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Effective strategies for expanding vocational education and training in Brazil

This chapter discusses some of the key challenges and opportunities associated with the planned expansion of the Brazilian vocational education and training (VET) system. It looks at the different roles that VET can play and the diverse populations it can serve. The chapter also discusses the challenges schools may face to create new or expand existing VET programmes, and the support they might need to make the right choices. Lastly, the chapter zooms in on the need to invest in a skilled VET teacher workforce to support the growing number of students.

Making VET work for a diverse group of students

Vocational education and training (VET) serves different populations and aims to achieve a range of objectives depending on its target population. VET programmes may be designed to equip students with medium-level vocational skills and prepare them for entry into the labour market and/or to continue in education. Some programmes target higher-level skills and lead to postsecondary or tertiary qualifications. There are also programmes that focus on lower-level vocational skills and aim to provide job-relevant skills to those who dropped out from school or are at risk of dropping out (Kis, 2020^[1]). These different purposes tend to be associated with different programme characteristics (e.g. duration, level) and student characteristics (e.g. age, full-time vs. part-time enrolment).

The intensity and depth of the occupational training in upper secondary VET can vary largely. In some countries, such as Switzerland, Germany and Hungary, VET is designed to prepare for entry into the labour market and involves substantial vocational training. In some other countries, such as the United States, VET in upper secondary schools is more about career exploration rather than full preparation for a job. In the United States occupational education and training takes place after the completion of upper secondary education through the network of community colleges, and lasts one or two years.

While in many countries vocational programmes do not enjoy the same status as academic programmes, often because academic selection means that vocational tracks may concentrate students with lower attainment, this is not the case in Brazil. There is much excess demand for many public vocational schools reflecting their elite status. In fact, many VET students in Brazil continue to higher education upon completion of upper secondary VET. However, it is uncertain how well these programmes prepare for the labour market, and whether academically demanding VET can cater to a wider population, and in particular to those who are less academically oriented. Bearing in mind that the Brazilian VET reform aims to triple the number of students in VET programmes between 2014-2024, the student population in VET will certainly become more heterogeneous and VET programmes will have to adapt to address their different needs. Given the large number of young people who do not manage to complete upper secondary education in Brazil, there is also a need to reach out and train those who are at risk of dropping out.

For Brazil, the planned expansion of upper secondary VET based on the integrated model presents significant challenges. Similar challenges are found in Costa Rica, which shares some similarities with the VET arrangements found in Brazil and is also seeking to expand its VET system (see Box 2.1). The fundamental dilemma is how to prepare students *both* for further academic study, including higher education, *and* offering the kind of thorough training that will make an individual job-ready. The difficult choices involved include making programmes less academically demanding (as for example in dual system apprenticeships), extending the length of the programme (as in Latvia, Estonia and Costa Rica), and diversifying VET programmes in terms of their academic content. These strategic choices need to be addressed in Brazil. This section discusses these different options, how academic and vocational content are provided in other countries, and how VET provision can be diversified to fit students with different characteristics and learning preferences.

Box 2.1. Upper secondary VET in Costa Rica: Some lessons for Brazil?

Despite the huge differences in country size, Costa Rica and Brazil face some parallel challenges in upper secondary vocational education and training. Like the integrated model in Brazil, upper secondary VET in Costa Rica involves a demanding programme, followed by a small proportion of the youth cohort, leading to a double qualification and many of the students go on into higher education rather than into the labour market. Like Brazil, Costa Rica aims to dramatically expand participation in these vocational programmes.

In Costa Rica, following comprehensive lower secondary education, students choose between two main tracks: academic or vocational from 10th grade onwards. In 2015, almost 72% of upper secondary school students were in the academic track, and 28% were in the vocational track. Both tracks lead to the *Bachillerato* exam and qualification, which is both a signal in the labour market and an important means of access to good public universities. The academic track offers 23 study alternatives and lasts two years, while the vocational track offers 7 agriculture, 24 industry and 25 service specialities and takes three years, with longer hours of study than the academic track, so as to accommodate vocational content as well as the academic content. Those who already have the *Bachillerato* may seek a vocational qualification through two years of night school.

Between 2006 and 2014 the number of academic secondary schools increased by 11%, while the number of vocational schools increased by 52% between 2000 and 2016 (from 90 to 135), and there are ambitious plans for further expansion of vocational enrolments. Some 60% of those who graduate from the vocational schools continue in education, and the vocational school system plays a very small role in directly preparing young people for the labour market.

At present, the technical vocational route involves a demanding programme of study that includes both the *Bachillerato* and an additional technical qualification. While this grants status to the technical schools, it leaves few options for those young people who by 10th grade may have become disenchanted by academic study, or who may have less academic ability, but who might be engaged by, and indeed excel in, more practical forms of learning. In response, the OECD recommended the concentration of high-level technical training in a set of specialised technical colleges, providing both upper secondary technical education, including the *Bachillerato*, and short post-secondary professional qualifications. Such specialised technical institutions would straddle the divide between upper secondary and post-secondary, allowing a relatively seamless transition for technical graduates into a short postsecondary programme in the same institution. Brazil might consider a similar approach, given the parallel circumstances.

Source: OECD (2017^[2]), *Education in Costa Rica, Reviews of National Policies for Education*, <https://dx.doi.org/10.1787/9789264277335-en>.

Different ways of combining academic and vocational content

Initial VET programmes in OECD countries traditionally have been designed for immediate labour market entry. In response to changing skill requirements of jobs and increasing demand for tertiary education from students and their parents, many countries have reformed their VET system to also provide a route into higher levels of education, including post-secondary programmes leading to high-paying jobs. Initial VET programmes that have not been reformed and offer weak routes of progression become unattractive to students and employers, see for example the discussion on shorter duration VET programmes in the Netherlands in Fazekas and Litjens (2014^[3]). In Denmark, weak opportunities for transition from apprenticeship to post-secondary education have been suggested as one cause of falling participation in

youth apprenticeship (Jørgensen, 2017^[4]). In Brazil, upper secondary VET gives an eligibility to sit an entry test to higher education and enjoys high status. The challenge is to diversify VET provision to make it more accessible, with some programmes offering a 'lighter' academic preparation, without damaging the reputation of VET.

Many countries developed provision of post-secondary VET programmes that builds on upper secondary VET qualifications, and that allows completers of upper secondary VET to continue in education at a higher level. In Brazil, less than 10% of young adults enrolled in higher education pursue short post-secondary programmes, fewer than in other Latin American countries such as Columbia, Peru, Chile and Argentina (Ferreyra et al., 2021^[5]). Brazil may consider further developing post-secondary VET options, so as to increase attractiveness of upper secondary VET and to boost the supply of skilled labour.

When VET students can continue to higher-level education they have to meet academic standards for entry to and success in higher-level institutions. Academic content (such as mathematics, language) that is required to successfully continue at higher-level programmes can either be integrated into VET programmes or be an optional add-on. Moreover, within VET provision some programmes may be academically more demanding than others, addressing the different needs and preference among the diverse VET student population.

Integrated VET and academic content

Some VET programmes integrate an academic and vocational assessment. This is the case for the French *baccalauréat professionnel*, for which the overall mark (out of 20) includes marks for academic subjects such as maths and French alongside marks awarded for demonstrating occupational competence during a placement (Field, 2021^[6]). Completion of both vocational and academic qualifications, may require extra effort and time from students, as in fact students work towards a double qualification. To address falling attractiveness of traditional apprenticeships, Denmark has created a hybrid qualification (EUX) providing young people both with an apprenticeship and access to higher education. These programmes are academically demanding, and cater only to a few percent of those in the vocational track, but they have attracted some strong performers who would otherwise not have considered an apprenticeship. One potential risk identified by some commentators is that these combined programmes may turn into academic programmes with the vocational element being lost (Jørgensen, 2017^[4]). In Poland, school-based upper secondary VET programmes ending with a final exam giving eligibility to higher education are one year longer than upper secondary academic programmes (Kuczera and Jeon, 2019^[7]).

Add-on programmes

Alternatively, VET programmes may not automatically offer eligibility for higher education but VET students or graduates who would like to continue into higher level programmes have the option of taking additional academic courses on top of a vocational qualification. For example in Switzerland, students following the apprenticeship programme may opt to take additional courses leading to an examination that qualifies them for entry to some higher education institutions (in addition to their vocational qualification). In Sweden, academic courses giving eligibility to higher education are optional but available within VET programmes. Around 70% of VET students complete their upper secondary education with a diploma (Ministry of Education Sweden, 2018^[8]; Statistics Sweden (SCB), 2017^[9]), and out of those 41% become eligible for higher education (Ministry of Education Sweden, 2018^[8]). To further improve access, since 2017, all adults have the right to study courses that give access to higher education in adult education. So, the option of higher education remains open for those who did not successfully complete their upper secondary programme or did not acquire eligibility for higher education. Box 2.2 below provides examples of add-on options linking VET programmes with higher education.

Box 2.2. Bridging programmes linking VET with higher education

In **Estonia**, upper secondary VET graduates who earn at least 60 credit points in general subjects can continue to higher education. They can then spend an additional year taking general education subjects to prepare better for higher education studies, or for state examinations which can be needed to enter some higher education institutions. However, the additional year option has not been used by many graduates.

In **Colombia**, some vocational and technological institutes offer a preparatory cycle enabling students to progress to a higher-level programme, but in 2011 only 4% of university programmes could be accessed from such cycles. Consequently, very few students transition from vocational institutes to universities in Colombia.

In **Indonesia**, entrance to polytechnic institutes is tied to entrance exams that rely mainly on academic skills, favouring general secondary school graduates rather than vocational graduates. In response, public polytechnics have taken measures to assess VET graduates based on their achievement at school.

In **Latvia**, the shorter (two or three-year) upper secondary VET programmes need to be supplemented by one additional year of study to gain access to higher education through general education exams in Latvian, mathematics, a foreign language and one subject selected by the student. 15% of students pursued this bridging programme in 2013–14.

In **Norway**, there are several points of entry to higher education. Among others, students in apprenticeship programmes can take additional academic courses while studying or a one-year bridging programme after completing their apprenticeship. In Norway, apprenticeship topped up with an extra year implies five years in total, as compared to the three years required to complete academic upper secondary programmes (Cedefop, 2013^[10]).

Source: Adapted from Field, S. and A. Guez (2018^[11]), *Pathways of Progression: Between Technical and Vocational Education and Training and Post-Secondary Education*, <http://unesdoc.unesco.org/images/0026/002659/265943e.pdf>.

Diversified VET programmes with different academic requirements

VET can cater to a diverse population. In Switzerland, more than 70% of 15-year-olds with middle and low reading skills, and around 40% of high performers (as measured by PISA 2000), enter upper secondary vocational education (Meyer, 2003^[12]). Likewise, in Sweden there is a lot of variation in students' performance across VET programmes (Skolverket, 2017^[13]). In many countries students can obtain upper secondary vocational qualifications and opt out from obtaining an academic upper secondary diploma. In Brazil, vocational qualifications are only awarded to those who complete their academic upper secondary studies. This arrangement may leave less academically oriented students with no qualification if they do not complete successfully their upper secondary education. Inclusion of demanding academic content in all VET programmes can be detrimental to less academically oriented students and may contribute to higher drop-out rates in this population. Brazil may consider providing various VET programmes or tracks that cater to the needs of different target populations.

Differences in the target population can be reflected in the content and objectives of different programmes. VET should be attractive and challenging enough to those who favour more academic content and to those who prefer more applied and practice-oriented learning. To diversify provision some VET programmes can be more academically demanding than others. For example, in Switzerland, all apprentices receive 2.5 hours per week of teaching in the official language, communication, civic education (including some

applied mathematics) and 45 minutes of physical education. This adds up to 120 hours of basic skills education and sport per year – so approaching 400 hours over a 3-year apprenticeship. But some programmes are more demanding: an apprenticeship in clock making (in addition to the mandatory 2.5 hours block) requires 90 minutes in mathematics and 45 minutes in informatics per week in the first year; 45 minutes in mathematics and 45 minutes in physics in the second year; and 45 minutes in physics in the third year (Kuczera and Field, 2018^[14]).

Special forms of VET targeted at youth at risk

VET can also be an attractive option for less academically oriented students. Some countries offer VET programmes to students at risk of dropping out. Given a large number of students dropping out from upper secondary education and potentially untapped demand for more applied and less academic programmes in Brazil such shorter VET programmes targeting disadvantaged youth should be considered. While some students in Brazil exit education for financial reasons, some others may do so because they are not able to cope with learning requirements in regular programmes. This last category would particularly benefit from VET programmes targeting youth at risk.

These programmes are typically shorter than regular VET programmes, are provided as apprenticeship and target young people who are less academically oriented and are at risk of dropping out from mainstream education. In Norway, shorter two-year apprenticeships (*Praksisbrev*) are provided alongside regular apprenticeships (Norwegian Ministry of Education and Research, n.d.^[15]). Similarly, Switzerland offers two-year 'EBA' apprenticeships (*Grundbildung mit Eidgenössischem Berufsattest*) designed for youth who face difficulties at school, struggle to find a three or four-year apprenticeship, or risk dropping out. The risk of providing VET to disengaged students is that VET programmes would be labelled as a pathway for dropout. VET programmes for youth at risk should not in any case be a dead-end, i.e. they should lead to a qualification that is recognised on the labour market and allow students who successfully complete this stage to continue seamlessly at a higher level VET programme. The programmes in Norway and Switzerland lead to qualifications that are recognised both on the labour market and within the education system, and allow graduates to continue into regular apprenticeship. Available evidence points to positive outcomes from these programmes. In Norway the programme has been scaled up after a positive evaluation of the pilot. In Switzerland nearly half of the programme completers proceed to higher-level apprenticeships, and among those who do not, 75% find a job upon completion (Kis, 2016^[16]). The fact that these programmes end with a formal qualification is an important feature. (Kammermann, Stalder and Hättich (2011^[17]) argue that two-year apprenticeships leading to a qualification are associated with better labour market outcomes than identical but uncertified programmes. In Switzerland in 2014, there were 5 900 students in two-year apprenticeship as compared to 61 000 in regular programmes (SERI, 2016^[18]).

In academic education, there is a relatively well understood set of approaches designed to support those who struggle in the classroom. In strong school systems, those facing the greatest challenges receive extra coaching, formally or informally; mentoring is offered; wider personal or social problems affecting school performance are addressed. In some countries, apprentices may receive similar support when they face difficulties, designed to help them complete. This is often the responsibility of local authorities. For example, in Germany 'apprenticeship assistance', available to apprentice dropouts, supports transition into another apprenticeship or training programme. Assistance includes remedial education (language skills, theoretical and practical instruction) and support with homework and exams (see Box 2.3 for some further examples).

Box 2.3. Support services for apprentices at risk

In **Australia**, the Australian Government funds the Australian Apprenticeship Support Network (AASN) which aims to help employers recruit, train and retain apprentices. Seven AASN providers offer advice and support services for employers and apprentices. These services include:

- **Universal services:** the essential marketing, administrative, payment processing and stakeholder engagement functions required to underpin the Australian Apprenticeship. This includes an initial assessment of Australian Apprenticeship suitability.
- **Targeted services:**
 - **Gateway services:** pre-commencement advice to potential Australian Apprentices and potential employers of Australian Apprentices, in order to find the “right fit” and support employers to use apprenticeship pathways. Support includes testing the potential Australian Apprentices, recommending the right training or employment pathway and matching individuals with compatible employers.
 - **In-Training Support services:** tailored support to individuals assessed during Gateway Services or following sign-up as being at risk of non-completion. Support may include mentoring, mediation, extra support with study or advice and referral to appropriate services to address personal challenges such as insecure accommodation, mental health, or financial concerns. This service will also support employers who need assistance with an Australian Apprentice they employ who is at risk of non-completion.

In **Austria**, integrative VET programmes (*Integrative Berufsausbildung*, IBA) target young people with special needs (two-thirds of participants), disabled youth and those without a school-leaving certificate. Training assistants, typically with experience with disadvantaged youth, provide specialist support to the young people involved. When IBA takes place at a training company, training assistants oversee administrative tasks, define the content of the training contract between the apprentice and the training company, prepare company employees for the arrival of the apprentice, and register the apprentice at the vocational school. Training assistants also act as mediators, provide tutorial support and design the final exam for the partial qualification pathway. When IBA takes place at a supra-company training centre, training assistance is provided by the centre’s social workers.

In **Germany**, apprenticeship assistance (*Ausbildungsbegleitende Hilfen*) is available to young people taking an apprenticeship, as well as those who dropout, and supports the transition into another apprenticeship (or training programme). Assistance includes remedial education (language skills, theoretical and practical instruction) and support with homework and exams, which helps to overcome learning difficulties. Socio-pedagogical assistance (including mentoring) is also available, and this includes support with everyday problems and mediation with the training company, school trainers and family. The service is provided according to a support plan developed in partnership with the young person concerned. It is delivered through individual assistance at least three hours per week; there are also small group sessions. One particular aim is to reach out to youth with learning difficulties and those disengaged from school.

In **Switzerland**, young people enrolled in two-year apprenticeships can receive individual coaching (*Fachkundige individuelle Begleitung*) designed to help them improve their academic, technical and social skills. Swiss cantons are responsible for implementation under a national framework and guidelines. Around half of the two-year apprentices take up this offer, mostly to tackle weak language skills, learning difficulties or psychological problems. Most coaches are former teachers (of vocational or special needs education), learning and speech therapists or social workers. They receive targeted training, which may vary across cantons. For example, in Zürich they must attend a 300-hour course and participate in regular team-coaching sessions. Apprentices may also attend remedial lessons at vocational schools, for example, in Vaud canton, apprentices may take time off during their work placement to attend school for remedial classes.

Source: Kis, V. (2016^[16]), "Work-based Learning for Youth at Risk: Getting Employers on Board", *OECD Education Working Papers*, No. 150, <https://dx.doi.org/10.1787/5e122a91-en>.

From an employer's point of view, taking on an apprentice with learning challenges will be a risk. But they may be more willing to take this risk if they know they will receive support during the apprenticeship to ensure completion. So one of the potential benefits of targeted support to apprentices at risk is not only that it will help completion, but also that it may help young people facing challenges to obtain a good quality apprenticeship in the first place.

Although evidence is patchy, studies suggest that support should help promote successful completion. An Australian study of apprenticeship completion found that many apprentices felt a lack of support and did not know who to contact for assistance, leading them to drop out. The interim evaluation of the Australian Apprenticeships Mentoring Package (Deloitte, 2012^[19]) found that a credible party, independent of the employer and apprentice, can help address issues that may lead to dropout, such as problems in personal life, health issues and problems in the workplace. This issue has been addressed since, and in-training support services are part of apprenticeship contracts provided by the Australian Apprenticeship Support Network.

Finding VET teachers to support VET expansion

The attractiveness and quality of VET depends to a large extent on its teachers, and their capacity to teach occupation-relevant skills and to motivate and inspire young people. OECD (2021^[20]) shows that many countries face acute VET teacher shortages. Ageing of the teacher population and the low attractiveness of the profession are some of the factors to blame. In Brazil, the reform expanding VET in schools will certainly increase the demand for teachers of VET subjects. Other country experience demonstrates that recruitment of qualified professionals can be challenging. This section provides examples of how other countries are addressing this issue that Brazil can draw on.

Recruitment of VET teachers can be difficult as VET teachers have to be acquainted with the area of specialisation (e.g. construction, electronics, hairdressing) and at the same time be able to effectively transfer their knowledge and skills to young people. VET teachers thus need two distinct competencies, specialist knowledge ideally supported with industry experience, and pedagogy. Requirement strategies for VET teachers vary across countries. Some countries require VET teachers to have gone through formal teacher training and demonstrate their industry knowledge and experience, whereas some others privilege one aspect over another. For example, in Austria, Finland, Norway and Slovenia, VET teachers should have relevant professional experience in the area they are teaching in addition to having gone through teacher training. However, in countries such as Korea and Japan, entry requirements are only related to qualifications and not to industry experience (OECD, 2021^[20]).

Many countries have introduced flexible arrangements for qualified professionals so that they can teach in their area of expertise without too many entry barriers. These measures help address teacher shortages and ensure that those teaching VET subjects are abreast of recent development in the relevant industry. Obtaining a teaching qualification in full-time education may be too expensive or time-consuming for qualified professionals who in the course of their lives decide to embark on a teaching career. The cost of going through a full time programme is related to foregone earnings as participation in full-time education often cannot be combined with full-time employment, as well as the cost of the programme in countries where postsecondary education is not free. To facilitate entry to the VET teaching profession, many countries allow newcomers with industry background to complete teaching qualification while on the job or to shorten the training programme, see Box 2.4.

Box 2.4. Flexible VET teacher recruitment strategies

Korea

In Korea, teachers are civil servants and usually acquire teacher qualifications through examinations, but new measures aim to facilitate recruitment of industry professionals.

A fast-track teacher-training programme targets industrial experts in fields that have no established teacher-training course. This fast-track training will allow issuing teacher qualifications without going through an exam. It can also allow industry experts who are specialists in emerging technology, such as robotics or the Internet of Things – areas where there are currently no qualified VET teachers –, to be employed as “industry-academic adjunct teacher” while awarding them VET teacher certifications.

VET graduates who have worked more than three years in industry will be eligible to obtain VET teacher certifications. The country is also planning to allow VET schools more autonomy to hire qualified teachers based on labour-market needs.

United States

A recent law in Michigan allows non-certified individuals to teach in certain VET programmes as long as they meet certain requirements, such as having acquired 2 years of professional experience in the relevant subject area during the past 10 years.

Japan

In Japan, industry professionals with relevant experience may acquire a special or temporary teacher licence without going through the official exam if they have relevant skills and experience. Special part-time lecturers that can be recruited from industry, do not need a teacher licence.

Sweden

In Sweden, school teachers should be certified, but exceptions apply to VET teachers in areas of teacher shortages. VET schools have to ensure that these teachers have the necessary knowledge of school curricula and access to in-service training.

Denmark

VET teachers in Denmark are not required to have a pedagogical qualification prior to starting employment, but should begin the vocational pedagogical diploma education no more than one year after being hired and complete it within four years.

Source: OECD (2021^[20]), *Teachers and Leaders in Vocational Education and Training*, OECD Reviews of Vocational Education and Training, <https://dx.doi.org/10.1787/59d4fbb1-en>.

In some countries it is also possible to combine a job in industry with some teaching responsibilities. For example, industry professionals may teach in the evening or weekends in an adult VET institution or teach full-time for a full semester. See Box 2.5 for an example from the Netherlands.

Box 2.5. Part time arrangements for industry professionals in the Netherlands

Hybrid teachers in the Netherlands are teachers who combine their teaching job with a job in another fields. It is estimated that there are around 50 000 such teachers. Several initiatives have been set up to encourage and facilitate hybrid teaching. For example, the Brainport Eindhoven region, in collaboration with various educational institutions and companies, has started a pilot to give technicians a taste of hybrid teaching for 4-8 hours a week. Windesheim University of Applied Sciences and ABN-AMRO conducted a similar pilot for bank employees in 2020. However, its use has been limited. According to a survey, general and VET upper secondary schools do not have human resources (HR) policies on hiring hybrid teachers (but it is “more a matter of coincidence”), which means there is no distinction between a teacher who chooses to work part time or a hybrid teacher who chooses to combine two jobs.

Source: OECD (2021^[20]), *Teachers and Leaders in Vocational Education and Training*, OECD Reviews of Vocational Education and Training, <https://dx.doi.org/10.1787/59d4fbb1-en>.

Supporting schools in offering relevant VET programmes

Schools may not always have the right incentives to offer relevant programmes

The Brazilian reform aims to expand provision of school-based VET and provide state schools with larger responsibility over the mix of programmes on offer and their content. But provision of VET may pose many challenges to schools, in particular to those with limited track record of VET provision.

VET programmes are more expensive than academic ones as workshop equipment can be costly. Cost differences between academic and vocational programmes are often reflected in the funding formula with VET students/programmes attracting higher funding. However, estimating the real cost of a VET programme can be complicated as the cost of provision differ largely across programmes, and if the funds are not earmarked schools may still privilege provision of less expensive programmes (e.g. programmes in business that can be provided in classrooms are less expensive than programmes requiring expensive workshop equipment such as programmes in aviation mechanics).

Workshop equipment should also be regularly updated to keep up with technological innovations adopted by firms, which may increase the cost of training considerably. Learning car mechanics on an old car can be instructive but does not prepare students for dealing with modern cars loaded with electronics. However, acquiring brand new cars for training can be expensive.

These are serious constraints and unless schools are supported, there is a risk they would provide programmes in areas that are easy to provide (e.g. in which they have equipment and VET teachers already available), but not necessarily in occupations for which the demand in the labour market is high. Moreover, schools may opt out all together from providing VET if they are given such a choice. Souza et al. (2015^[21]) argue that the mismatch between VET provision and labour market demand for skills is already a challenge in Brazil as the choice of VET courses is decided mainly by VET institutions with little consideration for the labour market side.

Organisation of the school network and the choice of VET programmes on offer

VET providers may curtail the offer of expensive VET programmes and prefer to provide programmes that are cheaper to deliver, because they are more classroom-based or because they do not require expensive equipment. The cost of good quality provision is particularly high for small schools, where class sizes are small, or where unexpected fluctuations in student numbers mean that some teachers and workshops cannot be easily redeployed. For example, Swedish VET schools are very small, with average enrolments per VET school at around 100 pupils. Given economies of scale, the small size of schools increases the cost of VET provision and increases the risk that students will not be adequately linked to their career interest. Industry representatives in Sweden have expressed concern that some VET programmes are under-provided in some regions (Skolverket, 2015^[22]). The French VET system is also characterised by a large number of institutions. In 2016, a VET school (*Lycée Professionnel*) enrolled 300 students on average (Ministère de l'éducation nationale, 2017^[23]). But a study by the Court of Auditors judged the system as inefficient. It recommended an increase in the size of institutions and a review of the funding mechanisms that currently favour small schools (Cour des Comptes, 2015^[24]). Even in larger institutions the choice of vocational programmes on offer has cost implications. For example, provision of a wider range of programmes would typically be more expensive than provision of programmes in few selected areas. However, in remote areas with few upper secondary schools, a specialised VET institution may match student's interest less well than an institution with a variety of VET programmes. Countries address this issue by concentrating provision, sharing facilities and promoting school specialisation. An appropriate organisation of VET programmes can make them more student-friendly, for example by concentrating specialised VET coursework and WBL at the end of the programme.

Concentration of provision

By concentrating provision, the cost of providing VET programmes could be lowered and/or quality improved, as the fixed cost associated with running a VET programme, is, within reason, independent of the number of students. For example, if there are three schools in the area offering a similar VET programme, all three schools have to equip workshops and hire VET teachers to run the programme, sometimes in very small classes. Sharing the teachers and workshop either through collaboration between schools, or through actual school mergers, would therefore yield efficiencies. While there may also be economies of scale in general education, the need for equipment and a high level of specialisation mean that these economies of scale are more salient in the context of VET.

Economies of scale also apply to teaching staff, particularly in the occupational fields which are less common. Concentration of VET programmes in larger institutions may therefore alleviate VET teachers' shortages that may be expected to worsen in the future given the demographic trends in Brazil.

Larger VET schools could become regional VET hubs or centres of excellence, with high quality equipment and strong support of social partners. In school-based VET, schools often have to reach out to companies and are expected to establish collaboration with the social partners. If there are many VET schools in the region, and other institutions such as providers of courses for adults also seeking employers' involvement, such a large number of interlocutors makes it nearly impossible to establish meaningful collaboration of local firms with each school. Larger schools would mean that social partners' involvement could be focused more meaningfully on collaborative endeavours.

Many countries have concentrated their VET provision and promoted collaboration. In Estonia, Finland and Denmark a large share of VET students follow school-based VET, and all three countries have consolidated their VET provision, with a series of mergers leading to a considerable reduction in the number of institutions (see Box 2.6). The Netherlands is another example of country with consolidated VET provision, with many upper secondary VET schools enrolling several thousand pupils. These institutions have a capacity to address highly specialised technical areas with dedicated staff, and to purchase the very expensive equipment associated with these specialities. Many of these schools provide upper

secondary academic programmes alongside VET provision. In the Netherlands, there are 43 regional multisectoral VET colleges (*regionale opleidingscentra*), 12 specialist trade colleges specific for a branch of industry (*vakscholen*), 11 agricultural training centres (*agrарische opleidingscentra*) and one school for people with disabilities in hearing, language and communication (Smulders, Cox and Westerhuis, 2016^[25]).

Box 2.6. Consolidation of VET provision in Denmark, Finland and Estonia

Denmark

In a series of mergers have led to a considerable reduction in the number of VET institutions in Denmark. Remaining institutions are larger and can offer the student a greater choice of programmes. Currently in Denmark there are around 90 technical colleges offering upper secondary education. In addition to upper secondary VET programmes these institutions also offer higher technical and commercial examinations, programmes combining upper secondary academic and VET education and adult vocational courses. They can provide short-cycle higher education programmes and courses for enterprises in collaboration with higher education institutions (Andersen and Kruse, 2016^[26]).

Finland

In Finland the majority of young VET students are enrolled in school-based programmes. In recent years the government has encouraged mergers of VET institutions. During the period 2005 – 2017 the number of vocational institutions decreased from 182 to 96, while enrolment only dropped by 2%, so that institution size increased dramatically. The 96 vocational institutions enrol on average more than thousand students (Statistics Finland, 2018^[27]). In 2005 there were 60 institutions with less than 300 students, falling to 28 in 2013. A similar trend was observed in adult education, where the number of providers nearly halved between 2005-2017 (Koukku and Paronen, 2016^[28]; Stenstrom and Virolainen, 2014^[29]; Statistics Finland, 2018^[27]). In parallel the Finnish government has strongly encouraged institutions and other stakeholders to co-operate and network.

Estonia

To increase the quality and efficiency of VET in Estonia, many small providers were merged into regional VET centres offering a wide range of qualifications. Adjustments will continue in line with demographic trends (Cedefop, 2017^[30]).

Sharing facilities

Another way for VET providers to collaborate and achieve economies of scale is to share facilities. In South Carolina (United States) vocational courses are provided either on the upper secondary school site or in one of 39 training centres. Typically, training centres serve students from different schools in one local area, but 11 training centres cater to students from more than one local areas (Kuczera, 2011^[31]).

Schools specialisation

In some countries, schools specialise in one or a limited number of areas (see Box 2.7 for an example from Sweden). Specialisation of schools, focusing provision on just one field, such as health care, has many advantages. One option is for students to start their upper secondary VET programme in their local school, with an emphasis on more general education and training, and then attend a more specialised VET school in their second or third year. This would require students spending a couple of weeks in a different location but would reduce the potential problems associated with younger students spending long hours on commuting, or having to live away from home during the whole programme.

Box 2.7. Branch schools in Sweden

In 2018, a pilot exercise was launched, designating nine schools in Sweden as 'branch' schools, offering specialised VET programmes in sectors and areas where provision is inadequate to meet labour market demand, either because there are not enough students applying for these programmes, or the cost of their provision is too high for regular VET schools. VET schools can apply for state grants to send their students for at least six weeks to a branch school participating in the pilot, obtaining the part of their education and training that cannot be provided in the local school. An advantage of this approach is that students can receive most of their education and training in local schools and attend the more remote institution only for more specialised education and training. The student's "home school" retains the responsibility for the student throughout the education, including for the education and training received at the branch school. The 'home school' signs an agreement with the branch school that states, among other things, how the student's education will be carried out and the amount of funding that the branch school will receive.

The pilot will end in 2023 and if successful this initiative could be scaled up, with smaller and more costly specialisations concentrated in a small number of institutions.

Source: Kuczera, M. and S. Jeon (2019^[7]), *Vocational Education and Training in Sweden*, OECD Reviews of Vocational Education and Training, <https://doi.org/10.1787/g2q9fac5-en>; Skolverket (2021^[32]), Offer vocational training through industry schools, <https://www.skolverket.se/skolutveckling/anordna-och-administrera-utbildning/anordna-utbildning-pa-gymnasieniva/forsoksverksamhet-gymn/erbjud-yrkesutbildning-via-branschskolor> (accessed on 26 November 2021).

Conclusions

The Brazilian reform aims to expand provision of school-based VET and provide state schools with larger responsibility over the mix of programmes on offer and their content. But the mismatch between VET provision and labour market demand for skills is a challenge in Brazil as the choice of VET courses is decided mainly by VET institutions with little consideration for the labour market side (Souza et al., 2015^[21]). Brazil needs to consider how to support schools and co-ordinate provision of different VET programmes locally. Equitable access to high quality VET should be one of the criteria in the development of VET provision and school support. Otherwise, in a large and diversified country such as Brazil, there is a risk that benefits from the reform will not be distributed evenly, e.g. affluent regions will have high-quality VET provision whereas poorer areas will be left with no or lower-quality VET institutions. Moreover, the reform will certainly increase the demand for teachers of VET subjects. Flexible recruitment of skilled employees is one of the solutions to avoid teacher shortages and ensure that VET teachers have up-to-date industry-relevant skills and knowledge. This solution has already been introduced in Brazil as schools can hire professionals with relevant work experience but without teacher training (OECD, 2021^[33]). This is in line with practices encountered in many countries. However, countries that have flexible arrangements for VET teachers typically expect VET teachers without pedagogical training to complete teacher training while on the job.

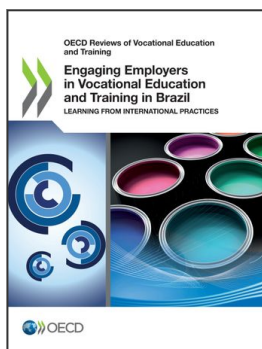
Brazil may consider providing various VET programmes or tracks that cater to the needs of different target populations. In Brazil, vocational qualifications are only awarded to those who complete their academic upper secondary studies. This arrangement may leave less academically oriented students with no qualification if they do not successfully complete their upper secondary education. Inclusion of demanding academic content in all VET programmes can be detrimental to less academically oriented students and may contribute to higher dropout rates.

References

- Andersen, O. and K. Kruse (2016), “Vocational education and training in Europe – Denmark.”, *Cedefop ReferNet VET in Europe reports*; <http://www.cedefop.europa.eu/en/publications-and-resources/country-reports/denmark-vet-europe-country-report-2016> (accessed on 16 July 2018). [26]
- Cedefop (2017), *Vocational Education and Training in Estonia: Short Description*, Luxembourg Publications Office, Luxembourg, <http://dx.doi.org/10.2801/15844>. [30]
- Cedefop (2013), *Spotlight on VET. Norway*, Publications Office of the European Union, Luxembourg, <http://dx.doi.org/10.2801/50807>. [10]
- Cour des Comptes (2015), *Rapport public thématique sur le coût du lycée*, <http://www.ccomptes.fr> (accessed on 2 August 2018). [24]
- Deloitte (2012), *Econometric Analysis of the Australian Apprenticeships Incentives Program*, <https://www.australianapprenticeships.gov.au/sites/ausapps/files/publication-documents/econometricanalysisaip.pdf>. [19]
- Fazekas, M. and I. Litjens (2014), *A Skills beyond School Review of the Netherlands*, OECD Reviews of Vocational Education and Training, OECD Publishing, Paris, <https://doi.org/10.1787/9789264221840-en>. [3]
- Ferreira, M. et al. (2021), *The Fast Track to New Skills. Short-Cycle Higher Education Programmes in Latin America and the Caribbean*, World Bank Group, <https://openknowledge.worldbank.org/bitstream/handle/10986/35598/9781464817069.pdf?sequence=4&isAllowed=y>. [5]
- Field, S. (2021), *A World Without Maps: Assessment in Technical Education: A Report to the Gatsby Foundation*, Gatsby Charitable Foundation, London, <https://www.gatsby.org.uk/uploads/education/reports/pdf/assessment-in-technical-education-simon-field.pdf>. [6]
- Field, S. and A. Guez (2018), *Pathways of Progression: Between Technical and Vocational Education and Training and Post-Secondary Education*, UNESCO, Paris, <http://unesdoc.unesco.org/images/0026/002659/265943e.pdf>. [11]
- Jørgensen, C. (2017), “From apprenticeships to higher vocational education in Denmark – building bridges while the gap is widening”, *Journal of Vocational Education & Training*, Vol. 69/1, pp. 64-80, <http://dx.doi.org/10.1080/13636820.2016.1275030>. [4]
- Kammermann, M., B. Stalder and A. Hättich (2011), “Two-year apprenticeships – a successful model of training?”, *Journal of Vocational Education & Training*, Vol. 63/3, pp. 377-396, <http://dx.doi.org/10.1080/13636820.2011.586130>. [17]
- Kis, V. (2020), “Improving evidence on VET: Comparative data and indicators”, *OECD Social, Employment and Migration Working Papers*, No. 250, OECD Publishing, Paris, <https://dx.doi.org/10.1787/d43dbf09-en>. [1]
- Kis, V. (2016), “Work-based Learning for Youth at Risk: Getting Employers on Board”, *OECD Education Working Papers*, No. 150, OECD Publishing, Paris, <https://dx.doi.org/10.1787/5e122a91-en>. [16]

- Koukku, A. and P. Paronen (2016), “Vocational Education and Training in Europe: Finland”, [28]
Cedefop ReferNet VET in Europe reports,
http://libserver.cedefop.europa.eu/vetelib/2016/2016_CR_FI.pdf (accessed on 11 June 2018).
- Kuczera, M. (2011), *OECD Reviews of Vocational Education and Training: A Learning for Jobs Review of the United States, South Carolina 2011*, OECD Reviews of Vocational Education and Training, OECD Publishing, Paris, <https://dx.doi.org/10.1787/9789264114012-en>. [31]
- Kuczera, M. and S. Field (2018), *Apprenticeship in England, United Kingdom*, OECD Reviews of Vocational Education and Training, OECD Publishing, Paris, <https://dx.doi.org/10.1787/9789264298507-en>. [14]
- Kuczera, M. and S. Jeon (2019), *Vocational Education and Training in Sweden*, OECD Reviews of Vocational Education and Training, OECD Publishing, Paris, <https://doi.org/10.1787/g2g9fac5-en>. [7]
- Meyer, T. (2003), *When Being Smart Is Not Enough: Institutional and Social Access Barriers to Upper secondary Education and Their Consequences on Successful Labour Market Entry. The Case of Switzerland*, *Transitions in Youth Network (TIY) 2003 Conference*, <http://www.coreched.ch/publikationen/meyer.pdf>. [12]
- Ministère de l'éducation nationale (2017), *Repères et références statistiques sur les enseignements, la formation et la recherche*, http://cache.media.education.gouv.fr/file/2017/82/7/depp-rers-2017-etablisements-maj-dec-2017_861827.pdf (accessed on 1 August 2018). [23]
- Ministry of Education Sweden (2018), “Review of VET in Sweden. Background report”. [8]
- Norwegian Ministry of Education and Research (n.d.), *Structure of Subjects in Initial VET*, <http://www.oecd.org/edu/school/45158199.pdf>. [15]
- OECD (2021), *Education in Brazil. An International Perspective*, OECD Publishing, Paris, <https://doi.org/10.1787/60a667f7-en>. [33]
- OECD (2021), *Teachers and Leaders in Vocational Education and Training*, OECD Reviews of Vocational Education and Training, OECD Publishing, Paris, <https://dx.doi.org/10.1787/59d4fbb1-en>. [20]
- OECD (2017), *Education in Costa Rica*, Reviews of National Policies for Education, OECD Publishing, Paris, <https://dx.doi.org/10.1787/9789264277335-en>. [2]
- SERI (2016), *Vocational and Professional Education and Training in Switzerland: Facts and Figures*, State Secretariat for Education, Research and Innovation. [18]
- Skolverket (2021), *Offer vocational training through industry schools*, <https://www.skolverket.se/skolutveckling/anordna-och-administrera-utbildning/anordna-utbildning-pa-gymnasieniva/forsoksverksamhet-gymn/erbjud-yrkesutbildning-via-branschskolor> (accessed on 26 November 2021). [32]
- Skolverket (2017), *Recognition of the mission on monitoring of the secondary school in 2017 No. 2016: 01706*, <http://www.skolverket.se> (accessed on 18 July 2018). [13]

- Skolverket (2015), *An Assessment of the Situation in the Swedish School System 2015*, Skolverket, Stockholm, https://www.skolverket.se/om-skolverket/andra-sprak/in-english/publication/2.5845?_xurl=http%3A%2F%2Fwww5.skolverket.se%2Fwtpub%2Fws%2Fskolbok%2Fpubext%2Ftrycksak%2Fblob%2Fpdf3551.pdf%3Fk%3D3551 (accessed on 4 June 2018). [22]
- Smulders, H., A. Cox and A. Westerhuis (2016), *Netherlands: VET in Europe: country report 2016*, http://libserver.cedefop.europa.eu/vetelib/2016/2016_CR_NL.pdf (accessed on 15 June 2018). [25]
- Souza, A. et al. (2015), *Vocational Education and Training in Brazil. Knowledge Sharing Forum on Development Experiences: Comparative Experiences of Korea and Latin America and the Caribbean*, Inter-Development American Bank. [21]
- Statistics Finland (2018), *Providers of education and educational institutions 2017*, http://www.stat.fi/til/kjarj/2017/kjarj_2017_2018-02-13_tie_001_en.html (accessed on 22 June 2018). [27]
- Statistics Sweden (SCB) (2017), *Minskat intresse för gymnasiets yrkesprogram*, <https://www.scb.se/hitta-statistik/artiklar/2017/Minskat-intresse-for-gymnasiets-yrkesprogram/> (accessed on 27 August 2018). [9]
- Stenstrom, M. and M. Virolainen (2014), *The current state and challenges of vocational education and training in Finland | VOCEDplus, the international tertiary education and research database*, <http://www.voced.edu.au/content/ngv%3A66853>. [29]



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