivered to each of the actors?
- Should the delivery of incentives be linked to performance indicators?
- How long do incentives last?

5. DEVELOP CURRICULA

The development of curricula for apprenticeship programs —that is, if there is no adequate existing curricula— is a centerpiece for delivering pertinent training. As mentioned in Step 2 "Engage Employers," it is of utmost importance that employers participate in these processes and that the on-the-job training that they will provide is consistent with the off-the-job training that training providers will offer to the apprentice. The curricula, reflective of the competencies and theoretical knowledge that apprentices must achieve to become proficient in a certain occupation, are also determinants in defining the duration of the apprenticeship program; the ratio of on-the-job to off-the-job training; and the schools, colleges, or training institutions that are prepared to deliver it. Key questions to be answered in this stage include the following:

5.1 Define relevance

- Do current curricula reflect employers' needs? If not, what is missing?
- Which competences and knowledge are necessary for the apprentice to be proficient in particular occupations?
- Who is involved in the development of new curricula (e.g., human resources personnel from firms, workers who perform the actual job at work, pedagogical teams)?
- Are the on-the-job training and the off-the-job training complementary? Do practice and theory reinforce each other?

5.2 Set duration

- What is the appropriate duration of the apprenticeship program for particular occupations?

5.3 Establish ratio

- What is the appropriate ratio of on-the-job to off-the-job training per occupation?
- Will the on-the-job and off-the-job training be carried out simultaneously throughout the duration of the program or will it be front-loaded, with the off-the-job training diminishing over time?

5.4 Identify training providers

- What are the country's current training providers?
- Which occupational areas do each of these training providers' specialize in?
- Who do employers rate the highest in terms of quality of graduates and for which occupations?
- How do training providers currently work together with employers in adapting curricula?

6. DELIVER

Once curricula have been designed, it is time to enable the necessary conditions for employers and training providers to work together in delivering the agreed-upon curricula. For this, it is particularly important to ensure that firms allocate qualified trainers to impart on-the-job training and for training providers to secure trainers who have industry knowledge and who are familiar with what is being taught within the firm for off-the-job training. Key questions to be answered in this stage include the following:

6.1 Build capacity

- What are firms' and training providers' capacities to provide on-the-job and off-the-job training, respectively?
- What are their main obstacles in providing relevant training?
- Are incentives aligned to deliver quality and relevant training?

6.2 Train the trainers

- What do staff's/teachers'/instructors' profiles look like?
- Are technical courses for the off-the-job portion taught by instructors with industry experience? If not, which incentives should be put in place to attract industry instructors, or how can instructors gain exposure to the industry?
- Do staff (on-the-job training) and teachers (off-the-job training) receive regular training themselves to upgrade their technical/pedagogical skills?
  - If so, is this training useful in delivering their teaching objectives and preparing students for the workforce?
  - If not, which areas should be strengthened?

7. ASSESS

The importance of quality assurance merits a productive conversation with employers as to what should be the standardized content and timing of occupation-specific assessments: whether they will be summative or formative. Key questions to be answered in this stage include the following:

7.1 Design

- Will assessments be formative (i.e., with a goal to monitor student learning that allows for the provision of ongoing feedback during training program), summative (i.e., with a goal to evaluate student learning at the end of the training period according to set standards), or a hybrid?
- Which instruments will be used to apply formative and/or summative assessment for both on-the-job and off-the-job training?
- Has the development of these instruments included the employer perspective?

7.2 Assess

- How will assessments be carried out for the on-the-job portion of the training and the off-the-job portion?
- Who will carry out the assessments for the on-the-job portion and the off-the-job portion?
- How often should assessments be carried out?
- What happens if an apprentice does not successfully complete an assessment? Will remedial action be taken?
- Should funding be tied to assessment results?

8. CERTIFY

Once apprentices have been assessed and have proven successful completion of the program, what will they receive in return? The answer always should be an industry-recognized certification that will allow apprentices to tap into the portable skills they have earned to increase their employment opportunities in companies within the same industry. Certification, however, also should provide a passport for continuing with further education if the apprentice decides to do so. Key questions to be answered in this stage include the following:

8.1 Design

- Which institution can award apprenticeship certificates in your country?
- Is the granted certification industry-recognized? If not, how can employers from the same industry come to agree on a common certification?
- Is the certification recognized nationally and/or internationally?
- Can the certification count toward further education?
- Is there a national qualifications framework to which certification is attached?

8.2 Certify

- How will certification be attached to assessment? What does the apprentice need to be proficient at before being able to obtain a certificate?

9. PROMOTE

Embedded within all stages – even at the alignment stage and even more so in subsequent stages when delivery takes place – is the need to "sell" apprenticeships to promote take up by both apprentices and employers. This implies the implementation of an intensive communication strategy directed at different stakeholders that highlights the benefits of participating in the program and of support mechanisms that facilitate the processes of participating itself. Also important is to communicate how the apprenticeship program fits within the broader array of services that the state provides to its constituency clearly. Key questions to be answered in this stage include the following:

9.1 Strategize

- Does a comprehensive communications strategy exist to promote apprenticeships not only among employers but also potential apprentices, students, parents, teachers, trade unions, and other relevant parties, as appropriate?
- What is the key message that the strategy should convey? Some messages might revolve around the importance of apprenticeships in reaching national development goals, helping the country's youth and preparing for the future, increasing the country's competitiveness and creating jobs through investment attraction, reducing the skills mismatch, and differentiated messaging on the benefits of apprenticeships for distinct parties.
- Which other services does the government offer that are complementary to and help support apprenticeships?

9.2 Sell and Inform

- Which are the most appropriate "sales pitches" that should be communicated to different audiences?
- Which are the best media to roll out this strategy (newsletters, print outs or announcements at the PESs, schools, training providers, employer fairs, TV advertising, social media, etc.)?
- Which is the best way to make people aware of other services, such as mentoring opportunities, career counseling, preparation for assessments, job search assistance, and additional support for SMEs?

10. ENSURE QUALITY

Up until now, structures have been set, employers have been engaged actively, funding schemes have been established, and curricula have been designed and delivered. How can it be ensured that all of these efforts are delivering the intended results and the quality of the program is in fact the best it can be? There is, thus, a need to establish clear frameworks for quality assurance, including through the definition of an assessment methodology for the apprentice and a monitoring and evaluation strategy for the program as a whole. Key questions to be answered in this stage include the following:

10.1 Establish frameworks

- Is there a legal and institutional framework to regulate the quality of training provision in the country generally?
- Is there a legal and institutional framework to regulate the quality of apprenticeships in the country specifically?
- Which body, if any, assesses results of on-the-job training?
- Which body, if any, accredits training providers?
- Which body, if any, awards certifications to students upon completion of their programs?
- Does the private sector already have established methodologies to evaluate students who undergo on-the-job training?

10.2 Monitor and Evaluate

- Which institution, if any, is responsible for monitoring and evaluating training programs generally in the country?
- Which institution, if any, is responsible for monitoring and evaluating apprenticeship programs in the country?
- Which monitoring and evaluation methodologies have been used in the past?
- Which specific indicators have been used in the past?
- Which indicators should be used specifically to measure the success of apprenticeship programs?
- Have impact evaluations of training programs been conducted in the country?
- Is there an appetite in the country to conduct randomized controlled trials for impact evaluations?

Box 12. The case of the Bahamas: Closing the skills gap through apprenticeships

Currently, the Bahamas is undertaking important efforts to establish a national apprenticeship program that integrates many of the guiding principles outlined in this study. Most employers in the Bahamas reported difficulties in finding workers with the right set of skills (Fazio and Pinder, 2014). Employers pointed to the lack of specific skills as the most important recruitment obstacle (34% of firms), followed by applicants' lack of experience (29%) and of soft skills (28%). Along similar lines, 24% of respondents stated that skill gaps are the main barrier to productivity and insufficient soft skills have been stated as the main cause of dismissals and turnover in firms. The government of the Bahamas (GoBH), therefore, has prioritized providing demand-driven pre-apprenticeship and apprenticeship training opportunities for Bahamians to increase their employability in the short term while fostering systemic-level changes that are necessary to build a more robust skills-development system in the medium to longer term. Several particularities with respect to the delivery and ongoing redesign of apprenticeship programs in the Bahamas stand out:

The need for amendments to existing legislation to reflect 21st-century labor standards

The Bahamas uses an Apprenticeship Act that dates back to 1968 and that came into effect in 1983. The contents of this act refer to the rights and responsibilities of the apprenticeship partners within a context of bound servitude, which is inconsistent with today's labor standards. The legislation, therefore, needs to be modernized and reflect technical aspects of apprenticeship programs consistent with lessons learned from the application of apprenticeships worldwide.

Revitalization of a pre-existing governance structure to regulate apprenticeships in the country

One of the main elements stipulated within the Apprenticeship Act is the existence of a National Apprenticeships Board to make recommendations on any matters related to the Act and to regulate apprenticeships nationally. The Board was operative previously but ceased to exist. Under the new efforts of the GoBH, the Board currently is being revitalized and will serve as a foundation to enact necessary changes for apprenticeships to be implemented effectively, including proposing changes to legislation.

Establishment of employer-led spaces in the form of sector-skills councils to capture employers' skills needs, set occupational standards, and develop curricula

Employer engagement in both the design and delivery of apprenticeships needs to be strengthened to ensure the central role of the representative of economic sectors in setting the industry standards and shaping the curriculum design, with higher pertinence for both the on-the-job and off-the-job training.

Reinforcement of soft skills through pre-apprenticeships as a feeder program for apprenticeships

As stated above, one of the main complaints from employers in the Bahamas is related to young people's lack of soft skills, which represents a constraint for young people to be recruited by firms. As part of its apprenticeship program, the GoBH has decided to offer job-readiness preparation to young people through its National Training Agency. The 10-week program includes soft-skills and technical-skills training along with an internship module.

Development of a labor-market intelligence information system to guide apprenticeship placements

Labor-market information, including current and projected skills demands, worker permit data, unemployment levels, expected sector growth and employment generation, and supply of training, is critical for the strategic positioning of apprenticeships in the country. The Department of Statistics of the Bahamas is strengthening its capacity to collect, analyze, and disseminate data in a user-friendly way and format.

Collaboration with the Department of Labour for the full integration of apprenticeships into the services offered by the PESs

Some of the apprentices that the GoBH is expecting to attract into its program are those who are currently unemployed and looking for an opportunity to increase their employability and thus employment potential. The PESs, therefore, have a critical role to play in informing their clients about opportunities to participate in apprenticeships and about additional support that can be accessed to facilitate participation in the program.

Conclusions and a note on transferability to LAC

This study posed some questions that policy makers in LAC ask frequently: *What are apprenticeships? Why are they appealing to LAC countries? What are the main challenges for developing apprenticeship programs in LAC? What are the key characteristics of apprenticeship programs? What are the core elements and guiding principles of apprenticeship programs? Are they transferable to LAC?* We hope that this study can help answer some of these questions and serve as a foundation to inform government, employers, civil society, and other relevant actors as to which pieces of the puzzle are essential to the design and implementation of well-functioning apprenticeship programs in LAC. More importantly, we hope that this study helps people better understand which core elements and guiding principles must be considered when developing robust apprenticeship programs that can have positive impacts on their labor markets.

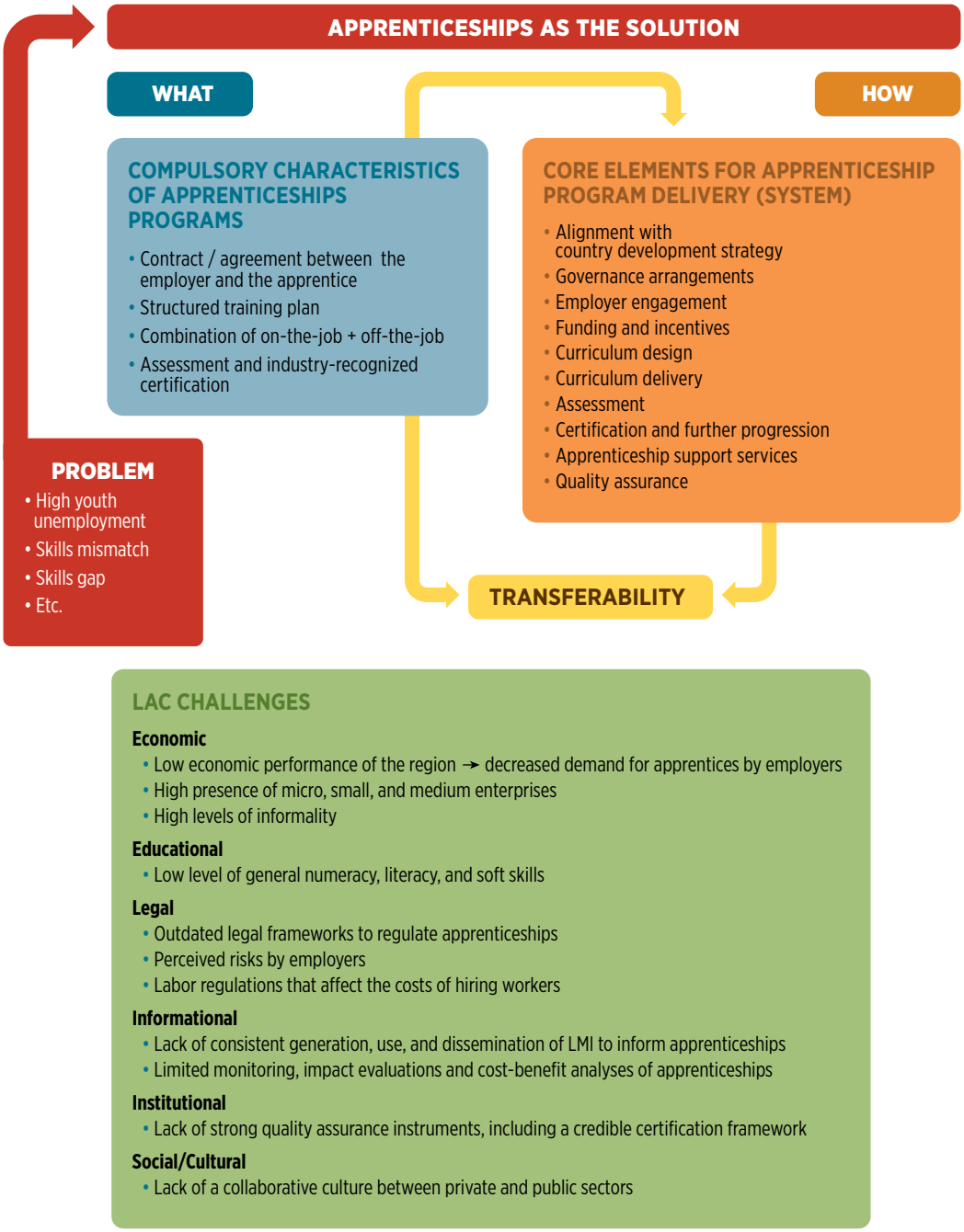
The conclusion from the discussion about core elements and guiding principles of apprenticeship programs is that countries in LAC are still far away from the advanced experiences of apprenticeships, especially because they lack the architectural elements of an apprenticeship system that make apprenticeship delivery more sustainable and effective. There have been some steps toward designing and implementing these programs, but much more has to be done in the future in order to establish efficient and sustainable programs. There is a clear indication that the region's countries have a valuable opportunity to improve their apprenticeship-type programs, whether in terms of characteristics that are specific to apprenticeship programs (e.g., the employer–apprentice relationship, structured training plans, ratio of on-the-job to off-the-job training programs) or on characteristics that are important for the effective delivery of apprenticeship programs that are part of a wider skills-development system architecture (e.g., national qualifications framework, public–private collaboration, curriculum development, certification system).

Are apprenticeship programs transferable to LAC? The applicability of apprenticeships as a potential solution to problems of high youth unemployment, skills mismatch, and skills gaps, among others, in LAC is contingent on three main criteria (see Figure 16): (i) **THE WHAT**: adherence of these programs to the compulsory elements of the definition of apprenticeships proposed in this study; (ii) **THE HOW**: adherence to the core elements, principles, and best practices as to how to operationalize the compulsory elements of apprenticeship programs, which emphasize systemic-level conditions and the broader skills development ecosystem that are necessary to ensure the successful delivery of these programs; and finally (iii) **THE HOW IN LAC**: a contextualization of how to adhere to the core elements and guiding principles within the Latin American and Caribbean context in view of the particular challenges faced by the region. The successful transferability of apprenticeships to LAC, therefore, necessarily must be the result of the fulfillment of these three criteria.

We hope that this study has provided the reader with a set of principles and best practices that serve as examples to fulfill the criteria, conscious of the fact that no single principle will fit perfectly in every case and for every country, but rather promoting the idea that policy makers have a wide array of options from which to draw depending on their local circumstances. In conducting this exercise, the tool kit included within this study is intended to serve as a practical, hands-on, step-by-step guide to help policy makers ask the hard questions that will aid them in assessing which principles are transferable to their countries' reality.

The relevance and timeliness of apprenticeships as a solution for many young people in LAC are highlighted throughout the study, as well as challenges of the design and implementation of such a solution. A country should be equipped with strong institutions and firm political will in order to propose this long-term investment. It is equally important that the private sector is totally on board in terms of interest, commitment, and financial support. With the support of the tool kit outlined in the last chapter, countries in the region could move forward in a practical manner to establish effective apprenticeship systems that could help young people land a productive first job and continue moving up the career ladder based on that.

Figure 16. Transferability map from the world experience to LAC



Source: Own elaboration.

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Annex – Country Case Studies and Summary Table of Key Characteristics by Country

Country Case Studies

1. AUSTRALIA

CORE ELEMENTS	COMPONENTS
1. **Overview**	Australian Apprenticeships are available to anyone of working age and do not require a pre-entry qualification. They are also available to young people in the final two years of compulsory education. 70% of apprentices are 20 or over; 40% are over 25; 10% are over 45. On completion, apprentices attain a nationally recognised qualification. Participation rates are high.
2. **Alignment with country development strategy**	The government is currently overhauling the skills system to 'ensure the workforce is highly skilled and job-ready'. It has launched an employer led Apprenticeship Network which aims to improve completion rates that have historically been low; provide incentives for employers to train in skill shortage areas; strengthen curriculum development; and improve the quality assurance of provision.
3. **Governance arrangements**	The delivery of the training for apprenticeships is a critical part of the vocational education system. Responsibility is shared between federal and state level and delivered through public Technical and Further Education institutes (TAFEs) and Registered Training Organisations (RTOs). The latter include private and not for profit businesses as well as some companies which train their own workforces.
4. **Employer engagement**	Group Training Organisations (GTOs) were pioneered in Australia where they have been particularly successful. GTOs undertake the employer responsibilities for the quality of employment and training including payment of wages. They employ apprentices and place them with employers. The role of the ten Industry Skills Councils (ISCs) is changing as they will no longer automatically get public funds.
5. **Funding and incentives**	Apprenticeship funding is provided jointly by the federal government (40%) and the state (60%). States have some flexibility in allocating resources. State governments then provide funding for the training associated with the qualification to the provider. Incentives are available to assist employers who take on an apprentice, particularly where this is in a trade experiencing a skills shortage.

6. Curriculum design	Apprentices must attain a qualification containing specified core and elective competencies based on 'training packages' (collections of competency standards). The reforms will move away from ISCs developing training packages for specified sectors and towards a competitively tendered approach with Skills services organizations (SSO). They also seek to strengthen cross-industry skills standards.
7. Curriculum delivery	Traditionally, apprentices attended a TAFE Institute one day a week on 'day release'. Nowadays, however, apprenticeships may be delivered more flexibly. Methods of delivery may include 'block release', distance or on line training, or 'fully on the job'. In all cases, an approved training provider (TAFE or RTO) has to oversee the delivery of training and assessment of competence.
8. Quality assurance	The quality assurance of training is the responsibility of the federal body, the Australian Skills Quality Authority (ASQA), which licenses and regulates the RTOs. The government has recently introduced a new set of tighter quality standards for RTOs. The National Council for Vocational Education Research (NCVER) carries out a biannual survey into employer satisfaction with apprenticeships.
9. Assessment criteria	The providers' teachers and assessors are responsible for assessment and there is no 'final examination'. There is an absence of external assessment or validation and the focus is on demonstrating skills acquired rather than time serving. Existing skills and prior experience may also be recognised potentially reducing formal training time through recognition of prior learning (RPL).
10. Certification and further progression	Apprenticeships generally result in an occupational entry level qualification at levels 3 and 4 on the Australian Qualifications Framework (AQF). The provider must confirm the apprentice has completed all the required training and successfully completed all the required units of competency for the qualification. A certificate listing the units is then issued in line with the requirements of the state.
11. Apprenticeship information services	A new Apprenticeship Network has been set up to target support services to the specific needs of employers and apprentices from pre-commencement to completion. 'Pre-commencement services' will help get assisted clients into the right apprenticeship with the right employment. 'In-training assistance' will help apprentices and employers at risk of non-completion to work through obstacles.
12. Challenges	The Australian system has been commended for its flexibility, all age system and high participation rates. However, the government is now introducing wide ranging reforms to deal with weaknesses including the quality assurance of training and assessment and low completion rates as well as providing incentives for employers to train in skill shortage areas such as hairdressers and chefs.

2. AUSTRIA

CORE ELEMENTS	COMPONENTS
1. Overview	Vocational education and training (VET) plays a very important role for young people in Austria. After completing their compulsory schooling period at the age of 15, around 80% of Austrian pupils follow a VET pathway, and half of these start a "Dual System" apprenticeship.
2. Alignment with country development strategy	Apprenticeships are described as a "training scheme from the economy for the economy." The overall policy aims are underpinned by the Vocational Training Act. Recent reforms focus on improved quality, progression to higher education, and reducing dropouts.
3. Governance arrangements	The Ministry of Economy and the Education Ministry oversee apprenticeships; a Federal Advisory Board draws up expert opinions related to new and modified apprenticeships, while the social partners bear responsibility for the company-based training. Apprenticeship offices operate from regional chambers.
4. Employer engagement	Most companies are required by law to belong to chambers responsible for VET, trade, and economic development. They must meet strict requirements to train apprentices and require approval from the apprenticeship office of the Federal Economic Chamber. Training companies are provided with subject-specific and teaching materials.
5. Funding and incentives	The costs of company-based training are borne by the training company while the federal and provincial governments finance school training. In the first two years, health insurance contributions are waived. A large number of subsidies exist, including support for equal access by young women and young men and work placements abroad.
6. Curriculum design	The development of new apprenticeship programs and the modernization of existing ones are continually adapted to meet changing economic and technological development. The work is initiated by the affected sectors or the Ministry of Economy. The social partners and all relevant ministries are involved in the curriculum design.
7. Curriculum delivery	The ratio of on- to off-the-job training is 80:20. On-the-job training is carried out in working conditions as part of productive activities. Theoretical training (day or block release) takes place in vocational school and workshops or laboratories. General education subjects such as foreign languages make up around 35% of this component.
8. Quality assurance	Every company must go through an accreditation procedure. Trainers must possess a relevant qualification in both subject-related competences and know-how concerning pedagogy and law. The Quality Management in Apprenticeship initiative comprises a set of annually evaluated indicators and follow-up remedial interventions.
9. Assessment criteria	The "apprenticeship-leave" exam aims to establish whether the candidate has acquired the skills and competences required to carry out the activities particular to the occupation. It is organized by the apprenticeship offices and is taken before an exam committee. This ensures that the training and its validation are separate.

10. Certification and further progression	In addition to training, the apprenticeship certificate requires exam preparation and coaching for apprentices and training companies. In the Austrian eight-level NQF, the certificate is at level 4. Agreements on mutual recognition of a number of apprenticeship occupations exist with Germany, Hungary and South Tyrol in Italy.
11. Apprenticeship information services	Toward the end of compulsory schooling, career guidance classes are provided. These include work shadowing days that provide pupils with practical experiences of the world of work. Public Employment Service Austria also provides career guidance, and social partner organizations run various services such as online career databases.
12. Challenges	Apprenticeships are strongly rooted in manufacturing but less so in service occupations, and creating and establishing such opportunities are proving difficult. They also run the risk of becoming increasingly attractive for low performing youths, which may carry implications on the number of companies coming forward to offer apprenticeships.

3. BRAZIL

CORE ELEMENTS	COMPONENTS
1. Overview	The Apprenticeship Law (Lei do Aprendiz in Portuguese) is part of a vocational pathway that combines on-the-job with in-classroom training. Apprentices receive a certificate of professional qualification at the end of the two-year contract from the training agencies. The main objective is to facilitate the placement of young students in their first formal job with a sufficiently specialized skillset to increase their employability at the beginning of their careers.
2. Alignment with country development strategy	Major efforts were made to increase the take up such as mofication of the law (2005), which increased the maximum age to take the program with significant results. The number of apprentices increased by 60% from 250,000 workers in 2010 to 402,683 apprentices in 2015.
3. Governance arrangements	The government creates a national apprentice registry that enlists the names of the firms that comply with the law and monitors every month whether the quota of apprentices is fulfilled. An apprentice enjoys similar labor rights as a normal worker with some slight differences in terms of hours worked, holidays, and training received outside and within the office.
4. Employer engagement	The employer associations of industry, commerce, agriculture, and transport, as well as local cooperatives, are responsible for the creation and funding of the S-system agencies (a group of 10 training centers of the main economic activities). Firms choose the in-classroom training they wish the apprentices to pursue and can request the approval of a specific course they wish their apprentices to pursue.
5. Funding and incentives	Firms pay a 1% tax on their payroll to finance the S-system agencies. Since these agencies provide most of the off-the-job training courses, firms do not need to pay for their apprentices' off-the-job training but pay for training offered by NGOs. The employer is responsible for paying the apprentices' wages and benefits as well as their off- and on-the-job training.

6. Curriculum design	Every four months, the MTPS builds and updates a catalogue of the courses available in collaboration with the training agencies and firms through national and local fora.
7. Curriculum delivery	The Apprenticeship Law applies the basic activities listed for some of the occupations included in the Brazilian Classification of Occupations. The on-the-job training is the responsibility of the firm, which should assign a mentor to undertake the training, thus making sure it is aligned with in-class training. The off-the-job training could be vocational (oriented toward training an apprenticeship in a specific occupation listed in the CBO – Brazilian Classification of Occupations) or technical (oriented toward training an apprenticeship in several occupations with similar technical-based and complementary characteristics).
8. Quality assurance	The firms and the government must agree on the list of basic activities that the apprentice is expected to perform based on the CBO. The MTPS, through the Secretary of Public Policies of Employment (SPPE in Portuguese) and the Regional Superintendence of Work and Employment (SRTE in Portuguese), sends auditors to conduct random spot-checks to both the training entities and firms. These auditors ensure that their training complies with the basic list of activities agreed on when the entity was certified or when the apprenticeship agreement was signed. If any part violates the agreement, the MTPS can suspend the training agency or the tax break until the issue is resolved.
9. Assessment criteria	The MTPS issues the norms required to assess the training institutions' competencies. The monitoring of the program is done by crossing two databases: the Annual Relation of Social Information (RAIS in Portuguese) and the apprentice registry. The monitoring data include: i) the number of trainees enrolled and ii) frequency of attendance, dropout, and graduation rates. The information is published periodically in the Boletim de Aprendizagem.
10. Certification and further progression	The apprentice who successfully completes the learning course will be compulsorily granted a certificate of professional qualification.
11. Challenges	Some municipalities lack sufficient training entities to support apprentices, especially in poor, rural areas.

4. CANADA

CORE ELEMENTS	COMPONENTS
1. Overview	The Canadian constitution largely assigns responsibility for education to the thirteen territories and provinces. However, the 'Red Seal' maintains national standards for some trades. Apprentices may start at the age of 16 but the average is over 25 with only a small number starting after school. The duration can be from 2 to 5 years plus but the average time to complete is around five years.
2. Alignment with country development strategy	A new approach to address skills shortages was initiated in 2011 utilising Sector Councils. This supported partnership based, industry-driven labour market information (LMI), National Occupational Standards (NOS) and certification programmes to address current and emerging needs. The Canadian Apprenticeship Forum (CAF) carries out research on apprenticeships with employers.

3. Governance arrangements	The federal government promotes apprenticeship nationally and maintains standards to ensure labour mobility. However, the responsibility for apprenticeships and certification lies with the provinces. Apprenticeships are the responsibility of a single government authority or agency in each province except Quebec. Sector Councils help to link programmes to labour market requirements.
4. Employer engagement	Generally, each province and territory is supported by a network of advisory committees made up of employer and employee representatives from each skilled trade. A range of support measures for employers is available (eg the Apprenticeship Job Creation Tax Credit in Ontario). Sector Councils (which are industry led partnership organisations) address skills development issues in key sectors.
5. Funding and incentives	All apprentices are employed on a contract between the apprenticeship authority, the apprentice and the employer. Most trades apprentices are paid a proportion of the journeyperson's rate with the amount generally increasing every year or level as the apprentice progresses. Apprentices and their employers are eligible for a very wide range of substantial public subsidies including tax credits.
6. Curriculum design	Apprenticeships combine on the job experience with technical training in a college. Around 20% of the training is technical and 80% of the training is on the job. The Interprovincial Standards Red Seal Program agrees country wide occupational standards and is administered by the Canadian Council of Directors of Apprenticeship (CCDA). This comprises both federal and provincial government officials.
7. Curriculum delivery	The off-the-job classroom training usually involves block releases of between 4 to 10 weeks although some colleges now offer six weeks of online learning followed by two weeks at college. An apprentice may be required to complete a pre-apprenticeship before beginning the on the job training. In the workplace, an apprentice is placed under the supervision of a qualified and licensed journeyperson.
8. Quality assurance	Provincial apprenticeship authorities administer trades training and set out the standards and conditions of training for specific trades (e.g. curriculum, accreditation, certification, and methods for registering apprentices). Approaches to regulation vary across the provinces. Provincial regulations requiring employers to have a fixed number of qualified staff have attracted criticism from SMEs.
9. Assessment criteria	After fulfilling the on-the-job and in-class requirements, apprentices take the examination for their trade to then become a certified tradesperson or 'journeyperson'. Red Seal exams are based on a federally agreed 'National Occupational Analysis'. Prior learning assessment and recognition is available to enable experienced staff to receive exemptions from the portions of the programme.
10. Certification and further progression	Successfully completion of the examination results in the issuing of the Certificate of Qualification. If the Red Seal examination has been adopted, an endorsement is placed on the certificate which is automatically recognised across Canada as signifying a common set of trade competencies thereby promotes mobility . Apprenticeships provide few routes to higher professional trade qualifications.
11. Apprenticeship information services	Sector Councils provide information on career opportunities for their sector including on apprenticeship programmes. They help to address skills shortages by ensuring more informed decisions are made by job seekers, employers and students through the creation and dissemination of labour market intelligence.
12. Challenges	The Canadian economy has become more knowledge based with an increased demand for university educated workers in turn leading to problems recruiting skilled workers. However, the number of occupations in which apprenticeships are available is less than one percent of the total classified occupations. Participation is strongly 'gendered' and there is also a relatively poor completion rate.

5. CHILE

CORE ELEMENTS	COMPONENTS
1. Overview	The program in Chile is aimed at young people between 18 and 25 who have completed their basic and secondary education or are pursuing any of these during the contract term learning. At present there is no formal connection between the apprenticeship program and the formal education system. Within the National Training and Employment Service (SENCE), the program is implemented by the Department of Training People.
2. Alignment with country development strategy	Goals are established nationally in order to meet the available quotas. In 2015 the program almost reached the goal of 1638 apprenticeship contracts, at 97% of the goal. New programs are being developed in order to attract students from secondary and technical school and to improve the system through pilots. In terms of economic sectors, the program aims at the main economic activities in the country, including: Agriculture, Mining, Manufacturing, Construction,auto-repair,transportation, among others.
3. Governance arrangements	The apprenticeship program is governed by Law No. 19.518 set by the New "Training and Employment Statute" and is administered by the SENCE, a technical decentralized state agency.
4. Employer engagement	Under the apprenticeship program, employers' associations have no defined role.
5. Funding and incentives	Over a period of six to 12 months, the program funds 50% of the minimum monthly wage for hiring an apprentice and gives a unique added bonus of CLP 400,000 for apprentices (USD 650) to finance the training process. The SENCE funds the program.
6. Curriculum design	Recent efforts were made to align learning provision with labor market needs, particularly in 2014, and an uprising of regional demand was conducted by the Research Unit SENCE's research unit. Worktables were also made with the productive sector in order to analyze occupational needs and existing skills gaps.
7. Curriculum delivery	The company must accompany the process of on-the-job training by a master guide whose experience in the position of work related to the learning plan should be greater than two years and whose experience in the company must be greater than six months. The off-the-job training (80 hours at least) is mainly provided by private technical training institutes (OPEC), OTEC or by a firm referendary (when specific tasks are involved). In many cases, the content of the theoretical training corresponds to the content transmitted to any other employee of the company on issues such as security or good practices in the office.
8. Quality assurance	There are no mechanisms to ensure the quality of training and regulate the same in terms of content and learning objectives. In particular, there is no coordination with the Professional Technical Education System (EMTP) and Chile Valora (Chilean certification organization).

9. Assessment criteria	The lack of follow-up information on the beneficiaries' job performance and the acquisition of human capital by them after participating in the program make it difficult to create feedback mechanisms based on accurate information on the final results of the medium and long term impacts of the program. For this reason, monitoring, evaluation, and feedback cannot be considered an institutionalized and systematic activity under the program.
10. Certification and further progression	There is no formal connection between the apprenticeship program and other offers training and/or education.
11. Challenges	There is no standardization of the curricula plans in terms of content, monitoring, and evaluation, even when these are the main tools to ensure the quality of training.

6. COLOMBIA

CORE ELEMENTS	COMPONENTS
1. Overview	Apprenticeships are a contract modality included in the labor regulatory framework. They aim to provide apprentices and students with on-the-job training and, therefore, facilitate their transition into the labor market. Since the enactment of Law 789 in 2002, the hiring of a specific quota of apprentices is compulsory for large firms. The goal of the apprenticeship scheme is the promotion of on-the-job training in vocational and professional skills for students/ apprentices who are about to enter the labor force.
2. Alignment with country development strategy	In 2014, 260,000 apprenticeship contracts were enacted. This figure is 500% greater than the number of contracts celebrated in 2002 and exceeds by far the number of beneficiaries of other on-the-job training interventions aimed at labor market insertion. Firms that are not required to provide apprentices by law (because they are small or belong to an exempt sector) can hire apprentices voluntarily. In 2014 there were 25,000 firms hiring apprentices via the compulsory scheme and almost 8,000 hiring apprentices voluntarily.
3. Governance arrangements	Hiring apprentices has been mandatory in Colombia since 1960. The SENA (national training institute) is in charge of the implementation of the law. Through SENA the government controls and oversees the implementation of the law and firms' compliance with the required apprentice-quota. The SENA helps with the administration of apprentice vacancies.
4. Employer engagement	The apprenticeship contract between the company and the apprentice defines their respective rights and obligations. Apprentices have the same right as any other formal worker. Their obligations are defined in the contract, as is the case of any other employment arrangement in the country.

5. Funding and incentives.	If firms don't want to hire apprentices, they can pay a monetary fee (the amount of the fee is computed by multiplying 5% of the total full-time employees of the firm by the value of one minimum wage). There is an incentive to hire apprentices with a disability, as this lowers the mandatory quota of the apprentices the firms must hire. Firms pay 100% of the living stipend for apprentices. The SENA has a program to provide apprentices from the lowest socioeconomic levels (estatos 1-2) their living stipends if they were unable to sign an apprentice contract with any firm. These programs are funded through the general budget of the entity. The SENA is financed by contributions levied on the revenues and payrolls of companies.
6. Curriculum design	SENA suggests that apprentices must receive a training that is related with their formation and provides some mechanisms that apprentices could use when they are not performing activities related with their formation.
7. Curriculum delivery	On-the-job training cannot exceed two years. In-class training depends on the program. All apprenticeships have both modalities of training.
8. Quality assurance	The SENA is in charge of quality assurance and regulation. However, monitoring and evaluation are very weak. Performance indicators do not go beyond a calculation of the number of apprentices enrolled in the system. Recently, the SENA is making an effort to track the labor market outcomes of apprentices by analyzing data on wages and employment from the social security registries. This analysis, however, is limited to the apprentices who obtain a tertiary (technical or technological) education degree from SENA.
9. Certification and further progression	The qualification depends on the specific program in which the apprentice is enrolled. Moreover, apprentices can obtain a certificate of their competencies through the SENA, which offers a free service of evaluation and certification of competencies. It is voluntary, can be accessed by anyone, and is not specifically targeted to graduates from SENA programs.
10. Challenges	Apprenticeship programs are not informed by LMI. Contracts can be celebrated in any sector (except construction and public sector), regardless of labor market demands.

7. COSTA RICA

CORE ELEMENTS	COMPONENTS
1. Overview	There are two main vocational routes in Costa Rica. First, technical vocational education is offered by the Ministry of Public Education (MEP), as part of secondary education. Second, training is provided by the National Learning Institute (INA). According to the law projects that are currently being considered in Congress (Law Projects 19.019 and 19.378), apprenticeships would exclude students from the MEP's technical professional high schools. Law. No. 4903 called "Apprenticeships in the Law" of the 17th of November, 1971 lay down the initial framework for apprenticeships in the country. Currently, there are two law projects presented to Congress that intend to modernize apprenticeships: i) Law No. 19.019 (Regulation of Technical Education and Vocational Training in the Dual Modality in Costa Rica Law), presented in February 2014, and ii) Law No. 19.378 (Dual Education Law) presented in October 2014. There is much opposition from the National Teacher's Association (ANDE) and from the Secondary Education Teacher's Association (APSE), which argue that the application of the law will lead to a substantial reduction in the number of teachers and are opposed to the involvement of firms in the development of curricula.
2. Alignment with country development strategy	The youth (15-24 year olds) suffer from higher unemployment rates than the rest of the population. In 2015, the youth unemployment rate was 25.1% - compared to the OECD average of 15% - whereas the overall unemployment rate was 9.6% - compared to the OECD average of 7.3%. Moreover, 46% of employers express difficulties in finding candidates with the necessary skills to cover available vacancies (Manpower, 2015), while 76% of employers express that they would be interested in implementing dual apprenticeship programs with INA (III Encuesta, 2012) although only 62% consider that the current academic supply respons to the real needs of its productive sector (I Encuesta, 2014). Apprenticeships can be a potential solution to these challenges.
3. Governance arrangements	In both law projects, a National Committee for the Promotion of Education and Dual Formation "Comisión Nacional del Fomento de la Educación y Formación Dual" or CONAFODUAL is stipulated to function as the regulatory entity of the apprenticeship system in the country. In law project 19.019, the CONAFODUAL would be under the rectory of the Ministry of Public Education, the Ministry of Labor and Social Security and the National Training Institute (INA). In law project 19.378, the CONAFODUAL will function under the rectory of the INA only.
4. Employer engagement	The original Law 4903 stipulates an "apprenticeship contract" by which a firm employs an apprentice, through the INA, in the productive stage of his or her training, via a payment of a salary and committing itself to provide the apprentice with the facilities in the company. Currently, under both law projects, an agreement of dual education or training is understood as one of civil and not of labor nature through which a training firm and an education institution decide to join efforts to apply a dual study plan or professional-technical program with the objective of training persons in a qualified occupation. Under both law projects 19.010 and 19.378, the CONAFODUAL is to elaborate and update periodically, through a consultation with the productive sector, a list of occupations that require professional-technical training. The contract should be signed by the apprentice, the firm, INA, and the Ministry of Labor and Social Security. In 19.019, the employer must abide by the respective "civil responsibility" policies to cover "students" at the workplace. In 19.378, it must abide by the same policies to cover "apprentices" at the workplace.

5. Funding and incentives	Law 4903: Companies that establish regulated training centers supervised by the INA will be exonerated from paying – up to 10% – the contribution established in article 16 of Law No. 3506 of May 21, 1965. Law 19.019: INA can assign a scholarship to the student during their time in the companies and INA assumes the costs of the policy of work risks. Firms will grant students a scholarship as part of their corporate responsibility efforts.[1] Law 19.378: Following the German model, 30% of the salary for the first year equivalent to the job in which the training is taking place; 40% for the second year; and in case the training extends to a third year or more; the benefit would be equivalent to 50%. Subsidies and scholarships also included for apprentices by the government.Overall, dual education is intended to receive up to 0.1% of the 8% of PIB dedicated by the state to the education sector.
6. Curriculum design	Formal mechanisms to design demand-led curricula to be defined.
7. Curriculum delivery	Law 4903: One-third of the time would be spent in an educational center receiving theoretical training, and two-thirds would be spent receiving practical training within the firm. Law 19.019: ratio of on-the-job to off-the-job training not defined.The educational institution via an interdisciplinary team will prepare the student persons for the training process. Law 19.378: one-third theory, two thirds practice. The educational institution, *jointly* with the training firm, via an interdisciplinary team will prepare the student persons for the training process.
8. Quality assurance	Under Law 19.019, the CONAFODUAL is to receive the annual reports of the educational institutions and of the companies that offer dual formation about the programs and courses offered throughout the year, the number of graduates, and in what sectors. It is also to accredit/disaccredit, if necessary, participating firms and the plans, careers, and programs of the educational institutions involved. Law 19.019: "Monitor" must train the student. The educational institution will train the "monitors". The "teacher facilitator" accompanies the student person in the educational institution *and* in the firm. Law 19.378: "Mentor" must train at least 5 apprentices. The educational institution and/or the German Chamber of Commerce will train the mentors. The "teacher facilitator" accompanies the student person *only* in the educational institution.
9. Assessment criteria	Under Law 4903, when the apprentice finishes a complete cycle, he or she must undergo a regulated evaluation by the INA, encouraging employer and worker representatives. After approving such evaluations, the INA will issue an Aptitude Professional Certificate (CAP) for the respective occupation. Law 19.019: Evaluation at the end of the apprenticeship must be conducted by the educational institution *and* the firm. Law 19.378: Evaluation at the end of the apprenticeship must be conducted *only* by the educational institution.
10. Certification and further progression	There are two main categories of INA graduates: qualified worker and technicians and specialized technicians . Qualified workers require frequent instruction and supervision in their work, while technicians and specialized technicians require few or no supervision, are capable of carrying out complex and specialized functions, and direct productive processes. Apprentices would be certified in these categories and efforts are currently being made to develop a National Qualifications Framework that will homogenize INA and MEP categories of graduates and that will allow for progression pathways. The topic of certification of competencies does not appear, however, as a central piece in law projects 19.019 and 19.378.

11. Apprenticeship information services	To be determined.
12. Challenges	Socially, technical education has been perceived as less prestigious and inferior to academic education. This, however, has been changing over the years, and today the demand for specialized technicians grows at a higher rate than the demand for professionals with university degrees.

8. FRANCE

CORE ELEMENTS	COMPONENTS
1. Overview	There are two main schemes in France: the "apprenticeship contract" and the "professional contract." The latter is shorter (up to 12 months as opposed to 1 to 3 years) with less formal training. Junior apprenticeships are available from 14 years of age. The number of apprentices has recently doubled to a quarter of the target 16-25 age group.
2. Alignment with country development strategy	Apprenticeships are designed to minimize youth unemployment and reduce the number of dropouts from school without qualifications in the country. The apprenticeship contract enables young people to both follow a general education curriculum and acquire a qualification. The professional contract focuses more on the pathway to a professional qualification.
3. Governance arrangements	Many organizations are involved. At the national level, the government sets the legal framework, and the academic authorities, answerable to the Ministry of Education, fund the training centers (CFAs). The regions are responsible for policy, while the social partners, including chambers, promote apprenticeships to employers.
4. Employer engagement	The chambers contribute to placing young people in apprenticeships by setting up and preparing apprenticeship contracts through apprenticeship developers who contact businesses and encourage them to recruit. The chambers and other professional employer associations can also run CFAs.
5. Funding and incentives	Depending on their size, businesses pay an apprenticeship tax of up to 0.68% on salaries as well as a payroll levy to fund the training of employees. Companies that employ apprentices receive a tax credit, and there are also a range of national and regional incentives. Employers pay apprentices a percentage of the minimum wage.
6. Curriculum design	Apprenticeship programs comprise professional and general/technical/vocational units. The National Commission for Vocational Qualifications secures coherence and relevance to the labor market supported by various expert bodies that draw upon the knowledge of their members. Social partners play an important consultative role.
7. Curriculum delivery	Off-the-job training cannot exceed 25% of the professional contract. For apprenticeship contracts, this may be up to 50%, of which two-thirds are devoted to general educational subjects and one-third to practical education in the relevant occupational area. On-the-job training is the responsibility of an apprenticeship supervisor in the company.

8. Quality assurance	There are three levels of quality assurance and evaluation: system, provider, and certification. In delivery, the teaching document plays a key role in ensuring a match between the workplace and CFA based learning. The quality assurance of assessment of learning outcomes depends upon the regulation of the professional qualification.
9. Assessment criteria	The assessment process is determined by the relevant qualification. The approach varies depending on whether the CFA is a higher education and/or postsecondary institution. The asessment method includes continuous assessment during the course of study and training (which was introduced in the 1990s) and/or the traditional method of written and oral examination.
10. Certification and further progression	The National Commission for Vocational Qualifications maintains the RNCP (national directory of professional certifications), which includes qualifications attained through apprenticeships. As a result of this integrated approach, learning progression through apprenticeships enables a relatively high level of progression to higher qualifications.
11. Apprenticeship information services	All career guidance services must provide information and advice on apprenticeships. Various internet portals have been set up in almost every region, and the public economic agencies help find placements. Apprentices are given a student card that provides access to price reductions and benefits equivalent to those for full-time students.
12. Challenges	There remains a poor perception of apprenticeship among families, young people, and even schools. Despite policies designed to enhance its standing, it is still failing to establish an image equivalent to that enjoyed by general education. Moreover, the number of apprenticeship contracts in the public sector is low.

9. GERMANY

CORE ELEMENTS	COMPONENTS
1. Overview	Germany uses the term "Dual VET" (Vocational Education and Training) to describe its apprenticeship system. The approach of combining on- and off-the-job training in a system overseen by the "social partner" (Chambers of Commerce and Trade and Trade Unions) has been highly successful, resulting in low youth unemployment. But it faces challenges.
2. Alignment with country development strategy	The dual system covers 350 job roles, mainly in industry and commerce and craft occupations.
3. Governance arrangements	The system is governed by the 1969 Vocational Training Act. Extensive authority is delegated to the "social partners" – employer bodies (chambers) and trade unions – with support provided by a dedicated federal research and policy agency (BiBB). Off-the-job training and education are the responsibility of the regions (Länder).
4. Employer engagement	Companies are legally required to be contributory members of a chamber, thus enabling business to undertake a pivotal and collective role in the system. Employers play a central role in drawing up the training content and ensuring that apprentices are rigorously assessed. The system as a whole is comprehensively organized and highly responsive to changes in the labor market.

5. Funding and incentives	The government provides around 57% of the funding, mainly for off-the-job training, while employers provide the rest, investing around €15k pa per apprentice – nearly half being wages.
6. Curriculum design	The duration of an apprenticeship is between two and 3.5 years depending on the occupation and is subject to the agreement of the social partners. The apprentice spends around 70% with an employer and 30% at a specialist school or college (i.e., usually one or two days a week). In certain sectors, purpose-built training centers are sometimes provided by employers. While there is no age limit, the average starting age is 20, and there are very few older applicants (the lower than minimum wage level and compulsory attendance at vocational school tend to act as disincentives). Apprenticeships are advertised as vacancies and are not generally available to workers already employed in the firm. Social partners and the government, supported by BiBB, reach a consensus on a joint curriculum to be taught in school and through on-the-job learning. The school-based "framework curriculum" and the in-company "training standard" together set out the required levels of occupaitonal competence and how they must be taught. "Soft skills" are acquired in the workplace.
7. Curriculum delivery	The dual VET training contract is like an employment contract and is signed by the apprentice and the company providing training. The terms are fixed by federal law and include training content, holidays, wages, disciplinary procedures, and length of probation. The apprentice has the status of a member of the staff but with additional protection, rights, and responsibilities. The chamber provides training to the trainers within the companies in order to enable them to provide on-the-job training as required. Wherever the business cannot provide the required work context, a third place of learning may be provided by the Länder or an associated employer. Off-the-job training also incorporates elements of the school curriculum for general subjects in a classroom setting.
8. Quality assurance	Employers have a responsibility to act as a training organization and must meet strict requirements set by the chamber. The company mentor must have a quailification in pedagogy as well as his or her occupational specialism. The chamber also guarantees the quality and consistency of the assessment. The Länder is responsible for the quality of off-the-job training,
9. Assessment criteria	Assessment is summative, comprising an interim and end-term practical examination which tests required knowledge and skills through an integrated work project. The chambers develop the tasks and supervise the process. A local examination board is assembled and must include an employer expert, a trade unionist, and a teacher, but not usually the apprentice's employer.
10. Certification and further progression	On passing the exam, a certificate of apprenticeship is awarded at level 3 or 4 in the 8-level German Qualifications Framework. This is accepted as proof of competence in the labor market and often confers a license to practice in the occupation. The certificate of apprenticeship is regarded by employers as fully valid regardless of where it was acquired. A graduate apprentice may continue training to become a Meister at GQF level 6 by attending a full-time course for one year. Meisters may study any subject at universities without taking pre-examinations. To enter a university of applied science, an apprentice must undertake further training and gain additional professional experience. This route is common for engineers.
11. Apprenticeship information services	A large and growing number of schemes at the federal and Länder level are in place to help disadvantaged youth – including the disabled and the unemployed – to enter and complete apprenticeships. They include extensive preparatory training, practical experience, and internships. In East Germany, up to one-third of apprenticeships are financed completely by the government.

12. Challenges	Various collective arrangements are in place to compensate for the limited capacity of smaller enterprises to act as training providers. These include educational institutions offering training for groups of companies or a Training Consortium model, where several SMEs work together and take on trainees. Germany has an ageing population and faces growing skill shortages. Although nearly half of all young people go through dual VET, numbers are declining. There are many unplaced applicants as well as unfilled places with acute problems in East Germany. There is a trend toward going directly to university despite improved access from VET.

10. INDIA

CORE ELEMENTS	COMPONENTS
1. Overview	India has a well-established apprenticeship system with three types operating at different skill levels: trade, technician, and graduate. There are only about 300,000 apprentices compared with a labor force of nearly 500 million people, although 90% of India's economy is informal, so the proportion of India's formal workforce is higher at around 0.1%. The new Draft skills policy of 2015 aims to provide an umbrella framework to all skilling activities (including apprenticeships), to align them to common standards and link the skilling with the demand.
2. Alignment with country development strategy	Due to the lack of an LMI system, the curriculum is somewhat outdated and inflexible.. However, the draft skills policy proposes far-reaching changes with the curricula developed in consultation with industry representatives, experts, and academia.
3. Governance arrangements	A complex government infrastructure exists at national and state levels overseen by the Ministry for HRD (part of the Department of Education) and the Ministry of Labour and Employment. A public-private partnership, the National Skills Development Corporation (NSDC), promotes private sector participation, including supporting the development of Sector Skills Councils.
4. Employer engagement	There is also a lack of involvement by employers or industry bodies in curriculum development or review. However, the draft skills policy proposes far reaching changes with the curricula becoming needs 'in sync' with emerging demands. The curricula will be developed in consultation with industry reprsentatives, experts, and academia by the competent bodies, to meet the outcomes as provided for in QP and NOS. It would be done with the objectives of providing quality training and gainful employment in-line with the latest market trends and focus on providing clear career pathways which can provide access to lifelong learning and sustainalbe livelihoods.
5. Funding and incentives	The main funding is the stipend paid by those businesses required by law to train apprentices. For trade apprenticeships, the employer pays the full amount; for technician and graduate apprenticeships, the stipend is shared equally between the employer and the state. The government is proposing a huge funding increase across all partners including individuals. Apprentices enjoy better employment conditions and employment protection than other employees and are paid a stipend that, although low, increases over the period of the training program. Nonetheless, manual occupations – which comprise most apprenticeships – have a low cultural status that exacerbates the difficulties in promoting them.

6. Curriculum design	Apprenticeships in India mainly involve practical training in the workplace. Their duration is specified to be from a minimum of six months to a maximum of four years. The Apprentices Act (1961) has the objective of fully utilizing the facilities available in the industry for imparting practical training with a view of meeting the requirements of skilled manpower for the industry. Any person who is 14 years or above and fulfils the basic physical and educational standards as defined in the Apprentices Act is eligible for an apprenticeship. Entry requirements vary with the type of apprenticeship, and if the students have completed school successfully, this shortens the term of training considerably. Apprenticeships are not designed for the adult workforce. The Apprentice Act governs the employment, conditions, training, and wage structures of apprentices. The central government determines the ratio of apprentices to workers in that trade. Every apprentice and employer must enter into a contract registered by apprenticeship advisers. Informal apprenticeships outside the government system are also available. The act requires a prescribed curriculum as set down by the Central Apprenticeship Council, with the National Council on Vocational Training (NCVT) playing a key role in its formation. However, there is a lack of involvement of employers or industry bodies in curriculum development or review, and it is sometimes outdated and inflexible.
7. Curriculum delivery	Employers must make arrangements for practical training in the workplace and are expected to fully utilize their facilities. Only basic training for the apprentices is provided in training institutes set up by the government. If employers have more than 500 workers, a separate area must be set up, and government loans are available to help fund this. Apprenticeships in India mainly involve practical training in the workplace. Their duration is specified to be from a minimum of six months to a maximum of four years. The Apprentices Act (1961) has the objective of fully utilizing the facilities available in the industry for imparting practical training with a view of meeting the requirements of skilled manpower for the industry.
8. Quality assurance	There are high levels of regulatory requirements for employers and associated penalties for noncompliance. Monitoring is carried out by central apprenticeship advisers who have the right of inspection. Offences occur when an employer engages an ineligible apprentice, fails to abide by the contract, or fails to employ the designated number of apprentices.
9. Assessment criteria	At the end of the training period, the apprentice is required to undergo an "All India Trade Test" conducted by the National Council for Vocational Training as well as a practical test. The fact that there is a pass rate of only about 70% for apprentices who undertake the apprenticeship certificate tests can be seen as an indicator of inadequate training.
10. Certification and further progression	Apprentices who pass their trade tests obtain a National Apprenticeship Certificate, which is recognized as qualification for seeking employment. For those undertaking the higher-level graduate, technician, and technician (vocational) apprenticeships, a certificate of proficiency on satisfactory completion of training is awarded by the government of India. There is a lack of mobility of apprentices into higher-level qualifications. Moreover, until full integration of the apprenticeship certificates into a national qualification framework (which is in the process of development) takes place, such certificates are outside the formal educational system and are relatively unattractive to potential entrants looking for progression pathways.
11. Apprenticeship information services	Although officially abolished, the caste system still requires the government to provide extra assistance to "scheduled castes and tribes," including reserved places. Women are also under-represented, and initiatives, including mobile training units, flexible hours, and training based on the local needs of the area, are to be introduced to increase female participation.
12. Challenges	India has a relatively limited system. It was put in place in the mid-20th century and faces an array of challenges, including a large number of informal apprenticeships, underdevelopment in the growing service sector, and 50% youth unemployment. In response, a wide-ranging skills system is being developed at a rapid pace with apprenticeships as part of a broader policy agenda.

11. LITHUANIA

CORE ELEMENTS	COMPONENTS
1. Overview	No training programs in Lithuania could be described as apprenticeships under the standard definition of "a job with on- and off-the-job training leading to a recognized certification." However, there are "apprenticeship-type schemes" consisting of practical school-based Vocational Education and Training (VET), followed by company training.
2. Alignment with country development strategy	Lithuania is in the process of searching for an apprenticeship model that would suit its traditions and context. The current definition and the minimum legal conditions for deeming a program an apprenticeship are both imprecise. The Ministry of Education and Science (MES) is developing ways to make apprenticeships work effectively.
3. Governance arrangements	The social partners are members of VET advisory bodies, but work-based learning has received little attention. The VET Law (2008) provides an imprecise definition of apprenticeships based around a contract between the training provider and the learner with practical training at the workplace. However, this diminishes the role of employers.
4. Employer engagement	One emerging strength is the well-developed cooperation between VET institutions and business. One-third of all training providers are self-governing and have company shareholders currently involved in the design of school VET. This provides the potential for business partners to support the development of apprenticeship-type schemes.
5. Funding and incentives	Some apprenticeships are funded through European projects and a government youth guarantee initiative of training or work for all 15-29 year olds. There is no mechanism in place for financial support of firms, so they must bear the cost of the apprentice salary, training materials, and the support of a skilled coach or mentor.
6. Curriculum design	There is currently no labor market analysis to inform curricula. However, sectoral qualification standards and modular programs, compatible with apprenticeships, are now being developed by program experts, teachers, and businesses. School-based VET includes time in a company or workshop simulating working conditions.
7. Curriculum delivery	No standard requirements exist as apprenticeships are currently only project-based. However, formal vocational training programs are provided by 74 state providers (of which 26 have companies on their governing boards), two private providers, and 234 other institutions (including companies) licensed to deliver training programs.
8. Quality assurance	Detailed requirements for quality assurance in workplace learning are embryonic. For school-age students, a contract defines the responsibilities in the work-based learning of the learner, the education institution, and the company. For example, the company must appoint an experienced training manager and instruct the learner on safety at work.
9. Assessment criteria	Standardized assessment approaches are not yet in place. However, in school-based VET, learning outcomes are evaluated by the company training manager and registered in a practical training daybook. This is then validated by the training institution. Successful completion of work-based learning is required to take the final examination.

10. Certification and further progression	While no systemic certification is in place, a number of company-led apprenticeship-type schemes lead to formal qualifications. However, firms are not allowed to issue a formally recognized certificate, and they therefore need to find a VET provider to submit the candidate for final examination in an external assessment institution.
11. Apprenticeship information services	To improve the status of vocational education, information campaigns are organized by the Ministry of Education and Science, and success stories of VET graduates are published on the most popular internet portals. Schools organize visits to enterprises for general education students to become familiar with real workplaces.
12. Challenges	The VET system in Lithuania suffers from a lack of status. Participation is increasing, but general and higher education still attract far more learners. Apprenticeships only exist informally, and companies have a weak understanding of their potential benefits. Both providers and employers identify weak regulation and funding as constraints.

12. MALTA

CORE ELEMENTS	COMPONENTS
1. Overview	Apprenticeships in Malta form part of the vocational education and training offered in various sectors by the two main state vocational education providers: the Malta College of Arts, Science and Technology (MCAST) and the Institute of Tourism Studies (ITS). However, the number of apprenticeships is relatively small.
2. Alignment with country development strategy	There is a weak link between the labor market and apprenticeships, with occupations defined by law rather than by the employers' requirements. Most apprenticeships are in traditional sectors, including engineering and construction trades. While MCAST plans to increase the number of apprenticeships, this is not based on an analysis of the labor market.
3. Governance arrangements	The Ministry of Education and the Ministry of Employment function jointly as one institution (MEDE). Reporting to MEDE is the Employment and Training Corporation (ETC), which has overall management responsibility for apprenticeships. Employer bodies are not formally invested with any powers, although some associations sit on the board of governors for the colleges.
4. Employer engagement	The direct cost of salaries for apprentices is not generally an issue for companies, as it is not considered high. However, the government supports companies by contributing directly to the apprentice's wage, thus making the cost lower than for other employees. In addition, direct financial incentives have been introduced through tax rebates of €1200 per apprenticeship.
5. Funding and incentives	Companies that employ apprentices cover wages and indirect costs (materials and tutors), while off-the-job training is funded by the government through MEDE. Apprentices are entitled to half the annual statutory bonus payable by the employer. The government also contributes to the apprentice's wage, the level of which is relatively low compared to other staff.

6. Curriculum design	Apprenticeships must be between two and four years but tend to be either two or three years in length. They usually begin with providers, where underpinning knowledge is acquired for one year and is followed by work-based training with an employer for one or sometimes two years. Alternatively, they last two or three years with part-time college attendance. At the end of compulsory education (at 16 years of age), Maltese students can choose either a general path or a vocational education path. Apprenticeships are available to young people choosing the vocational path. They are not available to adults. Legally, the Employment and Service Training Act defines an apprentice as "a person over the age of fifteen years." Two main types of apprenticeships are available: at the craft level and at the more highly skilled technician level. Entry depends on the level of school attainment. There are no national standards for occupational competence, and learning outcomes are largely determined by the college albeit in consultation with employers. The ETC defines the on-the-job learning outcomes.
7. Curriculum delivery	The Employment and Service Training Act defines an apprentice as being "bound by a written agreement" to an employer – often described as a sponsor – in return for receiving training. However, this traditional definition – with connotations of "indenture" – means there is currently a lack of clarity about whether a conventional employment relationship exists. Apprentices are assigned a mentor responsible for their learning experiences and to provide entries in a logbook. There is no accreditation of employers or formal training for mentors. Apprentices are provided with a list of competences that the employers must provide them with. The off-the-job training mirrors the on-the-job training but is more theoretically based.
8. Quality assurance	The National Commission for Further and Higher Education (NCFHE) is the official regulating body for further education and qualifications and is responsible for the quality of off-the-job training. Monitoring of apprentices during work is the responsibility of the Employment and Training Corporation. Apprentices keep a logbook developed by the relevant TTB.
9. Assessment criteria	The colleges are in charge of the accreditation of the off-the-job training. In the case of on-the-job training and the Journeyman Certificate, there is no formal accreditation. However, Trade Testing Boards (TTBs) appointed by the Minister for Labor are trade experts who assess apprentices through their logbook, interview, and, at times, through practical activity.
10. Certification and further progression	There is no consistent or standardized approach to certification or qualification following an apprenticeship, whether of the accredited or non-accredited elements. However, at the end of an MCAST course, apprentices obtain a qualification for their studies from MCAST and the Journeyman Certificate from the Employment and Training Corporation. The MCAST award for the learning outcomes achieved in college provides the opportunity to progress to higher qualification levels, as it certifies the accredited part of the program. The Journeyman Certificate does not offer such opportunities as it certifies non-accredited elements but is nonetheless well received by the labor market as proof of experience.
11. Apprenticeship information services	Schools career services at schools tend not to present apprenticeships as an equal option to general education. A national campaign is therefore planned to improve understanding among guidance teachers. MCAST and ITS have also worked to increase the attractiveness of apprenticeships with young people through various media campaigns.

12. Challenges	Necessary systemic changes are being introduced to reform the system, increase quality, attract higher numbers of companies and learners, and to improve responsiveness to the needs of the labor market. To enable these changes to be effective, governance will also need to be revisited and applied through a clearer legal framework, guidelines, and procedures.

13. MEXICO

CORE ELEMENTS	COMPONENTS
1. Overview	The Mexico apprenticeship model is for candidates seeking to complete a public sector upper secondary technical degree (*equivalent to a Technical Baccalaureate*). The design is based on the German Dual System with some adaptations to the Mexican context (e.g., the apprentice is still a student and joins a firm in the third semester of his or her three-year training/upper secondary cycle). Each student has an individually designed learning plan that involves alternating between classroom instruction (20%) and work-based learning (80%). This apprenticeship program was formalized through the *Ministerial Agreement* published in June 11, 2015, which outlines the main features of the model and its regulatory framework, thus formalizing it as an educational option for students seeking an upper secondary technical education degree.
2. Alignment with country development strategy	The pilot of the model started operating in six technical tracks: industrial electromechanics, machinery and tools, mechatronics, information systems, administration, and hospitality. Recently, the ministry approved new career tracks, such as: food and beverage, autotronics, auto transport, accounting, industrial maintenance, plastics, and telecommunications. These career tracks are selected according to the expressed needs of COPARMEX member firms. Each chapter was allowed to choose three strategic technical careers and three strategic service-related careers. Once selected, chapters reached out to their members to invite them to participate in the program.
3. Governance arrangements	A key statutory advance is the formalization of the partnership between the parties through a cooperation agreement signed between the Ministry of Education and COPARMEX (Mexican Employers' Association) to promote and operate the apprenticeship model. COPARMEX articulates and coordinates all activities involving employers.
4. Employer engagement	Employers provide the space, infrastructure, and dedicated personnel necessary to facilitate the optimal development of the workplace learning phase; an instructor/trainer with the teaching and technical skills necessary to accompany the student through his or her in-firm learning process; define the learning plan and determine work stations where the student will best learn; monitor student progress and grade the student performance (key accomplishments); and supervise and guide the plant supervisors and/or technicians with whom the student will interact, while also ensuring the student's safety, including securing access to all safety equipment and gadgets as needed.

5. Funding and incentives	Participating firms pay a monthly quota to their respective COPARMEX chapter to cover the coordination, supervision, and management expenses that these organizations incur. Firms also cover the related in-house training costs of instructors/trainers. The government provides students a monthly stipend, which is similar to an entry salary. It also covers the cost of the state education coordinators, tutors, and other staff dedicated to the program at the school level. Students who participate in the program do not become employees of the company. They remain students enrolled in the upper secondary technical education system that benefits from a work-based learning opportunity. It is the school that pays the stipend to the students with the program's resources. The federal government provides the monthly stipend for the length of the apprenticeship (1 or 2 years). Enterprises are not required to pay participating students a salary, as there is no contractual relationship between the firm and the apprentice. Nevertheless, in the state of Coahuila, participating firms decided to provide each student with 2,000 pesos per month (USD 120), paid by the firm to help students with the costs related to transportation and other expenses they might incur in the effort to meet their in-firm learning and work responsibilities.
6. Curriculum design	The curriculum design complies with the requirements of the Common Curriculum Framework (a skills framework established in 2008, competency-based, that sets the minimum profile that an upper secondary education graduate should have upon completion of studies) or, whenever it is the case, with the skill standards recorded in the National Skills Standards Registry, the mandatory curriculum of the upper secondary education system, and the professional/technical required for a particular technical career. Students follow a mixed modality, where they must complete at least a one-year school-based stage, and in subsequent semesters, they must comply with the personalized learning plan required for the apprenticeship scheme. The personalized learning plan establishes all the learning activities that the student is expected to engage in. Each activity responds to a workplace-specific context and details the academic requirements, job skills expected learning results, and the learning settings and timing in which each of these will be developed. The plan also considers the timing of each of the evaluations that the student will be subject to.
7. Curriculum delivery	At the local level, the apprenticeship program is executed by a technical-pedagogical team that operates in every participating school. The team is led by a manager of outreach relations who is responsible for interacting with participating enterprises and liaising with both school tutors (in charge of supervising student progress on an ongoing basis) and the enterprise instructor/trainer (trained to supervise the pre-apprentices learning in the workplace). The work-based learning process considers a rotation to various work stations in different units of the enterprise, all of which are related to the required curriculum content for the selected career track. In-plant learning is articulated at all times with the required learning plan established by the educational institution. The learning plan can be met through independent and distance learning schemes if needed.
8. Quality assurance	An essential aspect of the program is that it operates through the COPARMEX national chamber and local chapters. These entities identify and validate the firms that will participate in the model, and they track student progress while students are in the workplace. For this, they work in sync with education coordinators or tutors designated by schools who monitor the adequate execution of the students' learning plan in the workplace.

9. Assessment criteria	The evaluation process is ongoing and occurs during classroom and work-based learning. Work-based learning is monitored through the continuous measurement of the attainment of learning objectives and established results identified in the rotation plan.
10. Certification and further progression	Upon completion of all required school credits, the student receives an upper secondary technical education diploma. The diploma might vary in name according to the subsystem that the student pertains to, but the diploma recognizes the same level of educational attainment. The student can also apply for a skills standard certificate pertaining to his or her course of study. Certificates are often sponsored by the National Skills Standards Board (CONOCER). An exam is applied to the student and, if approved, the student receives the corresponding skill standards certificate. Graduates of the program have the option of enrolling in postsecondary education, joining the labor market (in the firm where they trained or elsewhere), or combining both options. It should be noted that the possibility of continuing into postsecondary education exists for all upper secondary technical education subsystems. Most graduates from the program's pilot first generation are currently enrolled in postsecondary education (mainly in technological state universities) and work in the firms where they developed their pre-apprenticeship.
11. Apprenticeship information services	Another important actor is the state education coordinator who is appointed by the state's education secretary and is responsible for coordinating the program-related issues with participating schools and providing information about the program to all educational institutions at the state level. Specific tasks include: i) conducting all outreach and induction activities at the state level; ii) communicating through the chapters the overall benefits of the model to schools and firms; iii) providing support and coaching to participating schools on the implementation, orientation, and follow-up of the program; iv) monitoring program progress and results in their respective states; v) communicating employer demands or requirements at the state level; vi) addressing irregularities reported by the educational institutions; and vii) maintaining regular contact with school directors and outreach relations managers.
12. Challenges	The lack of a national qualifications framework prevents the apprentice from receiving a qualification that enables the portability of his or her skills from one firm or sector to another. Besides, although everything suggests that the program will facilitate the school-to-work transition, there has been no formal evaluation in terms of graduates' labor market performance. From a more systemic view, the program is exclusively available for youngsters enrolled in the formal technical education system, shutting out many other potential beneficiaries. Moreover, the number of participating firms is still very limited. So even if apprenticeships have become a formal educational option, the total number of apprentices remains low. More importantly, financial sustainability remains a crucial aspect, as most of the costs are currently absorbed by the government, which raises doubts about the possibility to expand the scope of the program.

14. PERU

CORE ELEMENTS	COMPONENTS
1. Overview	The apprentice program in Peru is a dual training system immersed among different regulatory procedures regulated by Law 28518 (2005). The training process is mainly carried out in the company, with defined spaces and programmed learning in the Vocational Training Center. The duration of the learning agreement is directly related to the extension of the whole training process and is held between a sponsoring company, the Center for Training, and the apprentice. The whole process is currently coordinated through the SENATI, an institution created to develop solutions for the necessity of skills in the industry.
2. Alignment with country development strategy	Regulatory aspects limit the application of a dual training system outside the SENATI. Faced with this situation, the Ministry of Education has introduced the bill of Institutes and Schools of Higher Education and PublicTeachers career, which is on the agenda of the House of Congress. If passed, this law will include dual training as a training method for all institutes and schools of higher education; set up a supervisory body of such institutions (Educatec) and implement a system of academic degrees that will facilitate the students' transition between the various academic institutions.
3. Governance arrangements	Agreements between companies and the government are being reached. For example, the ministry of Labor and Employment Promotion (PETM), through the Productive Youth program, SENATI, and the company BIMBO, has initiated the dual pilot training. For seven months, 40 young people are trained. The pilot is funded with resources of the Productive Youth program, which covers training costs, tickets, study materials, and uniforms (if necessary) during training.
4. Employer engagement	According to the apprentice's law, firms are associated with the SENATI through apprenticeship contracts. The apprentice makes use of productive facilities for the practice of the activities planned, supervised, and controlled by the SENATI.
5. Funding and incentives	Companies are obliged to provide a subsidy to the apprentice proportional to the duration of the training day. SENATI is an organization of private management, financed through firms with more than 20 workers engaged in manufacturing and related activities, plus resources generated by the provision of training and technical assistance, resources from voluntary affiliation of companies, and from the International and National Technical Cooperation. The contributing companies have the right to form free future operational workers and train workers in service.
6. Curriculum design	All practical learning in the company responds to a Specific Learning Plan (PEA) developed every semester according to productive tasks that the apprentice will perform.
7. Curriculum delivery	The specific vocational training generally takes four to five days of practical learning in companies (following the PEA) and one day of theorical and practical learning at the vocational center.
8. Quality assurance	During training, the trainee is accompanied by a SENATI instructor responsible for day-of-training activities in the CFP and tracking of practical activities as well as a firm monitor during practical learning in the business that is also an experienced worker or head of the workspace.

9. Certification and further progression	Upon completion of the training process, SENATI gives the learner a certification with the respective name of each technical career. In some cases, the company may also grant an additional certificate acknowledging the apprentice training in the firm that is validated as work experience.
10. Challenges	There are skills and education gaps that come from basic schooling and that forbid SENATI from placing students in the workplace. Technical formation is underestimated in comparison with college and other academic education. High rate of informal firms makes the application of the program more challenging. The lack of knowledge about the benefits of the training system by entrepreneurs limits their participation from the refusal to assume costs

15. TURKEY

CORE ELEMENTS	COMPONENTS
1. Overview	Turkey's apprenticeship system retains the traditional career ladder from apprentice to journeyman to master. Apprenticeships are available to those over 14 and 'candidate apprenticeships' are available to those under 14 who have completed their education. Training is carried out in 30 occupational fields with over 150 branches or sub-fields.
2. Alignment with country development strategy	The government aims to provide vocational education and training for young people aged 14-18 who have dropped out of, or left, the education system. People who are 19 years or older may now also pursue apprenticeships. Despite efforts to regulate them, there are more informal apprenticeships (and "journeymen"), especially in the big cities.
3. Governance arrangements	Apprenticeships fall under the 1973 National Education Basic Act which covers formal and non-formal education. The main body responsible for apprenticeships, the Ministry of National Education (MoNE), executes planning, development, delivery and evaluation decisions taken by the social partners through Vocational and Education Councils.
4. Employer engagement	The Turkish Confederation of Tradesmen and Craftsmen (TESK) are important social partners representing more than 90% of enterprises with nearly 2 million members. They support apprenticeship training by allocating funds. Local chambers ensure apprentices have well-equipped, hygienic and secure training conditions.
5. Funding and incentives	On the job training is the responsibility of the employer with a minimum apprentice wage fixed as a proportion of the adult minimum wage, increasing with age. Wages cannot be less than 30% of the minimum wage. The state pays for social protection through insurance premiums for accidents and sickness and employers are exempted from income taxes.
6. Curriculum design	Turkey is in the process of strengthening its labor market intelligence system with the support of the European Union. The recently formed Vocational Qualification Authority is repsonsible for the preparation of National Occupational Standards. Under another European supported initiative, modular programs are being introduced.
7. Curriculum delivery	Apprentices attend Vocational Training Centers run by the TESK one day per week with the rest of their time spent in their workplaces. Employers should have 'master trainers' to train apprentices. The length of training depends on the occupation and the norm is now two or three years (shortened by half if secondary school has been completed).

8. Quality assurance	There is a well-established legal framework with laws and regulations. Apprentices must be employed with those under 18 having a written contract signed by their parents, and approved and monitored by the Chamber. The EU has supported building institutional capacity and quality through the new modular training and a vocational qualification system.
9. Assessment criteria	Apprentices undertake a written and practical examination to earn a certificate which leads to a 'journeymanship'. This process lasts two years leading to a 'mastership' examination. For occupations not covered by the law, TESK assesses the competencies of individuals to certify the knowledge and skills acquired through work experience and learning.
10. Certification and further progression	Apprentices receive a certificate after their training period if they pass the examination. The main progression route for apprentices is through journeyman status and on to master status Legally, amendments made in 2001 were intended to facilitate flexble learning pathways and progression routes but progress in implementation has been slow.
11. Apprenticeship information services	The law determines who is eligible to be a candidate apprentice and apprentices based upon age and educational level. One key purpose of the law is to help apprentices choose a vocation appropriate to their interests and aptitudes. Unemployment is low amongst apprentices that successfully complete their training so retention rates are high.
12. Challenges	Apprentices tend to come from lower socio-economic classes because of their low status and in spite a well-developed system supported by legislation, regulation and an institutional infrastructure. Apprenticeships are not formally connected to further education and training. Given the number of informal apprenticeships, monitoring is also a major challenge.

16. UNITED KINGDOM

CORE ELEMENTS	COMPONENTS
1. Overview	Although there are many similarities, education and training are 'devolved matters' and therefore they are the responsibility of the governments of England, Scotland, Wales and Northern Ireland. This summary focuses on the system in England where fundamental and wide ranging reforms are being introduced to make apprenticeships an attractive and practical alternative to degrees.
2. Alignment with country development strategy	The government has set a target of 3 million apprenticeship starts over five years. The intention is for all apprenticeships to provide substantive training in a professional or technical route, with transferable skills and competency in English and Maths, and be open to all ages. They will also need to be available across all sectors of the economy and at all levels, including degree level.
3. Governance arrangements	The government sets the policy framework for apprentices and is responsible for managing the financing arrangements overall. Much of its work is done through agencies: Ofsted inspects training provision and Ofqual regulates qualifications. Off the job training is becoming more 'market led' with employers sourcing their training from publicly funded colleges and private training providers.
4. Employer engagement	In the future, the Government intends to assist employers wishing to take on apprentices to utilise their levy contributions through an online 'Digital Apprenticeship Service'. Apprenticeship Training Agencies (ATAs) and Group Training Associations (GTAs) also provide a range of support services to help smaller businesses to engage with apprenticeships.

5. Funding and incentives	The outgoing system involved the government funding off the job training, the employer that funded the wages and the apprentice who accepted a wage lower than the minimum wage. In future, a levy will be placed on 0.5% of large employers' pay bill which may be reclaimed if apprentices are taken on. Fewer than 2% of employers will pay this. Other employers will co-fund apprenticeships training.
6. Curriculum design	The previous approach (which is being phased out) involved the attainment of a collection of independent qualifications – competence based, knowledge based and functional skills – approved as a 'framework' by a Sector Skills Council. In contrast, the new approach involves groups of employers drawing up a single, holistic standard accompanied by a method of assessement.
7. Curriculum delivery	The new system requires that apprenticeship training must last a minimum of 12 months and involve at least 20% off-the-job training. The responsibility to train apprentices rests primarily with a training provider selected by the employer. Providers need to include English and Maths in their off the job training unless the required standards have already been achieved.
8. Quality assurance	Quality assurance arrangements are well developed and rest upon the regulation of provision which involves the inspection of teaching and training by the agency Ofsted. In addition, a new body, the Institute for Apprenticeships, which is also to be led by an employer board, is being set up to approve the employer led training standards and assessment plans.
9. Assessment criteria	An apprentice will be expected to demonstrate their competence through an end point assessment, specified by groups of employers working with professional bodies and other sector groups/experts. They must demonstrate that they can apply the knowledge, understanding and skills they have gained in a real work environment. The assessment needs to be independent and is usually graded.
10. Certification and further progression	Apprenticeships are now available at all skills levels (including degree and post graduate). On successfully passing their assessment, they will receive a certificate with 'crown copyright' and recognised status with employers. It will provide employers with a guarantee of the apprentice's competence, enable transferability across sectors and open up opportunities for further progression.
11. Apprenticeship information services	The National Apprenticeship Service is a government run online portal providing information to employers and prospective apprentices including material ranging from teacher guides and webinars to a series of short promotional films. The labor market intelligence collected by various agencies provides useful data on career prospects, wages and where job opportunities lie.
12. Challenges	England has suffered from a tendency to constantly reform training policy which has undermined the stability of funding, planning and delivery of apprenticeships. Parity of esteem between skills training and academic education also remains a major challenge. Apprenticeships are under greater pressure to deliver quality places because of cuts in the funding for alternative vocational options in colleges.

17. UNITED STATES

CORE ELEMENTS	COMPONENTS
1. Overview	The Registered Apprenticeship (RA) system offers a framework for developing and registering apprenticeship programs. The RA is a career-training program that offers structured on-the-job training combined with related technical instruction tailored to industry needs in the United States. By 2012, almost 450,000 people were enrolled in the RA. The eligible starting age can be no less than 16 years of age; however, individuals must usually be 18 to be an apprentice in hazardous occupations. Program sponsors may also identify additional minimum qualifications and credentials to apply (e.g., education, ability to physically perform the essential functions of the occupation, and proof of age).
2. Alignment with country development strategy	Apprenticeship programs are offered in approximately 1,000 occupations that are in demand within firms, including the traditional skilled trades such as electrician, plumber, and carpenter, as well as such occupations as truck driver, child care worker, nursing aide, and correctional officer. With the recent Apprenticeship Grant established in 2015, there are more incentives to design apprenticeship programs in high-growth industries such as IT, advanced manufacturing, and healthcare.
3. Governance arrangements	The RA is administered by the Employment and Training Administration's (ETA) Office of Apprenticeship (OA) within the U.S. Department of Labor (DOL), in conjunction with State Apprenticeship Agencies (SAAs). The OA and SSAs register existing employer-led apprenticeship programs within 50 states. OA and SAAs also issue certificates of completion to apprentices; conduct outreach to potential sponsors; monitor programs for compliance and quality assurance; provide technical assistance; and build partnerships with sponsors, employers, education providers, and the workforce development system. These programs must meet parameters established under the National Apprenticeship Act that are designed to protect the welfare of the apprentice.
4. Employer engagement	The main feature of the Registered Apprenticeship is that employers define the contents and characteristics of the training program relevant to their needs. The government registers the programs of eligible employers or "sponsors." The Registered Apprenticeship can be sponsored by an individual business or an employer association and may be partnered with a labor organization through a collective bargaining agreement. Sponsors identify the minimum qualifications to apply into their apprenticeship program; recruit and hire apprentices; and develop formal agreements with them that identify the length of the program, skills to be learned, the wages to be paid at different points in time, and the required classroom instruction.
5. Funding and incentives	Employers cover the costs of training, wages paid to apprentices, costs of managing the program, and costs associated with time spent by senior employees to mentor and train apprentices. The government covers the administrative costs of the program and the costs of related technical instruction provided by community colleges. Recently, the U.S. government introduced apprenticeship grants in 2015, in the context of the RA program, to support public-private initiatives that meet a set of requirements, including: apprenticeship programs in high- growth industries- particularly those employing foreign workers, and career pathways that align with other postsecondary educational offerings; increased apprenticeship opportunities for women, youth and minorities.
6. Curriculum design	The sponsors (an individual business or an employer association that may be partnered with a labor organization) are responsible for designing the curriculum in accordance with the business needs and in compliance with the federal rules in order to register the program. The RA staff guides sponsors to create standards for a new program, develop a plan for recruiting apprentices, and complete registration paperwork.

7. Curriculum delivery	The program delivery consists of on-the-job training and related technical instruction provided by the sponsors of the registered apprenticeship program responsible for the overall operation of the program. Apprentices work and learn under the direction of personnel who are experienced in their professional field.
8. Quality assurance	To establish and maintain existing RA programs, state registration agencies must ensure that programs are in compliance with equal employment opportunity (EEO) policies and federal legislation on RA and conduct quality assessments of program activities, such as instruction and training. Compliance reviews are carried out when a program is registered and every few years. Quality assessments involve an on-site inspection and a review of the standards, action plan, and overall program quality. Agency staff provides technical assistance when needed.
9. Assessment criteria	Assessment depends on three different types of apprenticeship training: i) Time-based programs where apprentices complete a required number of hours in on-the-job training and related instruction; ii) competency-based programs in which apprentices demonstrate competency in skills and knowledge through proficiency tests; and iii) hybrid approach, which is a combination of the above.
10. Certification and further progression	Upon finishing the training program, an apprentice earns a "Completion of Registered Apprenticeship" certificate, which is an industry-issued, nationally recognized credential that validates proficiency in an apprentice occupation. Articulation agreements between certain apprenticeship training programs and two- and four-year colleges are also available in order to allow for college credit and future degrees.
11. Apprenticeship information services	Apprentices receive guidance by their own employers and information resources and services through the DOL outreach efforts. To guide employers and engage more sponsors, the program offers communication materials such as tool kits and technical assistance for starting new apprenticeships.
12. Challenges	The incidence of apprenticeship programs is still low compared to countries like Australia, Canada, and Britain. The reasons include inadequate information and familiarity with apprenticeships, an inadequate infrastructure, and expectations that sufficient skills will emerge from community college programs. Since the number of applicants already far exceeds the number of apprenticeship slots, the main challenge today is to increase the number of apprenticeship openings.

Apprenticeships for the XXI Century

Summary Table of Key Characteristics by Country

COUNTRY	YOUTH (15-24)	ADULTS (25+)	DURATION	EMPLOYMENT CONTRACT	WAGE	INCENTIVES TO EMPLOYERS			INCENTIVES TO APPRENTICES
						Tax Breaks	Waiving/ Reduction of Contributions	Other	(If there is an employment contract, it is assumed that in addition to government incentives below, the firm contributes only through wages unless otherwise specified in italics)
Australia	✔	✔	2 years or less on average.	✔	Wage defined through approved enterprise agreement or the national minimum wage; increases over the period of the apprenticeship.			Payments for starts and completions in new and emerging industries with perspectives of future skill shortages; probationary period before contract becomes binding.	Tool allowances and living away from home allowances. Tutorial, interpreter, and mentor services for the disabled and additional incentives for indigenous peoples.
Austria	✔	✔	2-4 years; usually 3 years.	✔	10-20% of a skilled worker's salary in the first year and 20-50% in the third year increases; over time until it can be up to 80% of corresponding skilled worker's wage in last year. Salaries determined in collective bargaining processes.			Yearly basic subsidy; probationary period before contract becomes binding.	Health insurance of apprentices for the first 2 years.
Brazil	✔	If disabled	No mandatory minimum; maximum of 2 years.	✔	A minimum wage/hour; 13th salary at the end of the first year; firms can offer additional remuneration arrangements based on salary policies.	✔		No dismissal costs for firms; fees for noncompliance with the Apprenticeship Law.	Subsidies to apprentice for off-the-job training.
Canada	✔	✔	2 to 5 years or more; average 5 years.	✔	Proportion of journeyperson's rate; amount increases every year or level as apprentice progresses.	✔		Signing bonus.	Vary by jurisdiction. **Apprenticeship Incentive Grant (AIG) for the Red Seal trades**. Once the first- and second-year levels are completed, many apprentices are eligible for $2,000 from the federal government. **Apprenticeship Completion Grant:** $2,000 upon completion of the program. **Trades Person Tool Deduction:** deducts half of yearly tool purchases up to $5000 per year. **Tuition Tax Credit:** covers for examination fees paid to take an occupational, trade, or professional examination. **Employment Insurance:** income support during periods of off-the-job apprenticeship training provided they have worked enough hours.
Chile	✔	✔	Minimum 6 months; maximum 2 years; in practice 1 year.	✔	Gross remuneration greater than minimum monthly wage but lower than 2 monthly minimum wages; in practice very close to monthly minimum wage. 50% covered by the government/50% covered by the firm over the period of minimum 6 months and maximum 1 year. Thereafter, firm must assume 100%.			Training and wage subsidy.	USD$650/apprentice (to cover costs of training with the OTEC).
Colombia	✔	✔	No mandatory minimum; maximum of 2 years.	✔	75% of minimum wage if national unemployment rate is above 10%, 100% of the minimum wage if unemployment rate is below 10%; university students always receive at least 100% of minimum wage.			Disability incentive. Fees for noncompliance with the Apprenticeship Law.	The SENA has a program to provide apprentices from the lowest socioeconomic levels their living stipends if they are unable to sign an apprentice contract with any firm. This program is funded though the general budget of the entity. *Firms provide a living stipend of approximately 50% of the minimum wage during off-the-job training.*

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						Tax Breaks	Waiving/ Reduction of Contributions	Other	(If there is an employment contract, it is assumed that in addition to government incentives below, the firm contributes only through wages unless otherwise specified in italics)
Costa Rica	✔	✔	Varies depending on occupation.	✘	Not defined as of yet; possibility of subsidies and scholarships.				Scholarships for apprentices; public education financed by the government when apprenticeships are part of technical education.
England	✔	✔	Minimum of 1 year.	✔	An apprentice wage (current hourly rate is £3.30) for apprentices under 19. For apprentices 19 or over, employer must pay at least the apprentice wage for the first year of the apprenticeship and thereafter, employer must pay statutory minimum wage (which applies to regular staff) which ranges from £5.30 to £7.20 depending upon age.			*Apprenticeship Grant for Employers*: is available where the apprentice is between the age of 16-24. The terms of this grant now vary geographically. Sickness and unemployment benefits waived for employers or apprentices under the age of 25.	Apprentices receive at least 20 holiday days per year in addition to public holidays (as opposed to regular employees who receive 20 holiday days including public holidays). Apprentices are covered by firms' insurance policies as are regular employees.
France	✔	✔	**Professional contract:** Cannot exceed 6 to 12 months (early school leavers can participate up to 24 months) **Apprenticeship contract:** 1-3 years.	✔	Percentage of the minimum wage, which varies according to the apprentice's age, sector, and year of the apprenticeship. Apprentices' wages are subject to collective bargaining agreements, so they may be higher than usual. Lowest wage is 25% of the minimum wage as a 16 year old.	✔	✔	Grants by regional government.	Disabled apprentices may receive an additional incentive payment to help them undertake their training.
Germany	✔	✔	Between 2 and 3.5 years as legally stipulated, 3 years on average.	✔	Nationally agreed wage/training allowance payment fixed by tariff contracts for each occupation. Wage increases every year.			National Apprenticeship Pact through which companies commit to contribute to the national goal of apprenticeship placements.	Young people don't seem to need any additional incentives; there is an over-supply of young people interested in apprenticeships.
India	✔	✔	Time-based, with the duration specified at 6 months, 1 year, 18 months, 2 years, 3 years, or 4 years.	✘	Apprentices are paid a stipend, which is specified in government regulations and revised every 2 years based on the consumer price index. Stipend increases over the period of the training program from 70% to 90% of minimum wage for a semi-skilled worker. Stipends for employers of trade apprentices are 100% paid by employers; stipends for graduate, technician, and technician (vocational) apprentices are shared 50-50 between the employer and the government.			Refunding of stipend to employers of graduate, technician, and technician vocational apprentices.	50% of stipend for graduate, technician, and technician vocational apprentices.
Lithuania	✔		Depends on occupation.	✔	There does not appear to be any specific or negotiated arrangements to reduce the wage requirements to compensate for lower productivity while the apprentice is learning the job role.			At present, there is no clear cost-sharing or compensatory measures to incentivize companies to take on apprentices.	

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						Tax Breaks	Waiving/ Reduction of Contributions	Other	(If there is an employment contract, it is assumed that in addition to government incentives below, the firm contributes only through wages unless otherwise specified in italics)
Malta	✔		2-4 years by law; on average 2 years.	✔	Depending upon the scheme, the apprentice may receive a wage at a reduced rate compared to that of other regular employees.	✔	✔	The government currently contributes €1200 for each apprentice, which helps subsidize wage payment.	Maintenance grant to cover living expenses to cover both off and on-the-job training periods.
Mexico	✔		**Manufacturing:** 2 years; **Service:** 1-1.5 years.	✘				None	Federal government pays the monthly stipend to students with the program's resources, plus cost of the state education coordinators, tutors, and other staff dedicated to the program at the school level. *In Coahuila, participating firms decided to provide each student with a subsidy to cover transportation and other expenses in addition to government stipend.*
Peru	✔	✔	Minimum of 2 years; Maximum of 4 years (according to qualification level).	✔ under the "contrato de aprendizaje"	***Convenio de colaboración mutua SENATI - Empresa.*** The firm is not obligated to pay the apprentice. ***Contrato de Aprendizaje.*** Monthly wage no less than 50% of minimum wage. ***Convenio de Aprendizaje.*** Monthly wage no less than a minimum wage.			Firms that contribute a monthly share to SENATI can train their apprentices for free and ask for additional training.	Scholarships for technical education.
Turkey	✔		2-4 years by law; in practice 2 or 3 years.	✘	Apprentices' minimum wage is fixed as a proportion of the adult minimum wage and increases with age. Wages cannot be less than 30% of the minimum wage.	✔	✔	Probationary period before written contract becomes binding.	Apprentices are exempt from revenue stamps, income tax, tax refund, severance payments, and similar financial requirements.
United States	✔	✔	1-6 years.	✔	While the wage rates vary by the particular programs in which apprentices are enrolled, the average starting wage for an apprentice is approximately $15.00/hour. Apprentices receive incremental wage increases as they become more productive. If the employees reported as apprentices or trainees have not been properly registered or are working in excess of what is appropriate under the program, they must be paid the applicable wage rates for journeymen performing the same functions. This applies regardless of work classifications which may be listed on the submitted payrolls and regardless of the apprentice's level of skill.	✔	✔	Registration of apprenticeship program; grants; and costs of off-the-job training covered in community colleges.	College credits to progress in higher education.

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