

A photograph of three women sitting around a table in a meeting, smiling and engaged in conversation. The image is overlaid with a blue tint. The woman on the left has curly hair and is wearing a dark top. The woman in the middle has curly hair and is wearing a patterned top. The woman on the right has curly hair and is wearing a dark top.

DUAL EDUCATION IN LATIN AMERICA

Challenges and Opportunities

Sadie Smeck, María Oviedo and Ariel Fiszbein

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About the Authors

Sadie Smeck is a policy analyst at Texas Sunset Advisory Commission. Previously, Sadie Smeck was a legislative fellow for the Texas Senate and before that she was an Education intern at the Inter-American Dialogue. In addition, Smeck worked for Ruder Finn for three years. Sadie Smeck has a Master's in Global Studies from the University of Texas at Austin and a Bachelor of Arts from Washington University in St. Louis on Latin American Studies, Spanish and Writing.

María Oviedo is currently a MPP candidate at the Harvard Kennedy school. Previously, Maria Oviedo was a program assistant with the Education team the Inter-American Dialogue from 2016 to 2019. She supported education policy research and projects that promote high-quality education in Latin America. Originally from Nicaragua, she graduated from the University of Notre Dame with a BA in Political Science, focusing on development policy.

Ariel Fiszbein is the director of the Education Program at the Inter-American Dialogue. Prior to joining the Dialogue, Fiszbein was chief economist for the World Bank's Human Development Network, where he has helped develop strategies for work worldwide on education, health, nutrition, population, social protection, and labor. Fiszbein has over 20 years of experience working on education and other social policy issues in Latin America and globally. A native of Argentina, he has a PhD in economics from the University of California, Berkeley.

INTRODUCTION

Latin America is experiencing an education crisis. More and more students are entering secondary education, but many across the region show inadequate proficiency in math, language and science, as shown in national and international student examinations. There is also a clear mismatch between the skills they are taught and those that employers seek. Companies consistently report having difficulty finding qualified talent and say that poor education relevance is a major barrier. In a 2017 survey by ManpowerGroup, over 35 percent of employers in Brazil, Costa Rica, Guatemala, Mexico and Panama reported difficulty filling positions, and in Argentina, Colombia and Peru, over 45 percent of employers experienced a shortage of qualified workers (ManpowerGroup, 2018).

Additionally, an alarming number of Latin American students do not complete their secondary studies. Around one in every three students in Latin America do not reach upper secondary education, and of those who do begin this level, only about 45 percent graduate (Bentaouet Kattan & Székely, 2015). There is strong evidence to suggest that low education quality and relevance contribute significantly to this phenomenon. Surveys consistently show that “lack of interest” in school is the most-cited reason students drop out of school, suggesting a low perceived value of education among this population (Graduate XXI, n.d.; Fundação Getulio Vargas, 2009). School desertion has had serious repercussions in the region. One in five youth between the ages of 15 and 24—about 20 million individuals—are neither enrolled in school nor employed (de Hoyos, Rogers & Székely, 2016). Those in the poorest income quintile are three times more likely than those in the wealthiest quintile to be in this category, a dynamic that not only puts youth at risk of social and economic exclusion, but also limits the region’s competitive potential (International Labor Organization, 2013).

These data suggest that education systems in the region are not adequately preparing youth for work at any level. Looking toward a future of social stability and long-term growth, countries must develop effective approaches to generate relevant workforce skills. Yet a key challenge is the uncertainty of the future; while economic growth can create opportunity and reduce poverty, it also makes the job market more dynamic and speeds its transformation.

Therefore, in addition to the technical skills required for current business operations, youth need strong cognitive and socioemotional skills to be adaptable learners in an ever-changing workforce landscape.

Dual education can be a powerful tool for bridging the skills gap by making education more relevant to market needs, fostering closer public-private collaboration, and providing youth with concrete skills and work experience.

Dual education, sometimes referred to as the apprenticeship model, is **an educational approach that divides an apprentice’s time between an educational institution—whether formal (as in a public school or university) or informal (as in a technical institute)—and a firm which provides work experience and practical training** to develop occupational and socioemotional skills. Dual education programs follow a structured learning plan and format, under the guidance of a mentor or supervisor. Programs typically stipulate the ratio of time to be spent in the classroom and workplace, either as a percentage of time or number of days or hours in each setting, and they differ from traditional education by incorporating an element of “hands-on” or “on-the-job” learning. This approach seeks to ensure that apprentices have industry- or even company-specific skills that make them immediately useful to firms, unlike many traditional education programs.

Some of the benefits of dual education programs include:

- They equip apprentices to overcome typical **barriers to entry** in the job market, such as lack of work experience and technical or specialized skills;
- They help apprentices develop **non-technical and socio-emotional skills** such as organization, professionalism, problem-solving, critical thinking, and other core competencies that promote long-term resilience and adaptability;
- They establish closer **relationships among stakeholders** (e.g. government, private sector, chambers of commerce, academia, etc.) to facilitate ongoing dialogue and collaboration, and to better

align education with the needs of the labor market;

- They have the potential to **improve company productivity**. Research from Europe and the US suggests apprenticeship programs can benefit firms by increasing productivity and morale, and generating increments in innovation, savings on recruitment and training costs, and reductions in errors in employee placement and accidents/risks in the workplace (Lerman, 2016; Lerman 2014; Bauernschuster, Falck, & Heblich, 2009).

In Latin America, the model is attracting attention for its potential to address youth employment deficits and the skills gap. Yet, with few exceptions, very little is known about the impact of dual education or apprenticeship programs in the region. A particularly important recent work by the Inter-American Development Bank (IDB) examined the potential of apprenticeships in the Latin America region, pointing to a diversity of models and lack of consistent legal and policy frameworks (Fazio, Fernández-Coto & Ripani, 2016).

Dual education programs in Latin America can be broadly separated along two dimensions—**whether they target students or non-students, and whether they are operated by public or private entities**. (See **Table I** below, with examples.)

A majority of programs target students who are enrolled in secondary or post-secondary institutions, complementing their formal education with practical work experience through company partnerships. Other programs target non-students—typically either secondary graduates or school dropouts—often in vulnerable economic situations. Other programs, though less typical, are flexible, allowing either enrolled students or other eligible individuals to participate.

Public programs are commonly run by national governments, most commonly through the Ministry of Education or national technical institutes such as the National Training Institute (INA) in Costa Rica, the National Service for Training in Industrial Labor (SENATI) in Peru, and the National Institute for Professional Training for Human Development (INADEH) in Panama.

TABLE I: DUAL EDUCATION TARGET PROGRAMS

		STUDENT		NON-STUDENT		FLEXIBLE
		Secondary	Post-Secondary	Graduates	Dropout	
PUBLIC	National government / Public school partners	Escuela de Formación Profesional (Bolivia)	Formación dual de SENESCYT (Ecuador)	Formación dual de INLOG (Peru)	Programa Jóvenes con Más y Mejor Trabajo (Argentina)	Educación dual de INA (Costa Rica)
	For-profit (i.e. companies, chambers of commerce)	Formación Dual Telefónica (Chile)	Programa de Formación Dual (Guatemala)	Formación dual de AHK (Peru)	N/A	Formación dual de INSALCO (Chile)
PRIVATE	Non-profit (i.e. NGOs, foundations)	Educación 2020 (Chile)	Fundación KOLPING (Paraguay)	Carrera dual UNID (Mexico)	N/A	N/A

National programs tend to be very large (reaching 1,000+ students) and often house multiple programs operated semi-autonomously by firms, non-profits or schools that partner with the state. The focus and structure of these sub-programs vary widely depending on the partner firms' needs and industry focus.

Private programs (either for-profit or non-profit) operate independently from the state, though they may be subject to national labor, educational, or apprenticeship-specific laws, which vary widely per context. On the whole, programs run by private companies tend to be small (10-400 participants) and primarily target secondary school graduates. There are few programs in the region run by non-profit entities or private foundations, and those that do exist also tend to be fairly small (25-600 participants), likely given constrained budgets and bandwidth. As a group, these programs have a clearer social aim, often targeting vulnerable or low-income youth, particularly high school students.

The present study seeks to survey at a high level how dual education currently operates in the region in order to identify best practices, as well as key challenges and opportunities to grow and improve dual education programs and infrastructure. It seeks to set the scene for dialogue among stakeholders in government, the private sector, nonprofit and civil society, identifying priority areas for development toward robust national or regional systems for quality dual education programs in diverse industries.

This report draws on an analysis of 40 public and private dual education programs in the region—a sample that includes all national-scale programs in countries where they exist, which are typically quite large in scale (e.g. Formare (Brazil), SENA (Colombia), SENESCYT (Ecuador), SENATI (Peru)) and often have dozens of sub-programs (for example in partnership with individual high schools). The analysis is informed by web-based research, direct surveys and interviews with program leaders, as well as relevant literature and interviews with experts on dual education.

Given that not all programs have each of the elements of traditional dual education programs, **the criteria for inclusion in the research survey was that programs be formalized and follow a structured model that integrates elements of both theoretical learning in an educational institution and practical, “hands-on” learning in a partner firm.** Vocational education in specialized training institutes and other work-based training programs without a structured element of academic education were not included in the study.

The analysis includes at least one program from each country in Latin America except Honduras (whose national program staff could not be reached) and Nicaragua (where no dual education programs identified fit the study criteria). It does not include any Caribbean countries. The research process itself was highly informative, revealing a lack of accurate, transparent information, a high level of fragmentation in models, and scant accountability surrounding dual education programs throughout the region.

In Latin America, the apprenticeships are attracting attention for its potential to address youth employment deficits and the skills gap. Yet, with few exceptions, very little is known about the impact of dual education or apprenticeship programs in the region.

A BROAD VIEW OF DUAL EDUCATION IN LATIN AMERICA

There are four main challenges facing dual education programs: regulatory framework, capacity, financing and information.

TABLE II: MAIN CHALLENGES OF DUAL EDUCATION PROGRAMS

AREA	SPECIFIC CHALLENGES	OPPORTUNITIES
<p>REGULATORY FRAMEWORK</p> <p>In Latin America, dual education is often informal and operates within weak legal frameworks.</p>	Weak regulations regarding the employer-school-apprentice relationship (e.g. contract, compensation).	Establish and enforce legal frameworks to regulate dual education, with rights and protections for all stakeholders.
	Lack of standards and low recognition of training value.	Establish national standards and systems for quality assurance and certification.
<p>CAPACITY</p> <p>Only weak mechanisms and institutions exist to guide implementation and enforcement of standards.</p>	Weak norms and mechanisms to enforce regulations and standards.	Strengthen institutions and systems to monitor quality and effectiveness.
	Lack of coordination and knowledge-exchange among public and private actors.	Create mechanisms for educators and firms to collaborate, exchange information and operational support, etc.
<p>FINANCING</p> <p>Public spending on dual education is insufficient and inefficiently allocated.</p>	Few incentives for firm participation and co-financing.	Provide tax benefits/subsidies, invest in operational support for participating firms (especially Small and Medium Enterprises (SMEs)).
	Low integration of high-need individuals.	Fund scholarships, access programs, supportive services for high-need, high-potential individuals and groups.
<p>INFORMATION</p> <p>A lack of data stanches progress and decision-making.</p>	Scant evidence to inform decisions at a systemic level.	Make job market demands more transparent; develop cost-effective methods to evaluate impact and returns on investment (e.g. pilots).

High-quality dual education programs require a strong **regulatory framework** that establishes conditions for the design, management, monitoring and evaluation of dual education programs. In Latin America, uncertainty within these frameworks is a major bottleneck for the success of dual education programs.

According to the International Labor Organization's "Toolkit for Quality Apprenticeships" (2017), some of the main functions of a regulatory framework for apprenticeships are to:

- Define apprenticeships (for purposes of this document the term dual education and apprenticeships interchangeably).
- Specify the status of "apprentice" (employee or trainee), and the terms and conditions for apprenticeships – such as working conditions, remuneration, etc.
- Clarify the roles and responsibilities of different stakeholders, including defining the contractual agreements between the educational institution, employer and apprentice
- Set the duration of the apprenticeships, the proportion spent on-the-job vs. in the classroom, the processes for assessment and certification of learning, and the certification/licence that is issued at the end of the apprenticeship
- Specify the skills, trades and qualifications covered under apprenticeships, and set standards for core training requirements in order to ensure content relevance and quality
- Outline mechanisms to assure the quality of apprenticeships, including eligibility requirements for training institutions, as well as monitoring and evaluation arrangements

Most of the functions of a regulatory framework can be grouped into two broad categories: 1) clarifying the employer-apprentice relationship and 2) setting standards to assure quality and certify training. In Latin America, however, dual education is often informal and operates in a regulatory vacuum.

Additionally, the region faces a **lack of institutional capacity** to develop and implement dual education—from

collaborative design and delivery, to monitoring and enforcement of standards and regulations.

Even in countries where clear, national legal frameworks have been established, communication among players is inconsistent or ineffective, responsibility for various aspects of program implementation is diffuse, and mechanisms to enforce standards and protect participants are lacking. To ensure quality, efficiency and compliance with standards, the actors involved, especially firms and educational institutions, must coordinate their efforts and have accountability for their respective roles.

Public financing for dual education in Latin America and the Caribbean has missed critical opportunities to 1) strategically engage other funders to scale up, create sustainability, and help ensure program quality and relevance, and 2) expand impact and reach by incorporating high-need, high-potential individuals in dual education—including low-income youth, women, and other marginalized populations. A sustainable funding model requires that both public entities and private employers contribute fairly to the cost of skills development, and that apprentices have fair access to support for the costs of their learning.

The region faces a lack of institutional capacity to develop and implement dual education even in countries where clear, national legal frameworks have been established, communication among players is inconsistent or ineffective, responsibility is diffused, and mechanisms to enforce standards and protect participants are lacking.

Finally, another key factor creating bottlenecks for dual education in the region is a lack of information to inform programmatic decisions, including what the market demands, how to effectively teach these skills and critical content, and what efforts already exist within each country.

SEVEN CHALLENGES TO THE SCALING-UP OF DUAL EDUCATION IN LAC

Challenge # 1: Weak regulations regarding the employer-apprentice relationship (e.g. contract, compensation)

A legal labor contract is considered one of the defining characteristics of dual education programs globally, as it not only guarantees apprentices' compensation, but also establishes the rights, protections and obligations of apprentices, employers and schools. In countries like Austria, Germany and Switzerland, apprentices are paid the minimum wage or a percentage of this amount, and are offered many of the same benefits as full-time employees, such as social security benefits and protections.

In Latin America, however, there is enormous heterogeneity in this area. While some countries—like Brazil and Colombia—have developed regulatory frameworks that stipulate wage levels and labor protections for apprenticeships, others have no regulations. Additionally, many programs operate outside the purview of state-run apprenticeship initiatives, which leaves wage levels, apprentice protections, and quality assurance mechanisms largely at the discretion of individual employers and schools.

Programs targeting students inside the formal education system are less likely to provide salaries and formal labor contracts (Fazio et al., 2016; ILO, 2017). In Mexico, for instance, internships hosted under the Ministry of Education's national dual education program do not involve a formal labor contract or a salary, as apprentices in these programs are legally considered students and not employees (Fazio et al., 2016). In Costa Rica, apprenticeships operated by the country's public training institute, the National Apprenticeship Institute (INA), do not offer students formal pay or a labor contract either (see Box 1). In both cases, apprentices enter into an unofficial agreement (in Spanish, called a "convenio," "acuerdo," or "compromiso," for example) with the partner firm, while the partner firm establishes an agreement with the school, ministry of Education and/or chamber of commerce involved in the program. These kinds of informal arrangements are also common among programs targeting non-students or students outside the basic

education system, such as students in universities or in post-secondary technical programs. As seen in our surveys, students in these programs are not paid a wage, but often receive stipends to offset participation costs.

In Brazil, on the other hand, 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, the purchase of a house, or a sudden termination of employment (ILO, 2017).

One of the first investments Latin American countries must make as they look to expand dual education is to establish clear guidelines on the legal obligations and rights of employers, schools and apprentices. Setting such regulations would have several benefits, such as preventing apprentice exploitation, promoting the perception of apprenticeships as investments in company productivity, and providing students an attractive alternative to unpaid programs.

In European countries with large dual education initiatives, such programs are regulated by federal laws and statutes that govern vocational education and training. These laws have many aspects including assigning responsibilities among different entities and stakeholders, stipulating quality assurance mechanisms, and establishing certification systems. However, at a more basic level, these laws regulate three important factors: contracts, labor protections, and wage levels.

Apprenticeship laws stipulate what contracts must contain (i.e., duration, roles and responsibilities, remuneration, etc.), who must sign them, and what procedures exist for non-compliance. Similarly, these laws enumerate labor protections for apprenticeships. For instance, Germany's Vocational Training Act of 2005 stipulates the circumstances under which an apprenticeship can be terminated after a probation period, largely protecting apprentices against dismissal (DGB n.d.). Other topics include termination compensation, work hour limits, overtime compensation, and time off. Finally, these laws generally also provide a legal basis for wage levels.

BOX I: COSTA RICA - THE APPRENTICESHIP CONTRACT

In 1971, Costa Rica's *Ley de Aprendizaje* No. 4903 granted the National Apprenticeship Institute (INA) the responsibility of overseeing youth training and apprenticeship programs in the country and set forth new rules on apprenticeship contracts.

This law required participating firms to enter into an apprenticeship contract with INA, a document considered a formal labor contract. Additionally, the law required companies to pay apprentices 50 percent, 75 percent and 100 percent of the occupation's minimum wage in the first through third phases of their apprenticeship, respectively. Companies also were required to afford social security benefits and pay INA a portion of the apprentice's salary (which went towards an apprenticeship scholarship pool). According to a report by the Entrepreneurial Association for Development (AED), the law's rigidity and the heavy economic burden it placed on companies caused the apprenticeship contract to fall into disuse (Asociación Empresarial para el Desarrollo [AED], 2016). In response to this, INA developed apprenticeship and training modalities that do not require an apprenticeship contract as stipulated by Law 4903, aiming to promote private sector interest in apprenticeships. INA's alternative to the apprenticeship contract is the "supervised practicum agreement," a civil agreement among INA, the company and the apprentice that allows the latter to work in the company while legally remaining a student (AED, 2016). While most apprenticeships now use this legal document, AED affirms that a need for clear rules and regulations regarding employer obligations in apprenticeship programs remains in Costa Rica. In fact, INA representatives consider that firm participation in dual education programs is affected by "a perception that national norms around the dual education modality are not enough to safeguard companies regarding the apprentices' status as a student or a worker".⁷

In Costa Rica, the nature of the apprenticeship contract was recently redefined after a heated, years-long national debate. Bill 20.786 (*Ley de Educación y Formación Dual Técnica*) was introduced in 2018 but was stalled in the country's Legislative Assembly for months due mostly to disagreements over what should be the legal status (employees vs. students) and pay of apprentices. After several motions and modifications, the final bill eliminated all language suggesting a contractual relationship between the employer and apprentice, and instead stipulated "enrollment agreements" between schools and students and between schools and firms, and small grants paid by INA to apprentices to cover the costs of participation (Alfaro, 2019, March 15; Bravo, 2019, August 5). However, companies are required to pay INA a fixed sum for every apprentice they hire (Bravo, 2019, August 5). The bill passed in August 2019 amidst protests by teacher unions, who believed the document did not afford apprentices sufficient labor protections.

In Austria, Germany and Switzerland, minimum wages are agreed upon by industry sectors through unions or business associations. For instance, in Austria, wage levels are negotiated through collective bargaining agreements (CBAs) between unions and the Austrian Federal Economic Chamber (DGB, n.d.). In Latin America, greater regulation of and clearer guidelines on the apprentice-employer relationship would serve to promote uptake of apprenticeship programs among firms and youth.

Challenge #2: Lack of standards and low recognition of training value

Aside from defining apprenticeships and regulating the roles and rights of different stakeholders, legal frameworks also serve to establish standards that ensure dual education programs are high-quality and relevant. According to the International Labor Organization (2017), some key functions include:

1. Define basic quality standards for training providers (including any procedures for accreditation or registration of enterprises and training institutions that participate in apprenticeships).
2. Specify new qualifications and occupational profiles based on empirical skills-needs assessments, and develop training regulations for firms and curricular frameworks for education providers.
3. Determine mechanisms to assess that apprentices have acquired all skills in their qualification.
4. Establish mechanisms for providing students with nationally-recognized certifications that can allow for vertical and horizontal mobility in the educational system and in the workforce.

Defining these standards helps to monitor the quality of learning and training taking place in firms, schools and training institutions; ensures the relevance of dual education programs to labor market needs; and provides apprentices with a training whose value is credible, sustainable and transferrable. In contrast to countries with a longer history of dual education, in Latin America there is significantly less regulation regarding quality standards of dual education programs. The following are a few specific challenges regarding standards:

- **Many programs do not offer nationally recognized certification:** Our research found that many programs in Latin America and the Caribbean do not offer any official training certification, and those that do exist are inconsistent and typically are not validated by a centralized regulating entity, representing at best a weak signal to employers. This is particularly common among programs operated independently of public dual education programs.
- **Others do offer a certification but there is no link with other systems:** In a few cases, programs do offer official certification, but these are not recognized by entities in other sectors. For instance, the dual education program operated by INA in Costa Rica “offers a nationally-recognized certificate, [but] there is no linkage with the Ministry of Education or with universities”.¹ In Chile, according to the IDB, SENCE’s Apprenticeship Program has no coordination with the Professional Technical Education System or Chile Valora, the Chilean certification organization (Fazio et al., 2016). Starting in 2019, thanks to a new

collaboration between the ministries of Labor and Education, students in technical-vocational public schools, who are required to complete internships to receive their diploma, will be able to satisfy this requirement by participating in SENCE’s Apprentices program (La Tercera, 2019 April 24).

- **Latin America lacks qualifications frameworks:** The challenges above are due, in part, to countries’ limited use of instruments like National Qualifications Frameworks (NQF) (Fazio et al., 2016). NQFs are instruments that classify qualifications at different levels, helping to define learning pathways, facilitate mobility between different levels, and recognize skills learned informally. Without them, it is more difficult for stakeholders to recognize the value of apprentices’ qualifications and how apprenticeships compare to other education levels. Chile and Colombia have recently approved NQFs, while others – like the Dominican Republic, Panama, Paraguay and Peru – are currently developing them (OIT/Cinterfor 2019; Gestión, 2019, June 5; Presidencia de la República Dominicana, 2019, April 25; OEI, 2018, December 19).

Standardized certification is a clear path to strengthening the signal of the value training programs can offer, making them recognizable and transferrable to either employment or higher levels of education. Industry-level qualifications frameworks can be a helpful step toward developing national standards that encompass all learning levels. As with the other elements of the regulatory framework, developing standards should be a collaborative effort between firms and organizations, government, and other stakeholders. Given the inter-sectorial nature of dual education programs, there must also be better communication and engagement between the Ministries of Education and Labor to develop standards that incorporate the perspectives of both educational institutions and employers in the labor market and integrate the two for a holistic training experience.

Challenge #3: Weak norms and mechanisms to enforce regulations and standards

Institutions for accountability, including monitoring and enforcement of standards, are weak in Latin America’s apprenticeship programs. Even in contexts where legal frameworks for apprenticeships exist, structures to enforce standards are often absent or lax given unclear ownership within government or other entities. Unlike in other areas of public administration with dedicated ministries

(e.g. education, labor, housing, etc.), apprenticeships encompass various areas of policy and practice, diffusing responsibility for their governance.

According to the International Labor Organization, quality assurance must take place at three key levels: 1) system; 2) training providers (both educational institutions and partner firms); and 3) student assessment and certification (2017). Quality assurance takes the form of standard setting, monitoring the implementation of apprenticeships, assessing and certifying competences acquired by apprentices and evaluating the labor market relevance of training (*ibid.*).

1. **System:** Quality-assurance mechanisms work best in the presence of a coordinated national effort and aligned with broader vocational qualifications frameworks, involving both public and private stakeholders. In other regions, legal frameworks assign different “competent bodies” distinct quality-assurance responsibilities. However, this kind of system-wide coordination is not commonly seen in Latin American apprenticeship systems.
2. **Training providers:** While training providers in Latin America often find they have inadequate support from institutions to implement programs, they also lack consistent oversight of their operations, which can lead to inconsistencies and failure to deliver on mandates. Few programs have dedicated staff in either educational institutions or partner firms in charge of overseeing and facilitating apprenticeship program development and delivery. For instance, in Chile’s technical secondary schools that offer dual education, school mentors are in charge of supervising student performance in partner firms and firms’ adherence to the established Learning Plan. However, experts consider that limited financial resources and a deficit of adequately trained personnel hinder their ability to do so (Sepúlveda, Sevilla & Farias, 2014).
3. **Student Assessment:** Even when monitoring systems are in place, this study found that these seldom feed into any formal assessment of programs and students. Among the programs surveyed for this study, few tracked any metrics on the program beyond the total number of graduates. There were almost no defined indicators of operational success for the programs themselves, or procedures to evaluate the effectiveness of program delivery. In Colombia,

performance indicators of SENA’s apprenticeship program “do not go beyond a calculation of the number of apprentices enrolled in the system” (Fazio et al., 2016). Chile’s “Aprendices” program, operated by the country’s national training institute (SENCE), currently does not have mechanisms for evaluating student learning² (Josefina Vodanovic, personal communication, September 27, 2018). Instead, it has relied on satisfaction surveys applied to apprentices and company representatives. In 2018, the program introduced site visits as a mechanism for quality assurance, but the instrument used during these visits relies on the apprentice to self-assess his or her learning achievement.³

Overall monitoring and enforcement of standards, are weak in Latin America’s apprenticeship programs. Even in contexts where legal frameworks for apprenticeships exist, structures to enforce standards are often absent or lax given unclear ownership within government or other entities.

As countries in the region seek to establish legal frameworks for apprenticeships in the coming years, establishing tools and methods for monitoring and enforcement must be a key priority. Importantly, the roles and responsibilities of the competent body or bodies must be outlined in legal frameworks. In the absence of such mechanisms, regulatory frameworks and standards for quality in dual education will fall short.

An example of this is seen in Chile’s public education system, which has recently made significant progress in updating and bolstering quality assurance frameworks for dual education in schools. In 2016, Chile’s Ministry of Education passed a resolution (No. 1.385) on dual education frameworks, quality standards and curricular strategy that applies to dual education within public technical-professional upper-secondary education (Biblioteca del Congreso Nacional, 2016). The resolution lays out new required procedures that technical high-schools must complete in order to operate dual education

programs. For instance, a school must first request approval from the regional education authority by submitting an implementation strategy that describes the proposed program's alignment with the national curriculum. Additionally, a "Dual Commission," made up of the school director, teachers, and the directors of the different specializations, must develop a Learning Plan that stipulates the content to be learned inside and outside the classroom, as well as monitoring and evaluation mechanisms. Finally, a designated teacher in the school is in charge of liaising with and supporting company tutors and monitoring students' performance in their apprenticeships. While the law is comprehensive for the region, it does not specify accountability and enforcement mechanisms or entities, alignment with the resolution's standards remains largely on the initiative of individual schools and firms, and adherence has been inconsistent.⁴

In the case of Brazil, the Apprenticeship Manual, published by the Ministry of Labor and Employment (MTE) is a comprehensive document encompassing all aspects related to the Apprenticeship Act. The MTE is responsible for compliance with the law's apprenticeship quota and adherence to labor laws. Additionally, "*conselhos tutelares*" – municipal public councils whose legal mandate is to protect the rights of children and youth—oversee the educational institutions that offer training, including their legal compliance, especially in relation to the Statute of the Child and Adolescent (Ministério do Trabalho e Emprego, 2013).

Challenge #4: Lack of coordination among actors

In a rapidly changing market landscape, program administrators at all levels of dual education must be agile to adapt to new needs to maintain relevance and effectiveness. Ultimately, however, neither the public nor private sector has the resources or operational capacity to assume full responsibility for responding to constant evolution in the market. Sharing this burden is a key advantage of the dual education model, as each sector has unique capabilities to inform and equip future workers with the skills and core competencies to succeed in particular professions. Taking advantage of this benefit, however, requires coordination, knowledge sharing, and efficient division of labor among sectors, for which effective mechanisms and norms have not yet been developed.

Currently, efforts in dual education in Latin America and the Caribbean are decentralized, and roles within

the system are unclear. The lack of cooperation among sectors is a major roadblock to progress in standardizing quality and streamlining implementation processes. There is little leadership from government or other sectors to guide and coordinate actors (e.g. ministries, industry groups, chambers of commerce, companies, schools, etc.) in working together to design and deliver programs, or to oversee their administration. Although fundamental to program operations, many educational institutions and firms in the region have not yet defined processes to regularly communicate or share responsibility for various aspects of the program. These actors still do not tend to view one another as partners, and expectations for productive cooperation remain low (Hoftijzer, July 18, 2018). Even as dual education actors gather and organize information, ideas, and lessons, there are insufficient means to communicate and exchange. Sharing expertise, regular feedback, and key learnings is critical to ensuring that programs are designed appropriately, operate efficiently and in line with quality standards, and attract those who can benefit most.

In the private sector, actors such as companies, sector-specific unions, and chambers tend to lack basic formative capacities, including curricular development, efficient instruction, and assessment techniques. Strengthening these capabilities will enable better collaboration with educational institutions. In the public sector, there has been poor coordination among levels of government and the various ministries—including Education, Labor, and Social Protection—with a stake in the effort to strengthen dual education quality and systems.

In Latin America, apprenticeship networks and industry associations can be instrumental in fostering public-private collaboration. These associations become knowledge-sharing networks that provide a range of services and products, including technical know-how on program implementation (through technical assistance or best-practices guides, databases, courses, and other resources), networking and peer learning opportunities, government lobbying efforts, among others.

Outside the region, the Association of Employment and Learning Providers (AELP) from the UK publishes apprenticeship essentials guides, while the Alianza para la Formación Profesional Dual from Spain helps companies implement their first dual education program through the Asesoría Técnica de la Alianza, a group of experts in the dual education field. These groups can also be multinational. FAIR (Fostering Apprenticeship sharing

Ideas and Resources), formed by the Spanish, Romanian and Italian chambers of commerce, provides various resources specifically designed to help Small and Medium Enterprises (SMEs) implement apprenticeships, while the European Alliance for Apprenticeships (EAfA), mobilizes various stakeholders in EU member states to engage in high-quality apprenticeships. These types of organizations will be crucial for the up-take of apprenticeship programs among Latin American employers and the development of high-quality programs.

In a regional context where company buy-in and lack of information are still major hindrances to the development of dual education programs, it is crucial that Latin American countries encourage the creation of such networks and business associations in order to spur knowledge-sharing and up-take of apprenticeship programs by the private sector. One notable example from the region is seen in Mexico, where the Mexican Model for Dual Education (Modelo Mexicano de Formación Dual) has involved very close collaboration between business associations, various entities in the public education sector, and German cooperation agencies (See Box II).

Challenge #5: Few incentives for firm participation and co-financing

Latin America faces many of the same challenges other contexts have seen related to encouraging companies' participation in and development of dual education programs—often related to the upfront investments of time and resources that these programs require. In part, this is due to a limited understanding of the benefits of the dual education model for particular industries and the economy overall, which makes firms resist creating or supporting apprenticeships. Many firms perceive a high cost-benefit ratio, especially given a concern for “poaching” by competitor firms seeking similarly-skilled individuals. In addition, many companies have little expertise in how to manage apprentices—including in instruction, supervision, assessment, incorporation of apprentices into regular business processes, etc., and it remains unclear how firms and tutors within them should acquire these competencies and who must shoulder or share in this investment (i.e. firms themselves, partner schools, government, etc). Finally, another commonly-cited concern among companies is the difficulty and liability of

BOX II: MEXICO - A NEW MODEL FOR DUAL EDUCATION

The Mexican Model for Dual Education offers high-school students who are enrolled in a technical or professional academic track the chance to complete a one to two years dual learning program in which they spend part of their time in school, and part of their time in a firm.

The program began in 2013 as a pilot initiative led by an alliance of stakeholders: the Secretariat of Public Education (SEP), the Colegio Nacional de Educación Profesional Técnica (CONALEP, the entity in charge of technical and professional education), the Mexican-German Chamber of Commerce (CAMEXA), Germany's Federal Institute for Vocational Education and Training (BIBB), and, importantly, the Mexican Employers Confederation (COPARMEX)—a business association representing more than 36,000 employers responsible for over 30 percent of the national GDP. Meetings in February and July of 2013 brought them together to launch the pilot project, devise a monitoring and evaluation plan, and develop training procedures for the model's application across all 11 federal states in the pilot (CONALEP, 2013).

In 2015, a legal decree created the Committee on Dual Education in Upper Secondary Education, a wider alliance of public sector institutions and industry associations whose functions include advising on the curricular designs of different study areas, and establishing plans for implementing and monitoring the Model's application in different states (Secretaría de Educación Media Superior, 2017). As the project has expanded, new Mexican states have been incorporated into the project only when a state's education system signs agreements with local industry associations, and often with specific companies operating in that state. In the 2017-2018 school year, the program reached over 3,000 students (Unión Jalisco, 2018, September 6). The Mexican example shows the potential impact of organized private sector involvement through business associations.

working with youth, especially individuals from vulnerable sectors of society.

Additionally, Latin American governments are not providing attractive financial incentives to entice companies to hire apprenticeships. Public financial incentives such as tax exemptions, reductions and subsidies have been explored in contexts like Brazil, Chile, Colombia and Costa Rica (See Table III), but without tremendous evidence of success to date. For example, in Colombia, a few program leaders noted there has been some resistance to apprenticeship quotas. Due to cultural norms, uncertainty about program benefits, and costs and/or logistical and liability challenges of working with minors, sometimes companies even opt to pay a penalty fee rather than invest the time and capital to create or maintain a certain percentage of their workforce as apprentices.

Latin American countries must explore the use of financial incentives to engage and incentivize actors in the system, especially from private industry, to participate in and co-finance dual education programs.

There is a strong argument for governments to invest public resources on apprenticeship programs, given the role of apprenticeships in preparing youth for their careers,

and the wider social benefits that apprenticeships provide – such as higher employment rates and productivity, better health, reduced reliance on welfare measures, among others (OECD, 2018).

Two important considerations to keep in mind:

- **Incentives can be utilized to encourage participation in priority occupations:** International evidence shows that targeted financial incentives are generally more effective at promoting apprenticeships than universal incentives. In European countries, some incentive schemes focus on occupations where policymakers expect that fewer apprenticeships would be filled if incentives were not provided (OECD, 2018). For instance, Australia often targets shortage occupations, while in Norway, higher grants are allocated to employers in small crafts that are protected for historic or social reasons (Kuczera, 2017).
- **Regulations need to ensure that financial incentives are not used to sustain low-quality apprenticeships:** Financial incentives can sometimes encourage firms to take on apprentices without putting in place any mechanisms to ensure that apprentices

TABLE III: FINANCIAL INCENTIVES TO PROMOTE APPRENTICESHIPS IN LATIN AMERICA

Source: Adapted from Fazio et. al (2016).

TYPE OF EMPLOYER INCENTIVE	EXAMPLE
Waiving/Reduction of Labor Costs of Apprentices	<p>Brazil: Employers generally earmark 8 percent of the wage of regular full-time employees towards a severance emergency fund (Fundo de Garantia do Tempo de Serviço). Under this financial incentive, Brazilian law reduces this percentage to 2 percent for apprentices.</p> <p>Chile: SENCE's Programa Aprendices provides 50 percent of the minimum monthly wage over the period of a minimum of six month, and a one-year maximum.</p>
Tax Breaks to Companies	Brazil: Tax breaks to medium and large firms that hire apprentices.
Negative Incentives	Colombia: Law No. 789 (2002) 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.

are receiving high-quality training (OECD, 2018). Without proper oversight, incentive schemes could quickly be abused by firms who do not comply with regulations or follow training protocols. In Chile, for instance, SENCE's Programa Aprendices requires participating firms (who receive 50 percent of the apprentice's salary from the government) to assign each apprentice a company tutor. In 2017, however, an apprentice satisfaction survey showed 28 percent of apprentices did not have a company tutor at their job sites (SENCE, 2018). In Latin America, any financial incentives must be accompanied by strong auditing and quality-assurance mechanisms (See Box III).

Challenge #6: Low integration of high-need individuals

In order to meaningfully impact the human capital bottleneck facing the region, public funding must also be better allocated to active outreach and inclusion strategies for new and underserved populations. Most programs do not target a specific population beyond academic level, but some do explicitly aim to reach either a vulnerable population (e.g., low-income or high-risk youth, school dropouts, single mothers) or an elite population (e.g., German speakers or "gifted" students). A few program leaders shared that, without particular intention, the program ultimately serves a specific population or socio-economic sector by virtue of its focus, location or connection with a certain school. For example, both VOIT and Volkswagen's program leaders in Mexico noted that

while they have no specific social target, the youth living in the neighborhood where they work and attracted to a technical trade tend to be from more vulnerable sectors of society.^{5,6}

Some programs offer multiple tracks targeting different populations. AHK Ecuador, for example, offers seven separate programs, including one specifically targeting vulnerable youth. Brazil's national program also separates its main apprenticeship program ("Aprendiz") from a track specifically targeting vulnerable youth from families with incomes of at most one minimum salary per person ("Social"). The Social program apprentices receive half of a minimum salary from the company, plus coverage for food, transport, uniforms, medical assistance, and life insurance. The companies view this program as a corporate social responsibility initiative and often additionally offer scholarships and other benefits to apprentices; the relationship is not one of formal employment, and is not subject to Brazil's national Apprenticeship Law (Lei da Aprendizagem). Participants in the Apprenticeship Program, under the law, work under a formal contract with at least a minimum wage and benefits paid by the companies.

Another key challenge facing dual education programs is gender disparity. Most programs, especially those concentrated in trade occupations, have more male than female apprentices, and a study in the United States and UK found that, in general, women tend to benefit less than men from apprenticeships in terms of labor market entry

BOX III: BAHAMAS - MATCHING GRANT FACILITIES

Source: de Diego, González-Velosa, Rieble-Aubourg & Rucci (2017).

The IDB and the Government of the Bahamas are working to develop new mechanisms to promote private sector co-financing for apprenticeship programs. A project there has set up "sector skills councils" in three priority sectors (based on employment need and growth potential) to create standards for quality assurance and other processes. The project also established a Matching Grant Facility (MGF), which accepts proposals from businesses in these sectors for vocational training in line with the dual education model. Proposals must outline plans for training, and be validated by a training entity, sector skills council, or extensive rationale from the company itself, and they must include a path for industry-recognized certification.

The grant, financed in installments, requires reporting from the company on the status and progress of the program. The MGF is designed to make financing more transparent, lend credibility to programs among employers, and promote alignment between the productive sector and educational and training institutions.

rates and outcomes (Fazio et al., 2016). Apprenticeships worldwide have been largely concentrated in technical or physically demanding fields historically dominated by men (e.g., manufacturing and construction), and there has been little effort or intention to better integrate women in the system—either through existing or new program opportunities. In Latin America, an emphasis on the services industry is a step in this direction, but there is still a relatively narrow subset of industries offering apprenticeship programs (Fazio et al., 2016).

To better attract and retain a more diverse group of apprentices, dual education stakeholders must consider and fund the supportive services that can broaden participation.

Such services include childcare, accommodations to create a safe work environment (e.g. separate bathrooms and changing rooms for men and women), mentorship or networking opportunities, scholarship funding, and other

benefits. Governments must also invest time and resources to pursuing relationships and developing dual education systems in new industries, especially those that would attract and include a broader population. Focus should be placed on sectors where demand for skilled labor is high and growing, where a link exists with national development priorities, and where there are paths for apprentices’ career development over time. For instance, the government of England recently reformed its apprenticeship system, which now operates in occupations such as business and design, science, health and beauty, and others, in addition to more technical trades (Institute for Apprenticeships, n.d). In addition to new industries, alternative versions of the model could help expand participation—for example, part-time or short-term programs, opportunities for remote and web-based learning, or other adaptations.

BOX IV: UNITED STATES - SCALING APPRENTICESHIP THROUGH SECTOR-BASED STRATEGIES

Source: U.S. Department of Labor (2018).

In July 2018, the U.S. Department of Labor announced a new grant program for colleges and universities seeking to develop apprenticeship programs called Scaling Apprenticeship Through Sector-Based Strategies. The program funds partnerships between institutions of higher education and industry associations to design and deliver new apprenticeships, or expand existing programs into new sectors. Priority is given to programs that promote apprenticeships in key industries that have typically not used apprentices to bring new entrants into the workforce (e.g. information technology, advanced manufacturing, healthcare and financial services) and to programs that increase apprenticeship activity among a range of new employers within these industries – particularly small and medium sized businesses.

The grant program will also support the development of industry-approved, competency-based curricula for both on-the-job and classroom training as well as quality assurance, data systems and processes, and initiatives to attract underrepresented populations to apprenticeships.

Challenge #7: Scant evidence to inform decisions

All stakeholders in the dual education ecosystem lack sufficient information to make decisions and be effective. Apprentices lack transparent information about the job market and the relative value of dual education and other forms of vocational preparation. Educational institutions lack information about the skills and competencies their students need on the modern job market, and about the kind of vocational preparation firms can offer. Firms lack knowledge about how to work with, train, and assess students of various levels, which schools to engage, and the standards to which they must abide. Governments lack the research-based evidence they need to inform policymaking and support greater investment in dual education.

From the research community, evaluation of youth employment and job training programs' impact is scant. In Latin America, assessment of dual education programs has been almost entirely limited to short-term impacts, especially job placement upon completion.

With regards to research performed by programs themselves, our survey showed that evaluation of dual education programs' impact, both during the apprenticeship and in the months and years following, is rare and typically limited to statistics on the rate of job placement within partner firms immediately upon completion of the program.

Overall, there appears to be little connection or outreach between the partner firms and alumni following the program, and few opportunities for networking, community engagement, or continued education.

Finally, another challenge at the systemic level is a lack of intelligence on the labor market. The region has inadequate systems to collect and analyze data on employers' needs—especially on an ongoing basis to keep up with labor market needs as they shift and change. Many countries in Latin America and the Caribbean have weak capabilities in national-scale statistics, and are unable to deliver up-to-date demand- and supply-side information, or to do so in a way that is digestible and useful for apprentices, employers, and other stakeholders.

A challenge at the systemic level is the lack of intelligence students and education institutions have on the labor market. The region has inadequate systems to collect and analyze data on employers' needs—especially on an ongoing basis to keep up with labor market needs as they shift and change.

ENDNOTES

1. Marvin Rojas Montoya, personal communication, April 18, 2018.
2. Josefina Vodanovic, personal communication, September 27, 2018.
3. *Ibid.*
4. D. Brauer, personal communication, June 21, 2018.
5. K. Rivera, personal communication, June 14, 2018.
6. T. Hertwig, personal communication, June 7, 2018.
7. Marvin Rojas, personal communication, April 18, 2018.

RECOMMENDATIONS

Dual education has the potential to significantly improve workforce skills in Latin America by making education and training more relevant to labor market needs. The development of new dual education programs in Latin America over the past 10 years is evidence enough of the growing demand for this model. However, the potential impact that dual education could have on learning and workforce development in the region is hindered by a lack of clear policies to incentivize participation, assure the quality of programs, and build the capacity of firms and training providers to implement them effectively.

The following are a few actionable steps stakeholders can take to promote high-quality dual education:

STRENGTHEN LEGAL FRAMEWORKS THAT REGULATE DUAL EDUCATION PROGRAMS:

Stakeholders throughout the region recognize the need to strengthen legal frameworks governing dual education programs. In particular, greater clarity is required around the legal nature of the apprentice-firm relationship, the roles and responsibilities of different stakeholders, standards for training, and mechanisms for quality-assurance. Engaging different social actors in decision-making is crucial. In this sense, creating tripartite apprenticeship alliances that combine private firms, public agencies, and training providers could guide policy formulation by promoting collective bargaining on these issues (ILO, 2017).

DEVELOP QUALITY STANDARDS FOR APPRENTICESHIPS WHILE ENGAGING THE PRIVATE SECTOR:

Local and sector-level entities, such as industry-specific skills councils, can play an important role in developing guidelines and standards for the training apprentices receive, including by identifying personal, academic, and workplace competencies, and their indicators (Lerman, 2016). Given that this can be challenging in contexts where employer and trade unions are not well-organized or active in policy, it can be most efficient to begin developing frameworks in industries with higher demand for skilled labor, and where a civic engagement infrastructure (e.g. trade unions, skills councils, etc.) already exists and can collaborate in this process. Furthermore, demonstrating success on a smaller scale initially can help build consensus and political will for the expansion and uptake of the model.

DEVISE MECHANISMS TO INCENTIVIZE FIRM PARTICIPATION:

Given the financial and capacity constraints that often hinder firms' ability to participate in dual education programs, greater research is needed to determine the kinds of context-appropriate incentives governments can provide. Importantly, attention should be paid to non-financial incentives that improve the cost-benefit balance for employers, such as by enhancing training capacity in companies. Providing operational support (e.g. developing curricula, training company tutors, etc.) can help firms, particularly small and medium-sized companies, achieve greater results. Moreover, external bodies could help reduce some of the administrative costs of hiring and training over some of these tasks. In Europe, publically-subsidized external bodies ("group training organizations" in Australia, and "training offices" in Norway), take on administrative tasks such as selecting apprentices, arranging and monitoring training on and off the job, dealing with administrative tasks (e.g. contracts), among others (OECD, 2018).



EXPAND ACCESS TO DUAL EDUCATION THROUGH PRE-APPRENTICESHIP PROGRAMS:

All governments should prioritize attracting and retaining a diversity of individuals in dual education programs. One strategy involves expanding pre-apprenticeship programs, which prepare groups who may need to strengthen their basic and soft skills to meet the qualifications to enter an apprenticeship program. They might provide, for instance, educational and pre-vocational services, assistance in applying to apprenticeship programs, hands-on training in simulated lab experiences and volunteer opportunities, field shadowing, etc. (Fazio et al., 2016; United States Department of Labor, n.d.). In Latin America, where employers often perceive that youth lack basic workforce skills, pre-apprenticeship programs could have a significant impact on both the effectiveness of apprenticeship programs and, importantly, employers' openness to taking on apprentices.

PROMOTE REGIONAL KNOWLEDGE-SHARING AND COLLABORATION:

Given that dual education is a relatively recent education model in Latin America, knowledge-exchange is critical to its success in the region. Between countries, possible actions include (1) creating spaces for regional discourse and exchange that would allow countries to learn from each other regarding best-practices and shared challenges, and (2) engaging entities outside the region with expertise on these issues, such as the European bilateral agencies that have already collaborated with countries like Chile and Mexico in the developing and establishing new apprenticeship programs.

INVEST IN RESEARCH AND DATA-GATHERING TO INFORM POLICY-MAKING:

Given the dearth of information on dual education programs in the region, generating empirical knowledge on these programs is critical. In countries where programs are relatively new or small-scale, pilot studies can produce the evidence needed to support public investment in these projects and boost stakeholder interest. In other countries, tracer studies, employer satisfaction surveys, and impact evaluations can help to improve the quality of programs and inform policy decisions. Finally, there is a clear need to improve labor market analyses, including skills assessment and anticipation mechanisms that can provide the information needed to make decisions regarding dual education and other forms of Technical and Vocational Education and Training (TVET).

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