Chapter 4. Co-ordinating educational levels and sectors to improve student trajectories

This chapter analyses how the vertical and horizontal co-ordination of the educational offer can improve students' trajectories and contribute to greater efficiency. First, it discusses the co-ordination of years and levels of education and the challenges that arise from barriers to students' vertical progression. These include year repetition, early school leaving and unsuccessful transitions beyond secondary education. The chapter then analyses the horizontal co-ordination of parallel sectors and programmes. It focuses on inequities and inefficiencies that arise from the duplication or fragmentation of services and from the insufficient co-ordination of general and vocational, mainstream and special needs pathways. The chapter concludes with a set of policy options to address these challenges.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Providing all students - regardless of their social background, educational need, or unique interests - with a high-quality education is a central priority of education systems across the OECD. Strengthening the capacity of school systems to address this challenge critically depends on the efficient organisation of the many components of the educational offer. School systems must be organised to facilitate regular progress from pre-primary through post-secondary education and the labour market. They must successfully guide students to access the appropriate supports for their particular educational profiles. At the core, this challenge relates to providing families and children with options and pathways that simultaneously promote the student's future opportunities and societal goals of excellence and equity. Accomplishing this requires careful co-ordination between the different levels and sectors of the school system.

In OECD countries, students choose between (or are selected into) a great variety of educational pathways: general or vocational tracks; separate or integrated education of students with special educational needs (SEN); public or private provision (addressed in Chapter 2); different programmes within schools, and so on. Offering students and families a variety of educational pathways and parallel programmes promises a diverse educational provision that matches each student's interests and potential. At the same time, it may lead to increased segregation, mismatches in students' pathway choices and a fragmentation of the educational offer. The co-ordination of education services across levels, sectors and programmes is therefore critical to reap the benefits of a diversified offer, to ensure students' smooth progression throughout compulsory and upper secondary education and to employ educational resources efficiently. This chapter analyses this co-ordination along two dimensions: First, the co-ordination of school years and levels of education to improve students' vertical transitions. Second, the co-ordination of parallel sectors and programmes and students' horizontal transitions between them.The way in which school systems organise different levels, sectors and programmes of education affects how children and families engage with and transition through the schooling process. Vertical transitions play an important role in all students' educational experiences, often right from the beginning of their time in school. Students enrol in early education and care services, accumulate years of educational attainment, and leverage these educational milestones to seek success in the labour market. Horizontal transitions, on the other hand, occur for some, but not all students, often at key inflection points in a child's educational pathway. They include shifting from a general curricular programme to a vocational pathway or from a general classroom into a separate special education class. Both contextual conditions and institutional factors can create barriers for students' smooth progression through the education system. The design of vertical and horizontal transitions is crucial to overcome these challenges while ensuring that school resources are efficiently and equitably allocated across education sectors and programmes.

4.1. Characteristics of vertical and horizontal educational pathways in OECD review countries

Students' experience as they progress across levels of education differs markedly across OECD countries. At the starting point of their educational trajectory, the proportion of three-year-old children enrolled in early childhood education widely ranges from 56% in Chile to over 95% in Belgium and Denmark (see Table 4.1). Analogously, at the end of their school education, in some countries nearly every student (92% in Denmark and Lithuania) graduates from an upper secondary school. By contrast, in the Czech Republic nearly a quarter fail to receive their degree. While more than 90% of Israelis and Koreans

below the age of 25 graduate from upper secondary education, less than 70% of Mexicans, Spanish or Turks are able to complete their degrees by this age (OECD, 2017, p. 62 Table A2.2[1]). Such differences often reflect variations in policy and practice. Notably, year repetition is one of the factors that has the strongest impact on students' vertical progression. An average of 11.3% of 15-year-old students across the OECD report having repeated a year. Across the countries visited by the OECD School Resources Review, this figure ranges from 2.5% in Lithuania to 42.6% in Colombia (OECD, 2016, p. Table II.5.9[2]).

In the horizontal dimension, there are also major differences in the proportions of students enrolled in various educational pathways. In Denmark and Belgium, nearly 5% of students are placed in separate special education classes or schools, whereas in Portugal and Lithuania, this is true for only about 1% of students. In Denmark and Estonia, 15-year-old students are typically enrolled in a common pathway, and are not placed into a general or vocational programme until they are 16 years old. However, in some of the OECD review countries, secondary education is organised in four, five, six, or even eight potential pathways in which 15-year-old students might be enrolled, usually stemming from the distinction between general and vocational programmes. Students in these countries may have initiated enrolment in general or vocational tracks as young as 10 or 11 or as old as 16 years of age. Unsurprisingly, there are also wide ranges in the enrolment rates of students in general and vocational pathways, with as many as 41% of 15-19 year-olds enrolled in general upper secondary programmes in Chile, compared to 18% in Austria (see Table 4.1).

Successful completion of alternative pathways also differs within and across countries. As with overall graduation rates, the variation in graduation between general and vocational programmes varies substantially. As few as 14% of Lithuanian young people who enter the Vocational Education and Training (VET) system graduate on time, but as many as 80% of Austrian VET students earn a diploma. These percentages reflect differences in effectiveness, orientation, rigour and purpose. Therefore these comparisons are not intended to rank the performance of each system, but rather to highlight differences in structure at the country level.

While the sample of education systems participating in the OECD Review of School Resources is not representative or exhaustive of the OECD and partner countries, it includes a rich diversity of conditions, practices and outcomes that permits a valuable series of comparative problems for practice and policy solutions to emerge.

Table 4.1. School pathways in OECD School Resources Review countries

	Enrolment rates in ISCED 01/02, age 3	SEN (%)	SEN in separate schools (%)	Repeat (%)	Number of school types available to 15-year-olds	Age of 1st tracking	Enrolment rate, 15-19 year olds			Upper secondary graduation rates		
							General upper secondary (%)	Upper secondary VET (%)	Of which, in combined school/ work programmes	First-time grad rates, all	Grad rate, general	Grad rate, VET
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Austria	75	..	..	15.2	5 (5)	10	18	44	21	90	20	80
Belgium (Fl.)	98 (b,2)	5.7	4.4	34.0 (b)	4 (b)	12 (b)	29 (b)	39 (b)	2 (b)	35	38 (b)	60 (b)
Chile	56	5.0	2 (3)	24.6	3 (1)	16 (1)	41	19	1	90	61	29
Colombia	60	2.2	..	42.6	2	15	18	7	x	72	..	..
Czech Republic	77	..	..	4.8	6	11	21	52	5	76	24	57
Denmark	97	..	4.8 (4)	3.4	1	16	40	12	12	92	69	44
Estonia	87	4.2	3.9	4.0	1	16	39	18	0	..	60	26
Lithuania	77	11.0	1.0	2.5	5	16	32	10	x	92	79	14
Portugal	..	5.8	1.2	31.2	3	15	37	23	x	89	45	44
Slovak Republic	60	7.0	3.5	6.5	5	11	21	44	4	80	27	54
Uruguay	..	3.0 (3)	2.9 (3)	35.3	2	15	..	..	..	..	..	..

Note: Kazakhstan not included due to lack of internationally comparable data. See EAG 2017, Annex 3, for notes http://www.oecd.org/edu/skills-beyond-school/EAG2017-Annex-3.pdf.

x: Data not applicable because category does not apply.

b: data refers to all of Belgium.

..: Data are not available in the specified sources.

1: In Chile, 15-year-olds can be enrolled in three types of school according to the study programme they offer: only general studies, only vocational studies, or both. At the modal year for 15-year-olds (Year 10), a common curriculum or education programme is offered in these three types of school. Vocational studies begin only at Year 11.

2: Includes only ISCED 02 enrolled students, ISCED 01 data not available.

3: ISCED 1 only (in Uruguay, there is no provision of special education services at secondary level); year of reference: 2016; data compiled from MEC Statistical Yearbooks and Bulletins of public and private education of the Educational Statistics Department of CEIP

4: Municipal schools only.

5: Year of reference 2018.

Sources: Column 1: OECD (2017), *Education at a Glance 2017: OECD Indicators*, OECD Publishing, Paris, http://dx.doi.org/10.1787/eag-2017-en, Table C2.1; Columns 2-3: Country background reports, unless otherwise noted (see www.oecd.org/education/schoolresourcesreview.htm); Columns 4-6: OECD (2016), *PISA 2015 Results (Volume II): Policies and Practices for Successful Schools*, OECD Publishing, Paris., http://dx.doi.org/10.1787/9789264267510-en, Figure II.5.3 and Table II.5.27; Columns 7-9: OECD (2016), *Education at a Glance 2016: OECD Indicators*, OECD Publishing, Paris, https://doi.org/10.1787/eag-2016-en; Table C1.3a; Columns 10-12: OECD (2017), *Education at a Glance 2017: OECD Indicators*, OECD Publishing, Paris, http://dx.doi.org/10.1787/eag-2017-en, Table A2.2.

The academic and socio-emotional needs of students across the OECD have increased substantially over the past decade. Between the 2006 and 2015 OECD Programme for International Student Assessment (PISA) cycles, the percentage of students with an immigrant background in OECD countries increased from 9.4% to 12.6%, in line with the share of students who speak a foreign language at home (OECD, 2016, pp. 421-423[3]). Growing percentages of students are identified as having special educational needs and are integrated within inclusive environments in mainstream schools. Despite increases in the level of students' needs in schools, the impact of students' socio-economic status on their science performance remained statistically identical between 2006 and 2015 (OECD, 2016, pp. 418-420[3]).

The challenges for addressing students' needs within schools are also evolving. The proportion of students who felt socially isolated in their school grew by nearly 10 percentage points between 2003 and 2015 – one of several OECD indicators pointing to students' growing socio-emotional needs (OECD, 2017, pp. 345-346[4]). As the level of students' needs has increased, so too have ambitions to hold schools accountable for the measurable performance of all students. Thus, more than ever, schools must be enabled to continue their progress in helping a diverse range of students overcome the obstacles imposed by socio-economic and cultural disadvantage and to prepare them for responsible citizenship and success in the labour market. When all actors in school systems are aligned, schools may more easily continue their progress from the 2015 PISA in overcoming obstacles imposed by socio-economic and cultural disadvantage.

There is widespread evidence of fragmentation in the offer of school services by educational levels, sectors and educational programming[1]. Unfortunately, the challenges systems face in supporting students to successfully transition through school levels, sectors and services carry significant individual and societal costs. Poor transitions between school years risk students falling behind in their academic curriculum, repeating years or leaving school early.

Thus, it is critical that policymakers and practitioners prepare schools to support students' success. The remainder of this chapter first describes barriers to student progress in primary and secondary schooling and mechanisms to improve these vertical transitions. It then maps the diversity of educational sectors, pathways and programmes and some of the challenges associated with students' horizontal transitions between them. Throughout, the chapter articulates strategies to ensure that resource expenditure maximises student interest and labour market demands without sacrificing equity. The chapter concludes with a series of policy options to promote co-ordination of smooth and successful vertical and horizontal transitions.

4.2. Vertical co-ordination and students' transitions across levels of education

Formal education is a cumulative – if not linear – process. When student progression through school is compromised by knowledge gaps or inappropriate year repetition, students risk leaving school early, failing to progress to tertiary education and having lower prospects in the labour market. Academic skill gaps result in meaningfully worse later-life outcomes. Young adults who struggle with literacy skills experience a nearly 21 percentage point higher rate of being neither employed nor in education or training (NEET) relatively to those who otherwise demonstrate higher proficiency on OECD's Survey of Adult Skills (OECD, 2016, p. 360 Table C5.3 (L)[5]). The benefits of literacy are not only limited to better employment prospects. Adults who show the highest levels of literacy skills report

being in good health at rates nearly 30 percentage points higher than low skilled individuals (OECD, 2016, p. 163 Table A8.1 (L))[5].

Alongside literacy and numeracy skills, higher educational attainment continues to be relevant to improved returns in the labour market. Those who achieved tertiary education diplomas experienced 25 percentage points higher levels of employment in 2016 relative to those below an upper secondary education (Figure 4.1). This pattern is, on average, true across all levels of educational progression.

Figure 4.1. Employment rates of 25-34 year-olds, by educational attainment and programme orientation, 2016
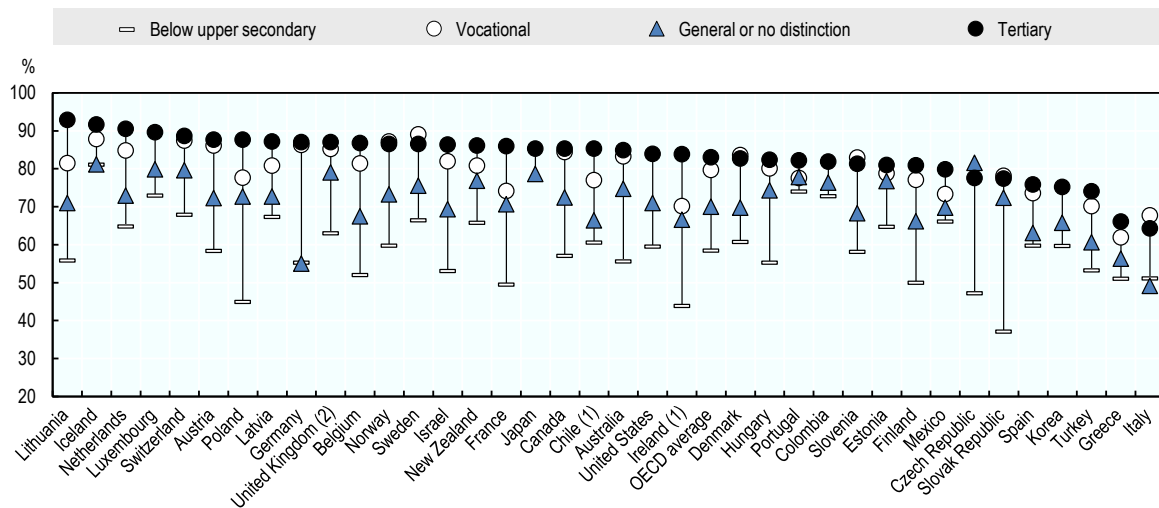
Note: Countries are ranked in descending order of the employment rate of tertiary-educated 25-34 year-olds. The label 'general or no distinction' refers to upper secondary or post-secondary non-tertiary general education for countries with a vocational track and to all upper secondary or post-secondary non-tertiary education otherwise.
1: Year of reference differs from 2016.
2: Data for upper secondary attainment include completion of a sufficient volume and standard of programmes that would be classified individually as completion of intermediate upper secondary programmes (16% of the adults aged 25-64 are in this group).
Source: OECD (2017), *Education at a Glance 2017: OECD Indicators*, OECD Publishing, Paris, http://dx.doi.org/10.1787/eag-2017-en, Table A5.1.

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Greater educational attainment is also reflected in larger financial returns. Employed workers experience a nearly 100% earnings benefit as a result of completing tertiary education compared to workers who fail to complete upper secondary education (OECD, 2017, p. 114 Table A6.1[1]). These benefits accrue not just to the individual but to society. As a result of reductions in unemployment payments, higher income tax payments, social contributions and transfers, the estimated net per capita public returns of completing upper secondary education are USD 66 000 (PPP) for men and USD 51 100 (PPP) for women (OECD, 2017, p. 128 Tables A7.5a and A7.5b[1]). The public returns are even greater for completing tertiary as compared to upper secondary education (OECD, 2017, pp. 131 f., Tables A7.2a and A7.2b[1]).

The failure to provide students with a smooth progression through the education system and guide them to programmes that correspond to their interests and potential can increase the likelihood of educational failure and skills mismatches later on. This section highlights challenges and opportunities to support students in progressing sequentially upwards through their educational journey.

Year repetition, early school leaving, and unsuccessful transitions beyond secondary education are common across the OECD and within the countries participating in the School Resources Review. Failing to design pathways conducive to a smooth vertical progression of students throughout the system leads to both an inefficient and inequitable use of school resources. Poor year-over-year progress risks students falling behind in their academic curriculum, repeating years or leaving school early. Interventions specific to these problems, as well as the common application of early warning data systems and external support staff can counteract the negative effects of these challenges.

Transitions between early childhood education and care (ECEC), primary and secondary education

There is widespread evidence of fragmentation in the offer of school services by educational levels. A recent OECD report on the state of ECEC finds substantial variation in practices and policies employed across ECEC and primary providers (OECD, 2017[6]). While minimal causal evidence exists on the benefits of specifically targeted transition support into primary education, correlational evidence from Finland and the United States finds that students who engaged in more transition activities from pre-primary to primary schooling experienced positive academic outcomes (Ahtola et al., 2011[7]; Schulting, Malone and Dodge, 2005[8]). In the United States, this effect was most pronounced for low-income children.

Additionally, school systems across the OECD have struggled with the best ways to address the unique learning and social needs of students transitioning from primary into lower secondary education. Psychologists find consistently worse achievement-related attitudes and beliefs among students transitioning to lower secondary schools. Some have attributed this to a mismatch between the motivational and developmental needs of early adolescents and the structure of lower secondary schools (Eccles and Midgley, 1989[9]).

The transition between lower and upper secondary levels of education is often one of the most fraught. This transition point is frequently aligned with movement into general and VET tracks (OECD, 2016, p. 167 Figure II.5.8[2]). It also happens in many countries near the age for the end of compulsory education (OECD, 2017, pp. 420 ff., Tables X1.1b and X1.3[1]). As a result, it can be an inflection point for some students leading to either early school leaving or tracking into an educational programme that prepares students for entry into either post-secondary education or the labour market.

Insufficient co-ordination between multiple governing bodies can create barriers to students' vertical transitions, particularly from ECEC to primary

Different levels of the education system are often governed by different public authorities. Although the approaches for public governance of education vary across countries, some patterns hold consistently. Notably, ECEC and primary education are relatively more locally managed than secondary education, which tends to be the responsibility of central governments (see Chapter 2). In some cases, responsibilities are not only divided between public authorities at different levels of government, but also between multiple actors at the

same level of government. This is commonly observed in centrally governed ECEC sectors whose regulatory frameworks are co-administered by multiple ministries.

Effective co-ordination across the governing bodies involved in educational provision is crucial to ensure a smooth progression across levels of education. A commonly observed challenge is at the transition from pre-primary to primary education. Some of the concerns include the unpreparedness for the increased rigours of primary school, significantly different pedagogical techniques being used at the primary level relative to ECEC, or varying levels of teacher qualification requirements, associated with differing instructional skill levels between ECEC and primary institutions (OECD, 2017[6]).

Among OECD review countries, these divisions of responsibilities have been identified as a reason for the relative isolation of ECEC and primary education subsystems. For example, in the Slovak Republic, funding of ECEC providers is under the responsibility of municipalities and comes from their own revenues, while the financing of primary education is ensured by the central budget. Therefore, the local level has few incentives and significant barriers to organise pre-primary and primary education as integrated services, allowing for smoother transitions across levels (Santiago et al., 2016[11]). The alignment of funding models across subsystems and the integration of provision holds the potential for greater efficiency.

Providing ECEC services under the same administrative leadership as primary or basic education can encourage resource sharing, common professional development, curriculum and instructional practices, as well as built-in mechanisms to support students' transitions. Nevertheless, the integration of ECEC and primary education services also entails considerable concerns. The provision of ECEC services in integrated schools presents risks associated with introducing children to formal school environments too soon. Therefore, public authorities must weigh the potential efficiency and effectiveness gains of integrated provision against the risks of a "schoolification" in pre-primary education and its impacts on the cognitive and socio-emotional development of children. Furthermore, the higher teaching qualification requirements and public employee status of primary teachers regularly result in higher salary and fringe benefits than pre-primary teachers. Thus, full integration of the two sectors can impose substantial costs. In the absence of integrated provision, enhanced collaboration between providers of ECEC and primary education can help improve transitions for children.

Adapting school year configurations to minimise transitions

Parent advocates, politicians and commentators frequently debate the appropriate school year configuration in which to organise schools. These debates can be motivated by concerns about early tracking, separating students into developmentally appropriate bands, a need to capture scale efficiencies, or worries by parents that their younger children not attend schools with more mature adolescents.

In Germany, extending primary school through Year 6 (*Grundschule)* has been presented as a way of delaying early tracking from age 10 to 12. Similarly, in Scandinavian countries that provide all of compulsory education (Year 1 to 9) together in one "basic school", the arguments in favour of this arrangement have generally centred on the equity enhancements this arrangement produces.

Based on concerns about students who struggle with transitions, there can be an independent benefit to avoiding the disruptive effect of transitions. Several studies in the United States have found benefits in student outcomes to eliminating entirely the

transition between primary and lower secondary schooling and keeping students in their same primary school through Year 8 (Rockoff and Lockwood, 2010[12]; Schwerdt and West, 2013[13]). In Sweden, a 1994 reform aimed at integrating grades 7-9 in locally run basic schools, led students to keep attending smaller schools closer to their homes, while having no significant impacts on educational outcomes as a result of the policy change (Holmlund and Böhlmark, 2017[14]).

A greater integration of different levels of education can also be achieved through an alternative administration of schools and curricula for a more efficient allocation of resources. By grouping schools offering different levels of education, Portugal's cluster system enables students to complete their entire school education within the same extended school community if they so wish (see Chapter 3, Box 3.6). The move towards a reformed school administration was facilitated by an earlier revision in curricular standards that integrated Years 1-9 under a unified basic education curricular framework. Concomitantly, while different schools may still offer different cycles of basic or upper secondary education, clustering helps ensure a coherent curricular progression, leveraged by a unique administration and increased collaboration among teachers from different cycles (Portugal Ministry of Education, forthcoming[15]).

Transitions to post-secondary education and the labour market

Vertical transitions from the upper secondary level are instrumental to prepare students for integration in the labour market or for studying in higher education institutions. Of course, an additional critical transition point is that between post-secondary education and the labour market, although this falls outside the focus of this analysis. There is substantial evidence of students struggling to successfully complete the transition to post-secondary education. This can take several forms. Some students may not be aware of their eligibility for financial support or their competitiveness for entry into tertiary education (Hoxby and Avery, 2013[16]), an important concern in both countries with high tuition fees or opportunity costs related to foregone earnings. Ineffective transitions can also stem from an increasingly well-documented phenomenon of "summer melt", in which students indicate their intent to enrol in post-secondary institutions in the spring of their last year of secondary school, followed by a failure to ever enrol. Behavioural research in the context of the United States has shown that this is especially prevalent among students from disadvantaged socio-economic backgrounds. In some analyses, 4 in every 10 students from low-income families who have reported a desire to enrol in tertiary education, fail to do so during the summer (Castleman and Page, 2014[17]). Financial barriers for enrolment are an obvious constraint, but policymakers must also be conscious of other constraints. In particular, the way in which the information for enrolment in higher levels of education is conveyed may contribute to persistent inequality of access. Students may suffer from inadequate counselling and insufficient incentives to access formal support even when it is available. Effective career advice helps students to understand their potential, to update their initial expectations and to better situate all their post-secondary options.

Effective transitions to post-secondary education and the labour market depend on intensive, individualised coaching and guidance. Guidance counselling is a key tool to help students self-identify their aspirations and abilities. It includes both general career and post-secondary counselling, where students learn about the work environment and post-secondary options, as well as individual advice, where students reflect on their potential choices.

If based on high-quality information, student guidance has the potential to better link student preferences with post-secondary and labour market demands. The growing complexity of school-to-work and post-secondary transitions, propelled by a rapidly changing skills demand, fuels the urgency of effective student counselling. Recent causal evidence finds that counselling can shift enrolment choices toward long-cycle tertiary options that have higher graduation rates than the alternatives students would otherwise choose. Counselling also improves persistence through at least the second year of tertiary studies, suggesting the potential to increase the degree completion rates of disadvantaged students (Castleman and Goodman, 2016[18]). Where there are no formal career guidance services at schools, students rely on informal sources – such as parents and peers – which tend to reinforce existing socio-economic inequalities (OECD, 2010[19]).

Counselling is thus crucial to set students' sights higher, while providing them with smoother transitions to post-secondary education or the labour market. However, education systems face a series of concerns regarding the effective provision of this type of support. An OECD review of upper secondary VET identified a number of these challenges: inadequate preparation of counselling staff, multiple staff and institutions responsible for different aspects of counselling, a shortage of counsellors, and lack of relevant labour market information (OECD, 2010[19]). The ratio of students to counsellors in many countries is very high, resulting in superficial and insufficient services to most students. Data on labour market supply and demand, as well as tertiary education quality and affordability often require cautious interpretation. Effective counselling should allow students to navigate these complex decisions, while updating their initial preferences and expectations.

Figure 4.2 depicts the percentage of 15-year-old students who have accessed different types of career guidance across several OECD countries for which data is available. Access to this type of service varies widely. While in countries like Denmark and Finland more than 80% of the students have consulted with career advisors at school, less than 3 in 10 students have accessed these services in Austria, Belgium, Hungary or the Slovak Republic. Figure 4.2 also shows that in countries where students rarely consult advisors at school, this is not replaced by career guidance outside the school environment. On the other hand, education systems where interaction with career advisors at school is low tend to have somewhat higher frequency of worksite visits and internships.

Formal career guidance services were often underdeveloped in many OECD review countries. In Austria, educational psychology and career guidance (*Schulpsychologie / Bildungsberatung*) was provided by 77 information centres with only 150 educational psychologists for the whole country, mainly relegating that function to teachers with counselling preparation. Figure 4.2 shows that Austria has below average guidance at schools, mainly relying on visits to employers instead. In order to address the limited access students had to school-based guidance, the Austrian government made career guidance classes compulsory in lower secondary education (Nusche et al., 2016[20]; Federal Ministry for Digital and Economic Affairs, 2012[21]).

Other countries participating in the Review have expressed that high-quality student counselling is a clear policy priority. In Slovenia, the Ministry of Education, Science and Sport aims to improve the provision of career guidance for students in schools across all levels of education. The planned reforms are intended to be implemented vis-à-vis a modernisation of the Slovenian VET system and a move towards a system of apprenticeships. Vocational guidance in the country is co-ordinated by counselling services, also offered in lower secondary education. In co-ordination with teachers, external experts

and career advisors of the Employment Service of Slovenia, school counselling services provide visits to companies, career information, counselling on educational choice and occupations, evaluation of students capabilities and follow-up of the counselees (Republic of Slovenia Ministry of Education, 2016[22]). This policy priority seems to be confirmed by the data, where Slovenia is a comparative leader in the accessibility of career advisors at school and in the frequency of worksite visits (Figure 4.2).

Figure 4.2. Percentage of 15-year-old students who reported having accessed different types of career guidance, 2012

Selected OECD countries and partners
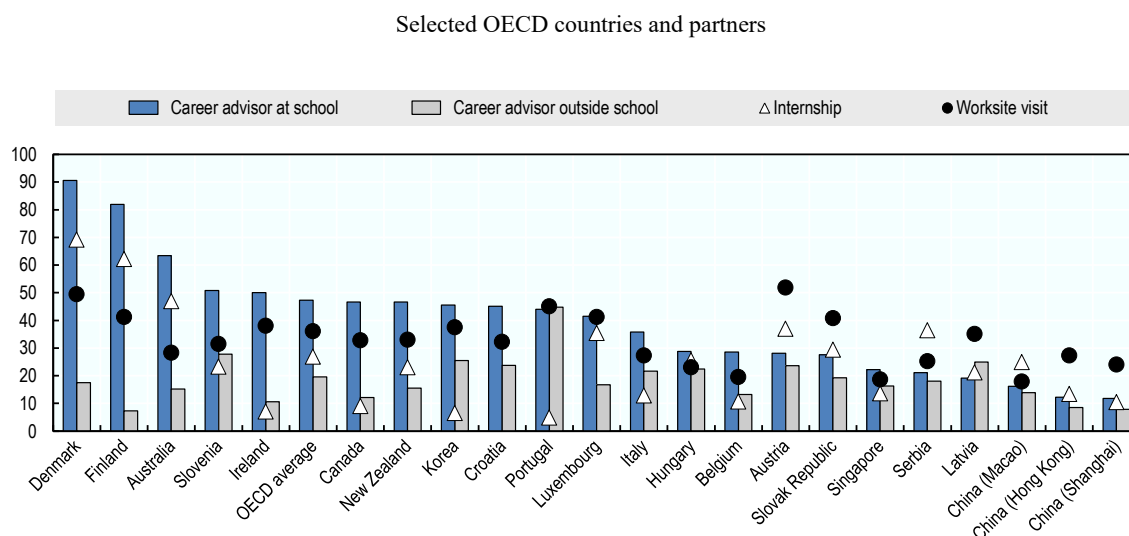
Note: Countries and economies are ranked in descending order of the share of students who had access to a career advisor at school.
Source: OECD (2012), PISA 2012 Database.

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Comparative data on the availability of guidance counsellors to students is difficult to obtain. In the United States, there was one guidance counsellor for every 491 students in 2013/14, whereas the maximal recommended number of students per guidance counsellor is 250 and the rate should be lower for guidance counsellors serving large numbers of students with social and educational disadvantages (American School Counselor Association, 2015[23]). The overall comparative pattern suggests that students across OECD countries would benefit from greater access to guidance services.

While guidance services have clear positive benefits for students in terms of labour market participation and post-secondary enrolment, other less resource intensive interventions may produce similar benefits for students. When students receive information on the schools for which their qualifications make them eligible and opportunities for financial support, they are more likely to attend more rigorous institutions (Hoxby and Avery, 2013[16]). When standard information is already pre-populated on application forms, and when students receive regular text messaging reminders to complete application processes, they are much more likely to enrol in post-secondary education than when left to their own devices (Castleman and Page, 2013[24]; Castleman, Page and Schooley, 2014[25]). This is particularly true for students from disadvantaged socio-economic backgrounds.

Addressing barriers to students' vertical progression

The progression of students through vertical pathways in school is affected by institutional factors. These include such educational regulations as academic standards, promotion examinations, year repetition practices, structures to support struggling learners and others. Education systems must constantly navigate a tension between adopting policies intended to, on the one hand, impose high standards for students' knowledge and skills to ensure that they acquire the necessary skills for future life success, and on the other hand to promulgate policies that do not unnecessarily inhibit students' vertical progression.

Addressing high rates of year repetition through policy interventions and intensive support for struggling students

Whether students acquire specific academic skills may or may not determine whether they progress from one year to another, depending on system policies and cultural contexts (Goos et al., 2013[26]). At the extremes within OECD countries, all students in Japan and Norway progress from one year to the next as a matter of policy, whereas a full 34% of 15-year-olds in Belgium and 31% of students in Luxembourg, Portugal and Spain had repeated at least once in primary, lower secondary or upper secondary school (OECD, 2016, p. 368 Table II.5.9[2]).

International evidence provides no support for systematic grade repetition practices. Clear evidence shows that students who repeat years do worse on a host of measures than students who have never repeated (OECD, 2016[27]; Ikeda and García, 2014[28]). Researchers debate the proper counterfactual – how would students do had they never repeated? The evidence points to worse – or at best mixed outcomes for repeaters (Schwerdt, West and Winters, 2017[29]; Eren, Depew and Barnes, 2017[30]; Allen et al., 2009[31]; Jacob and Lefgren, 2004[32]; Jimerson, 2001[33]; Jimerson, Anderson and Whipple, 2002[34]) — and greater costs to society associated with retaining children in their year (Manacorda, 2012[35]; OECD, 2011[36]; Alet, Bonnal and Favard, 2013[37]; Benhenda and Grenet, 2015[38]). Poor results from year repetition may be partially explained by the fact that year repetition is rarely accompanied by a modified curriculum or additional instructional resources for the affected students. Disadvantaged students who fall behind may also not have the same access to early support and remedial opportunities as advantaged students.

Furthermore, year repetition raises equity concerns as socio-economically disadvantaged students are nearly 20% more likely to have been held back even when their academic performance, gender, level of motivation and immigrant status is identical to their more advantaged peers (Figure 4.3). Across OECD countries, one in five socio-economically disadvantaged students reported that they had repeated a year at least once since they entered primary school, while only 7% of advantaged students did. Similarly, boys were more than 1.5 times as likely as girls (and immigrants nearly twice as likely as native-born students) to have repeated a year, even when their academic performance, level of motivation and socio-economic status were identical (OECD, 2016, p. 164 Figure II.5.6[2]).

Year repetition, which adds an additional year of schooling and delays entry into the labour market by one year, is a costly practice. In a recent OECD estimate, the total estimated cost of year repetition was equivalent to 10% or more of the annual national expenditure on primary and secondary school education for some countries. The cost per 15-year-old student can be as high as USD 11 000 or more (Figure 4.4) (OECD, 2011[36]).

Figure 4.3. Students' socio-economic profile and year repetition, 2015

Change in the odds of having repeated a year associated with socio-economic status
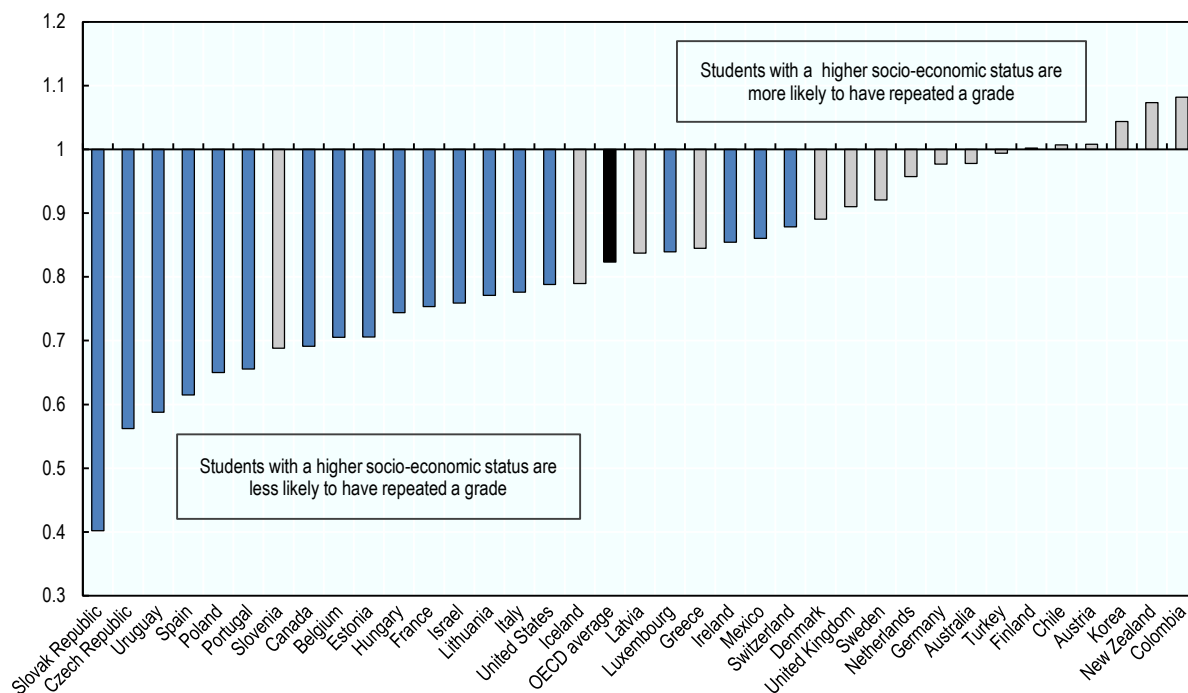

Note: Countries and economies are ranked in ascending order of the impact of socio-economic status on likelihood of year repetition. Statistically significant differences are marked in a darker tone. The socio-economic profile is measured by the PISA index of economic, social and cultural status. The logit regression model accounts for students' performance, truancy, motivation, gender and immigrant background.
Source: OECD (2015), PISA 2015 Database, http://dx.doi.org/10.1787/888933436132, Table II.5.13.

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Figure 4.4. Cost of grade repetition, 2009/10

Assuming that repeaters attain at most lower secondary school
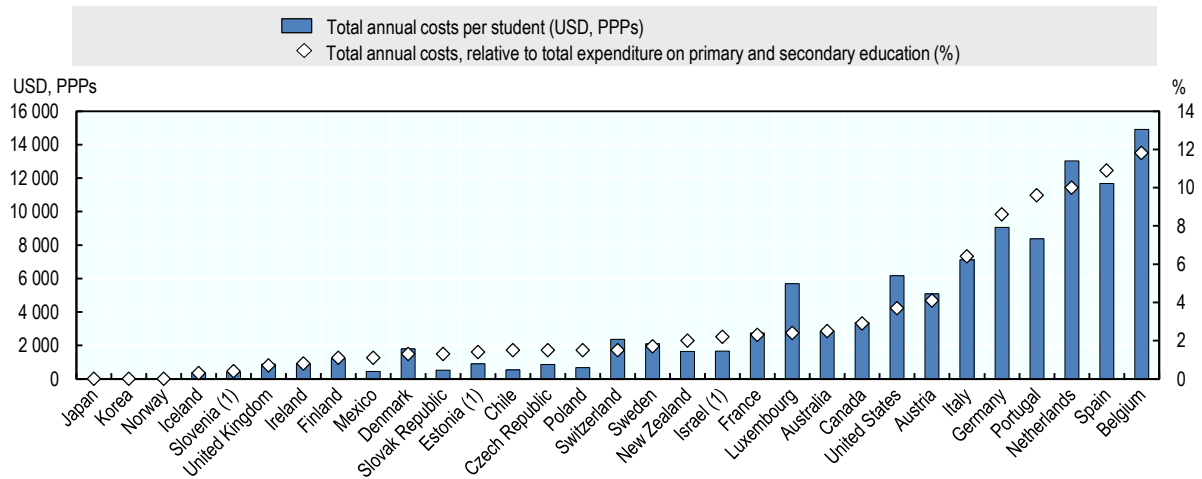
Note: These estimates add up both the direct and the opportunity cost and are based on the assumption that students who repeat years attain, at most, lower secondary education. These estimates do not address either the potential benefits of year repetition or the costs if school systems do not allow for year repetition. For example, students who have repeated a year might be better prepared for the labour market than if they had not done so. Schools might also have to spend more to offer remedial classes to struggling students if those students are not permitted to repeat a year.

1: In Estonia, Israel and Slovenia, gross annual full-time earnings are used as annual labour costs are not available in EAG 2010.

Source: OECD (2011), "When Students Repeat Grades or Are Transferred Out of School: What Does it Mean for Education Systems?", *PISA in Focus*, No. 6, OECD Publishing, Paris,
http://dx.doi.org/10.1787/5k9h362n5z45-en, Figure 2.

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Despite research evidence suggesting the ineffectiveness of year repetition, there are strong cultural attitudes in support of year repetition in many countries, particularly among educators (Paul, 1997 cited in (Field, Kuczera and Pont, 2007[39])).Teachers frequently believe that students must be held accountable for mastering year-level standards and skills prior to advancing to the next stage of education. Additionally, the threat of repetition can serve as a motivating tool to encourage productive behaviours in students (Range et al., 2012[40]). These are surely valid concerns, and for some students traditional forms of year repetition can be a valuable opportunity to solidify their learning gaps. However, using this practice as selectively as possible has educational performance, equity and cost benefits.

Over the past years, a number of OECD countries have taken steps to reduce their reliance on grade repetition practices. Across OECD countries, the percentage of 15-year-old students who reported that they had repeated a year at least once decreased by almost three percentage points between 2009 and 2015. Notably, the percentage of 15-year-old students who had repeated a year at least once had dropped by a margin of 10 percentage points or more in France, Latvia, and Mexico. By contrast, in Austria the percentage was higher in 2015 than it was in 2009 (Figure 4.5).

Figure 4.5. Change in the year repetition rate between 2009 and 2015

Percentage of students who had repeated a year in primary, lower secondary or upper secondary school
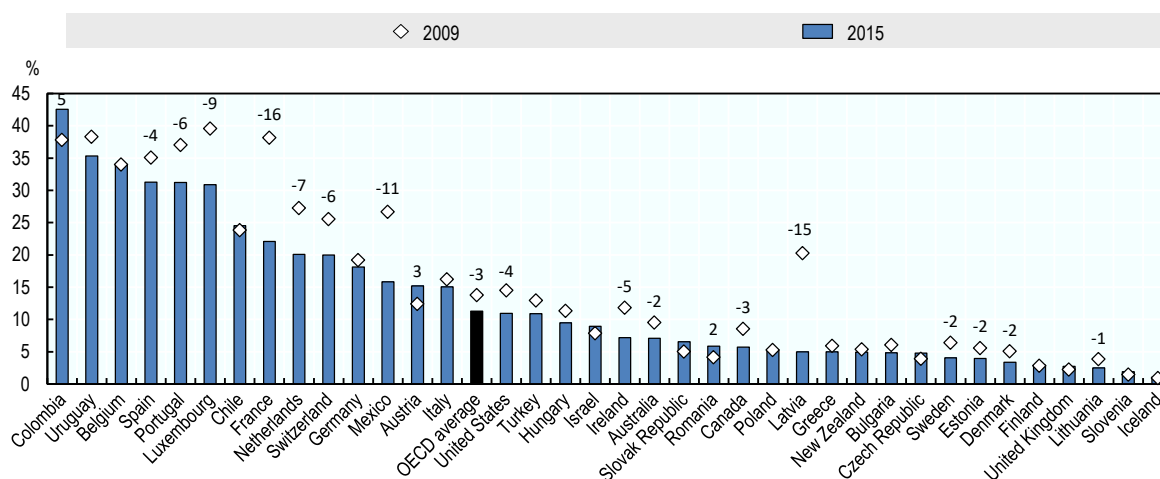
Note: Statistically significant differences are shown above the bars. Only countries and economies with comparable data from PISA 2009 and PISA 2015 are shown. Countries and economies are ranked in descending order of the percentage of students who had repeated a year, in 2015.
Source: Source: OECD (2016) *PISA 2015 Results (Volume II): Policies and Practices for Successful Schools*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264267510-en, Table II.5.11.

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Reducing year repetition begins by providing intensive, individualised support to struggling students: learning gaps between students should be targeted early with necessary supports provided for students with difficulties so that they can be put back on track before the learning gaps widen. For example, in the Finnish education system, almost all students are automatically promoted (none are retained prior to Year 10). Every child has the right to individualised support provided by trained professionals as part of their regular schooling. A teacher who is specifically trained to work with struggling students is assigned to each school and works closely with teachers to identify students who need extra help. Similarly, Austria postpones assigning course grades and provides extra resources and up to 11 additional hours of language courses to recently arrived migrants. As the OECD has previously recommended, "this support should be offered on a regular and frequent basis, supplementing rather than repeating the workload, using different methods and ensuring continuity in student-teacher relationships" (OECD, 2012, p. 52[41]).

In situations in which schools do decide that decisions must be made to retain some students, flexible, comprehensive and evidence-based criteria should be used to assess whether a student should repeat a year. This can ensure that those students whose profiles suggest that they are most likely to benefit from repetition are the only ones who are retained (OECD, 2012, pp. 52, Table 2.1[41]).

Students' academic performance (either grades or test marks) is too narrow a criterion on its own to assess the appropriateness of repetition. Light's Retention Scale is one assessment instrument that examines a variety of non-cognitive factors including physical and emotional maturity, other learning disadvantages, supports already provided, chronological age, and a variety of other factors that may proscribe repetition (Light,

2015[42]). Unfortunately, there exists limited research base on the validity and reliability of scales such as these for accurately predicting which students would benefit from repetition. Therefore, whatever tool school personnel uses, the process should be minimally formalised and subject to clear criteria.

At higher years, limiting repetition to a module, subject area, or a failed course instead of an entire year can smooth transitions. At the upper secondary level in Canada, New Zealand and the United States, repetition "is usually restricted to the specific classes that the student failed. A student can be promoted in a mathematics class but retained in a language class. Usually this is complemented with additional opportunities to learn and be assessed." (OECD, 2012, p. 54[41]). This form of "conditional promotion" can involve students being required to take an on-year level course at the same time they take a remedial class in the subject area in which they struggle at the expense of an elective or enrichment class. It satisfies many educators' practice-based preferences for student-level accountability and support, while avoiding system-level concerns about its associated harms. In Finland, at the upper secondary level, schools operate on a course system whereby students can repeat the courses that were not passed rather than the entire year. With this modular and intensified counselling approach, only 4% of students drop out during general upper secondary school in Finland (Välijärvi and Sahlberg, 2008[43]).

A similar approach in upper secondary education is to allow students to change to other equivalent educational programmes to ensure completion when different educational pathways exist in the year to be repeated. In some countries such as the Netherlands and Spain, students in a general upper secondary pathway may be given the option, in the event of course failure, to shift into a vocational stream to avoid repeating a year (OECD, 2012[41]). However, while there can be benefits to permitting switches between educational programmes, care must be taken to ensure that such measures do not become a form of demotion to a lower-level track for struggling students. Stream switches should permit transitions between pathways that meet students' interests without constraining future opportunities. Critical to accomplish this goal is ensuring that different school pathways have unique profiles and all promote labour market success.

As important as policy proscriptions against repetition or shifts in how the practice of repetition is enacted, cultural shifts in the education profession and school-level incentives to avoid repetition are critical. Decisions to retain a student are typically taken by school leaders and teachers, sometimes involving parental consultations, and may be governed by national or sub-national guidelines and regulations (European Commission, 2011[44]). Ultimately, however, the decision lies in the hands of educators, so shifting their perceptions on the benefits and drawbacks of repetition is critical. Raising awareness through professional development and initial and ongoing teacher preparation programs is one tool.

France has managed to reduce year repetition since turning serious attention to this issue in 2008. The Ministry of Education set ambitious objectives to reduce repetition rates. School leaders were required to explain their school level results and encouraged to decrease the number of repeaters. Students struggling in the last two years of primary school were provided with two additional hours of academic support. The rate of primary school repetition was still 14% in 2009, so the ministry set a goal of halving this rate by 2013. In 2014, Parliament passed a decree addressing school repetition [*Decree 2014-1377 of 18 November relating to the monitoring and educational support of pupils*]. The decree indicates that the repeating of a year should be considered "exceptional." (Benhenda and Grenet, 2015[38]). The decree also highlights the value of dialogue between

the student and the school staff prior to the decision on a student's repetition. Though overall rates of repetition are still quite high, France experienced the greatest drop of any PISA country in the proportion of 15-year-olds who had repeated a year at any time in their schooling between 2009 and 2015, declining by 16.1 percentage points from 38.2% to 22.1% of all students. However, this rate of repetition is still the sixth highest in the OECD, and 12.7% of students are still retained at least once in primary school, thus more work remains (OECD, 2016, pp. 368-369 Tables II.5.9 and II.5.11[2]).

It is worth noting that budget savings from year repetition abolition appear gradually. Indeed, as a French case study shows, the abolition of this practice can induce short-term costs related to the more rapid flow of students towards higher and more costly educational levels. The first savings could appear in the medium term (after two years in the French case) and increase gradually over time. This has important implications in terms of policy as "first, the savings to be made by abolishing year repetition can only be realised and used for other education purposes gradually. Second, the reform would require several years of careful and rigorous management of the recruitment and allocation of teaching staff over the whole transition period." (Benhenda and Grenet, 2015, p. 4[38]).

In countries where year repetition is very high and deeply rooted such as in Belgium and Uruguay, UNESCO advises a gradual transition away from repetition practices. Limits can be placed on the number of times a student repeats a year within a schooling cycle, for instance "dividing the average six-year cycle of primary schooling into two-year sub-cycles with no repetition allowed within each sub-cycle. When practiced alongside a system that identifies and supports weaker children, this approach has been found to increase quality" (UNESCO Institute for Statistics, 2012, p. 57[45]).

Addressing student dropout through professional development, second chance education and predictive data systems

Students who fail in school often find it difficult to recover later on. They are less likely to continue learning in adult life and face significant barriers in the labour market. While prevention through interventions in earlier years is more effective and less costly, addressing the urgent needs of students who have left school early or are at risk of doing so is a critical educational and economic priority. Large proportions of students across the OECD still fail to complete upper (and in some cases lower) secondary education. The first-time graduation rates in OECD review countries range from less than three quarters to over 90%. These averages, however, mask heterogeneity within each country in the severity of early leaving. For instance, in Lithuania, in 2013, the percentage of early school leavers aged 18 to 24 was 3.6% in urban and 11.4% in rural areas. Rates for early school leaving also vary dramatically across socio-economic backgrounds, gender, immigration status, and educational history among students (OECD, 2016[5]).

Educational authorities have the potential to design and implement policies to reduce early school leaving. While variability in the dropout rate is related to student background characteristics, there is still a wide range of variation across communities with similar demographic makeups. For instance, the Slovak Republic and Japan have a statistically indistinguishable proportion of students in the bottom 20% of the international income distribution (7.6% vs. 7.9% with standard errors of 0.6 and 0.5, respectively). However, the first-time upper secondary graduation rate across all programmes is 97% for Japan and 83% for the Slovak Republic.

There are a variety of common reasons across countries and regions for these differential outcomes, such as poor match between students' interest and their programme of study,

weak and under-resourced counselling, or barriers to accessing the curriculum due to early skills gaps. There are also some country-specific policy challenges that produce differences in outcomes for different populations. For example, according to the Lithuanian National Reform Programme report, "the main causes for […] increasing regional differences [in the dropout rate] are believed to be an inadequate school network, underdeveloped infrastructure of educational support, and insufficient qualifications and competences of teachers" (Shewbridge et al., 2016, p. 14[46]). Thus this report presents some common strategies that can benefit all school systems in addressing the problem of early school leaving, but in each case, the solutions must be adapted to the local context.

Several OECD review countries provide systems of individualised support for at-risk students. For instance, although Uruguay and Austria have dramatically different rates of school dropout, both have been using similar prevention approaches based on reinforced human interaction with students. In Uruguay, "Community Classrooms" (*Aulas Comunitarias*) exist for over-age students under 17 who have not yet completed Year 7 to receive additional compensatory and remedial support. The Community Teachers Programme pairs youth with members of the community to provide coaching support (Santiago et al., 2016, p. 57;83[47]). In Austria, the Youth Coaching Service provides support to challenged secondary students (Nusche et al., 2016[20]) (see Box 4.1 for more information on these programs). Norway's Follow-Up Project (discontinued in 2013) paired non-enrolled youth, aged 16-21 with officers trained in motivational techniques to encourage youth to complete secondary and tertiary credentialing (OECD, 2013[48]).

Students who struggle to remain motivated may be re-engaged through the possibility of early acceleration into joint upper secondary (ISCED 3) and short-cycle tertiary (ISCED 5) programmes. Though such programmes take a variety of forms, a common structure involves providing students with the opportunity to earn tertiary credits and credentials while enrolled in secondary school, and often with the opportunity for embedded employer internship. One such Early College High School in New York City is the Pathways in Technology Early College High. "The school provides students with an enriched curriculum that is aligned with actual employment opportunities with industry partner IBM and that enables them to earn both a high school diploma and a cost-free Associate in Applied Science (AAS) degree in six years. Students have professional mentors, substantive workplace experiences (which differ from school to school), and internships" (MDRC, 2017[49]).

Emerging evidence indicates that students enrolled in these types of programmes had a higher chance of graduating from secondary education and further enrol or graduate from post-secondary education than those who – despite applying – were not selected (Berger et al., 2013[50]; Berger et al., 2014[51]; Edmunds et al., 2017[52]). Although opportunities for tertiary acceleration have shown potential for some at-risk students, these programmes do not address what happens when students do fall behind in secondary school. Second chance programmes can tackle this issue in a variety of ways including literacy and numeracy remediation or course repetition through online or in-person classes.

In Norway, the Transition Project identified the lowest performing students at the end of Year 10 and in upper secondary education and provided them with additional support in core skills. The project worked with teachers to provide concrete strategies for making Norwegian, English and mathematics more meaningful to students' lives. It also instructed teachers on ways to provide basic remediation to struggling students when this may not have been the focus in secondary teachers' pre-service preparation (OECD, 2013[48]). This project has since ended without a full evaluation of its effectiveness. While there is evident

potential for benefits from a second chance system, it may also induce students to dropout at earlier ages if they know they can always re-enrol (Field, Kuczera and Pont, 2007[39]). Additionally, the quality and rigour of these courses are often called into question (Kohli, 2017[53]). Thus, careful attention must be paid to the timing at which second chance programmes are offered to students, the standards of the course material, and the qualifications of their instructors.

Using early warning systems to support student-level interventions

The collection and analysis of data on students' transitions and distribution across programmes can facilitate the identification and mitigation of unsuccessful educational transitions. In multiple OECD review countries (e.g. Austria, Belgium (Fl.), Denmark, Estonia, Portugal and Uruguay), the OECD review teams have recommended that data on the distribution of student demographic groups across educational programmes be collected. Collecting disaggregated data on early tracking, VET placement, course failure, and early school leaving are necessary pre-requisites to address these challenges.

In some cases, the lack of data may reflect capacity constraints: countries such as Uruguay need to develop the information technology infrastructure to track this student-level data. In other cases, disagreements about the appropriate statistics with which to define whether an individual has completed secondary education can cause differences in how the dropout rates are reported. Within the United States, for example, multiple definitions of the status dropout rate, cohort graduation rates, and the use of alternate certification criteria (GED) tell different stories about who is a dropout (Murnane, 2013[54]).

In other systems such as Belgium (Fl.), Denmark, Estonia and Portugal, data on repetition or early leaving is systematically collected but not disaggregated, though student-level demographic indicators do exist. For instance, information on the rate of language learners' placement into vocational tracks in Belgium (Fl.) is not available (Nusche et al., 2015[55]). Similarly, in Estonia where Russian-speaking students attend vocational education programmes at higher rates than their peers, no information is collected on why they more frequently take (or are assigned to) these courses (Santiago et al., 2016[56]). It is possible that the failure to disaggregate the data or research these topics may be reflective of cultural concerns regarding the impact of presenting such educational disparities publicly.

Whatever the reasons, when educators cannot holistically review students' profiles and anticipate which need the most help, some will fail to receive the help they need. The Norwegian Completion Statistics project establishes attainment goals and a common set of data on which to base analysis of the dropout problem (OECD, 2013[48]). Critically, students receive targeted help when there is an identified risk of school failure. The Diplomas Now Project at Johns Hopkins attempts to quantify measures of student risk and define a program of intervention (see Box 4.1).

Box 4.1. Reducing year repetition and early school leaving using data and people

Early warning indicators

Informed by a body of research by Robert Balfanz at Johns Hopkins University, the Diplomas Now Program in the United States works by assembling a cohort of school- and community-support members who analyse students exhibiting Early Warning Indicators (EWI) of falling off track. Teams of educators hold regular meetings to discuss student progress, assess collected data and set a support plan in motion. Students are identified based on data in three domains found to have the greatest predictive power in whether a student will leave school early, also known as the ABCs of School Success:

- Attendance
- Behaviour and
- Course Grades

Critical to this support is pairing children with caring adults and setting aside time during the school day for them to meet either individually or in small groups with at-risk students. For the neediest students, Diplomas Now helps by forming support groups and connecting students with community resources, such as counselling, health care, housing, food and clothing. Full-time employed young adults welcome students to school, call them if they are absent, and offer tutoring. They intervene to help resolve problems and celebrate positive behaviour. After school, they help with homework and involve students in service and enrichment programs (Diplomas Now, 2016[57]).

Early evaluation of the program finds that there are some positive outcomes with respect to the ABC indicators, though not consistently across all measures. The ongoing study on long-term outcomes will culminate in 2019 (Corrin et al., 2016[58]).

Specialised staff

In Uruguay, the Community Teachers Programme (*Programa Maestros Comunitarios*) allocates one to two community teachers to disadvantaged schools depending on the size of the school. This programme aims to prevent students from falling behind and having to repeat a year by supporting children who perform poorly. This is coupled with the Teacher + Teacher (*Maestro más Maestro*) Programme providing either after-school or team teaching support for students in underserved communities (Santiago et al., 2016, p. 80[47]).

In Austria, the Federal Ministry for Labour, Social Affairs Health and Consumer Protection (*Bundesministerium für Arbeit, Soziales, Gesundheit und Konsumentenschutz,* BMASGK*)* provides a nationwide "Youth Coaching" initiative. Youth coaches advise and accompany young people aged 15-19 at risk of dropping out from school or being marginalised (Nusche et al., 2016[20]).

Source: Diplomas Now (2016), *What We Do, Diplomas Now*, http://diplomasnow.org/about/what-we-do; Corrin, W. et al. (2016), Addressing Early Warning Indicators: Interim Impact Findings from the Investing in Innovation (i3) http://diplomasnow.org/wp-content/uploads/2016/07/DiplomasNow-3rd-2016_2.pdf; Santiago, P. et al. (2016), *OECD Reviews of School Resources: Uruguay 2016*, http://dx.doi.org/10.1787/97892 64265530-en; Nusche, D. et al. (2016), *OECD Reviews of School Resources: Austria 2016*, http://dx.doi.org/10. 1787/9789264256729-en.

4.3. Horizontal co-ordination and students' transitions across parallel pathways

In response to students' different preferences, abilities and needs, many school systems offer a variety of educational pathways and parallel programmes, often tracking students into separate learning environments. The development of different pathways, tailored to different students' needs, is generally justified on the basis of increased choice and effectiveness, even if it may come at the expense of equity in educational outcomes. According to its proponents, educating students with similar skills and interests can help better target pedagogical interventions and more adequately allocate school resources. Concurrently, providing alternative paths for students disengaged from academic studies, those attuned to practical learning or those requiring special education services may help increase attainment and success in school education.

The design of horizontal transitions is instrumental to ease the successful progression of students. Providing multiple pathways and educational programmes raises the chances of meeting the interests of a diverse student population and the skills demands of a differentiated labour market. Challenges stemming from the integration of students from different socio-economic backgrounds, immigrants, students with special educational needs or those uninspired by traditional academic content have led countries to explore different policy options to cover the full spectrum of educational demand and provide "made-to-measure curricula" for students. Notably, this has resulted in multiple strands of offers, programmes and schools, which often raise efficiency and equity concerns.

This section focuses on the co-ordination of education programmes for two specific sectors: vocational education and training (VET) and the provision of education to students with special needs.

Co-ordinating pathways for general and vocational education

High-quality vocational programmes are costly but critical to expand students' learning and labour market opportunities

VET programmes play a substantial role in the education of upper secondary students. On average across OECD countries, nearly half the students in upper secondary education, and over two thirds in some countries, are enrolled in VET (Figure 4.6). Vocational education programmes are primarily intended to help students acquire the practical skills leading to employment. In contrast to general academic programmes, they are targeted to prepare students primarily to enter a specific occupation often with a defined qualification, rather than providing the general academic background necessary for tertiary education (OECD, 2010[19]).

Figure 4.6. Share of students enrolled in upper secondary VET, 2015
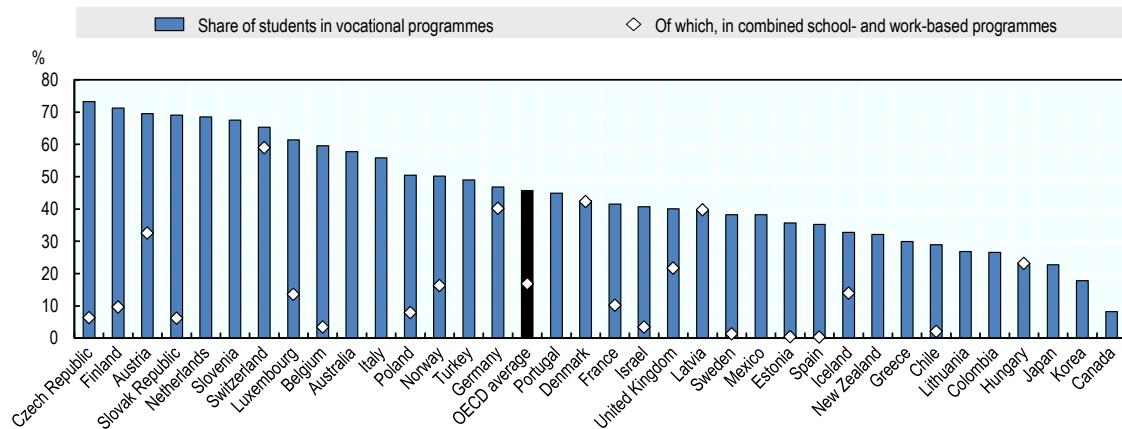
Note: Countries ranked in descending order of the share of students in vocational programmes. Missing values indicate the absence of combined school- and work-based programmes or a lack of data (see online Figure).
Source: OECD (2017), *Education at a Glance 2017: OECD Indicators*, OECD Publishing, Paris, http://dx.doi.org/10.1787/eag-2017-en, Table C1.3.

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In recent years, policymakers have come to see VET as critical to national economic success, as employers seek a wider array of skills from secondary school graduates than those provided by the traditional academic disciplines. In fact, most employment growth in the European Union (EU) is predicted to be in the "technicians and associate professionals", an occupational category demanding some form of technical training (CEDEFOP and European Center for the Development of Vocational Training, 2017[59]). In North America, the field of greatest growth is projected to be in "healthcare professionals and technical occupations", as well as "healthcare support occupations" (Richards, 2015[60]). While these types of professions may require some type of post-secondary training, tertiary academic education is not required. More broadly, the labour market has experienced a hollowing-out of routinized, middle-skilled jobs as a result of automation and technical innovation (Autor, Levy and Murnane, 2003[61]). The jobs of the future require technical and interpersonal skills, but not necessarily at the tertiary level; the value of vocational education is at premium (Hoffman and Schwartz, 2017[62]).

From a system perspective, vocational education programmes entail considerable costs. Driven by smaller classes and increased expenditure on infrastructure and specialised equipment, the annual expenditure for secondary VET students was higher than that for general education students in 19 of 26 OECD countries with available data. Across the OECD, the average spending per VET student in 2014 was 10% higher compared to those enrolled in general education (see Figure 4.7). Therefore, and in order to increase their overall efficiency, VET programmes have also been increasingly called to justify the higher costs by providing ever more relevant opportunities for students.

Figure 4.7. Annual expenditure per student by educational institutions in general and vocational secondary education, 2014

In equivalent USD converted using PPPs for GDP, by level of education, based on full-time equivalents
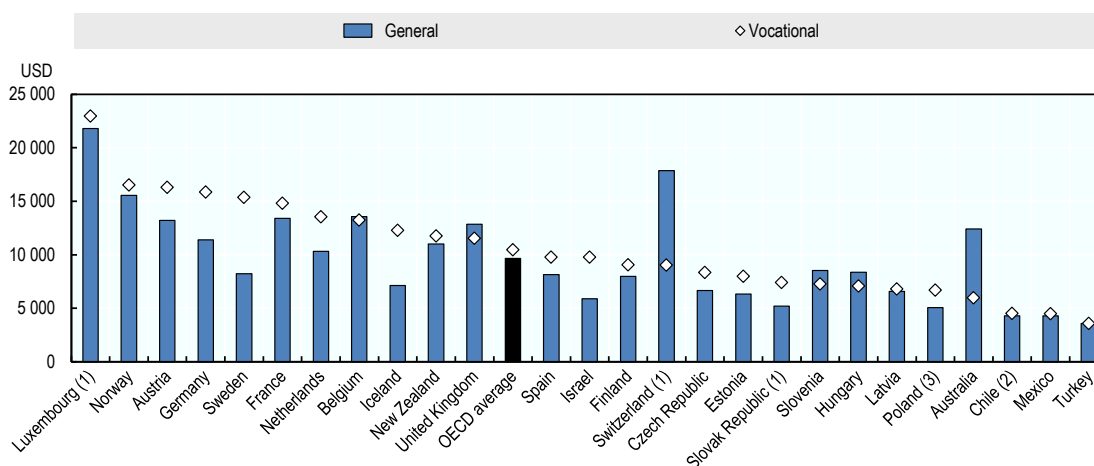
Note: Countries ranked by annual expenditure per student in vocational secondary education.

1: Public institutions only (for Italy, for primary and secondary education; for Canada and Luxembourg, for tertiary education and from primary to tertiary; for the Slovak Republic, for bachelor's, master's and doctoral degrees).

2: Year of reference 2015.

3: Vocational programmes in upper secondary education include information from vocational programmes in lower secondary education.

Source: OECD (2017), *Education at a Glance 2017, OECD Indicators*, OECD Publishing, Paris, http://dx.doi.org/10.1787/eag-2017-en, Table B1.1.

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The benefits of vocational education are borne out by labour market data from across the OECD. Employment rates for 25-34 year-olds are 10 percentage points higher among those who graduated from upper secondary VET than those who only completed upper secondary general programmes as their highest level of education (OECD, 2016, p. 107 Table A5.5[5]). Furthermore, increasing causal evidence points to benefits of VET for students that, based on prior performance, were on the margin of being assigned to a vocational or general track. Although VET's impact on students' test score outcomes is ambiguous, mounting evidence points to improved secondary graduation rates, higher rates of enrolment in tertiary education, and better labour market outcomes for students at the margin (Dougherty, 2016[63]; Neild, Boccanfuso and Byrnes, 2015[64]; Neild and Byrnes, 2014[65]; Kemple, 2008[66]; Murnane, 2013[54]; Oreopoulos, Brown and Lavecchia, 2017[67]; Hemelt, Lenard and Paeplow, 2017[68]). Interestingly, data from OECD's Programme for the International Assessment of Adult Competencies (PIACC) suggest that while tracking overall has negative impacts on adult skills, a focus on vocational skills within a tracked system increases the weakest students' numeracy skills (Heisig and Solga, 2015[69]).

Although the benefits from graduating with a VET diploma may be high, students in vocational programmes frequently fail to complete their studies. In order to curtail the relatively higher dropout rates in vocational programmes, some countries have been re-designing the educational offer to help meet students' needs. Denmark, in 2008, reformed its VET system, rationalising provision into 12 main study areas with updated syllabi. Alongside the new study programmes, the VET track also allows easier transitions

to post-secondary education (see also Box 4.4). The country has further implemented a new reform on VET in 2015 with the objective of enhancing the attractiveness of the vocational track. Despite the relatively well-perceived status of VET in the country, Denmark is below the OECD average with regards to the number of enrolled students. Danish authorities set goals for 2020 to increase the proportion of young students enrolling in vocational programmes directly after primary or lower secondary education by at least 25%, to offer ever more flexible programmes tailored to each student's level of ability and to deepen the involvement of labour market stakeholders (Nusche et al., 2016[70]).

Among other factors, consistently low rates of successful completion in VET programmes make it harder for them to attain parity of esteem relative to academic programmes. The perceived low status of VET programmes is a shared concern among several education systems visited by the School Resources Review. In countries like the Czech Republic and the Slovak Republic, although enrolment in VET is higher than the OECD average (Figure 4.6), graduation rates are low. In the Czech Republic, where overall graduation rates are climbing, completion rates of upper secondary VET have decreased by more than 30 percentage points between 2005 and 2014 (Shewbridge et al., 2016[71]). Other Central-Eastern European countries, such as Lithuania or Estonia face similar challenges, despite lower levels of enrolment in VET. Lithuania, where graduation from general programmes is considerably above OECD average, has one of the lowest graduation rates from upper secondary VET among OECD and partner countries (OECD, 2017, p. 62 Table A2.2[1]). In Estonia, one out of every five students enrolled in vocational programmes stops attending school each year (Santiago et al., 2016[56]). The persisting challenges with VET in Central-Eastern European countries had already been identified by the World Bank in 2006. Besides the high dropout rates, curricula relatively isolated from the world of work and a significant mismatch between job placement and the formal qualification of entrant workers remains a challenge of vocational programmes in these countries.

Separate provision and governance of general and vocational education must weigh trade-offs

General and vocational tracks are often regarded as disconnected strands of the educational offer. Vocational schools often require specific buildings and equipment, which encourages the provision of general and vocational programmes in separate schools. In countries such as Austria, France, Germany and the Netherlands, school-based VET instruction generally occurs in dedicated schools. Establishing a tier of institutions providing a clearly distinct offer may help to improve the profile of vocational programmes. Specialised provision deters schools from drifting towards an academic mission, with the risk of marginalising its specific vocational offer. An excessive "academisation" of VET programmes may feed perceptions of vocational programmes as a lesser version of the general curricula or cause students to become disaffected due to the repetition of the general curriculum from which they have already opted out. VET-specific schools may, therefore, be better able to distinguish themselves from general schools by having specialised curricula and infrastructure making themselves more attractive to potential VET students (OECD, 2014[72]).

But the provision of VET in separate schools may incur considerable costs. An excessive fragmentation of the course offer often compromises the ability of education systems and schools to provide services at scale. Differentiated provision often implies spreading the educational offer across smaller schools (see Chapter 3). For example, in the Austrian education system, students are selected into different schools according to their abilities and interests in both the transition from primary to lower education and – at a later stage – in

the transition to upper secondary education. Upper secondary education in Austria is offered in five different types of schools, including pre-vocational schools providing only one year of education and schools providing part-time vocational programmes. Combined with a relatively sparse distribution of population in rural areas, fragmentation of the educational offer into separate schools can further hinder school network consolidation (Nusche et al., 2016[20]). Austria has, however, made recent efforts to allay these concerns. Beginning with 2018/19 school year, schools are allowed to cluster under a common leadership and administration, even when offering different tracks.

The Czech Republic has one of the most differentiated education systems by international comparison. Schools offer specialised provision at both lower secondary and upper secondary levels, including general, artistic, technical and vocational education, which contributes to the high number of small schools and small class sizes existent in the country. Moreover, the governance of the educational offer limits incentives for rationalisation. While vocational schooling is organised and planned at the regional level, there is limited collaboration across regions, hindering the ability to consolidate programmes into broader vocational fields. In the past, the school funding design worked as a mechanism to keep existing programmes in place. Schools would not experience a decrease in their funding allocation if student numbers in a given programme were to decline. Therefore, there was little incentive for schools to rationalise their educational offer and design programmes that were appealing to both students and employers (Shewbridge et al., 2016[71]). However, based in part on recommendations from the School Resources Review, reforms were initiated in 2017 that will come into force for the 2018/19 school year. Schools will now receive funds based on the total number of student-hours taught, and this is forecast to reduce regional funding inequalities (European Commission, 2017[73]).

The provision of VET in comprehensive schools can also have the potential for improving its status. In Lithuania, the review team was optimistic that increased collaboration with general lower and upper secondary provision could be a way for vocational schools to provide a broader range of curricular options and to allow students to experience at first hand the high-quality facilities that exist in many vocational education centres (Shewbridge et al., 2016[46]). Recently, Portugal has been increasingly offering vocational programmes in comprehensive upper secondary schools, gradually departing from a traditional model of VET provision in a network of publicly funded professional schools. Concurrently, both enrolment and graduation rates of students in VET have been converging towards parity with general programmes (Liebowitz et al., 2018[74]). Finally, the provision of VET programming in comprehensive schools has the potential to lower rates of social segregation insofar as VET pathways tend to attract greater proportions of low-income, immigrant students.

The risk of fragmentation in the educational offer extends beyond the separation of the general and vocational offer. A proliferation of parallel tracks in general or vocational secondary education can be costly without substantially improving students' learning experience. In multiple OECD review countries, greater school autonomy and a trend towards providing greater choice to students and their families has led to an expansion in the number of both courses and the types of school providers. Proponents of school autonomy argue that providing schools with independence for setting the curricula yields the potential to foster pedagogical approaches that are better tailored to students' and local needs. It is anchored in this ambition that the Flemish Community of Belgium, for example, combines curricular autonomy with free choice of schools. There are no catchment areas and students and their families are free to choose any school from its three umbrella

networks of providers. However, the OECD Review of School Resources noted that, despite the curricular autonomy, most of the schools abide by the curricular guidelines and assessments developed by their umbrella networks, failing to systematically develop wholly innovative practices (Nusche et al., 2015[55]). The impressions drawn seem to echo different strands of research in the context of charter schools in the United States which show that greater diversity of providers does not necessarily lead to significant pedagogical innovations (Lubienski, 2003[75]; Preston et al., 2011[76]).

National and regional collaboration across governmental actors and with private providers is critical for a well-designed VET offer

Fragmented vocational systems are often the result of inefficient governance arrangements for the oversight of VET provision, such as a lack of co-ordination among the local administrative entities responsible for the VET system, or between public authorities and private providers. These difficulties have in many cases led to schools offering similar vocational programmes in close proximity to one another and, by extension, duplicating costs.

Countries have taken steps to provide regional support systems to improve the quality of vocational education and its co-ordination at the regional level. In the Slovak Republic a recent 2015 reform nurtured the creation of regional training centres for the purpose of increasing the efficiency of the VET system and is expected to bring improvements to regional co-ordination across sectoral employer organisations, regional state authorities and VET providers (Santiago et al., 2016[11]). With sufficient capacity, regional and local training centres have the potential to take stock of the skills sought by local and regional employers, steer vocational curricula and foster collaboration.

VET programmes can also benefit from greater collaboration with private providers of resources and facilities. Schools in close geographic proximity often purchase and provide students with similar equipment. Regional and local training centres can either decide to consolidate these options or allow schools to share the physical resources. Hungary, Germany, France and the Netherlands have all implemented such measures aiming to improve the cost efficiency of vocational training. In Lithuania, multi-functional, regional vocational training centres bring small rural providers under a unified administrative structure. The regionalised structure can increase the quality of the educational offer in rural areas and helps avoid duplicative course pathways, while the multi-functionality allows these centres to better serve the community and students' needs (see Box 4.2).

Avoiding duplication in the purchasing of materials and capturing the benefits of sharing specialised equipment requires the willingness of providers to engage in active collaboration. In practice, the scope of these agreements may be limited by a lack of incentives, the absence of established communication channels, or legal barriers such as insurance liabilities or contractual restrictions on those permitted to use equipment. In addition, as investments in workshops and other specialised infrastructure and equipment are large, school principals and local authorities often have a strong sense of ownership over their physical resources, which may reduce their initial willingness to collaborate.

Box 4.2. The establishment of regional multi-function and vocational training centres in Lithuania

As one of the Eastern and Central European countries that inherited a large number of small technical and vocational schools, Lithuania launched a programme in the early 2000s to restructure and enhance the efficiency of its vocational school network. Since the country's accession to the EU, this process of regionalising VET provision has been supported by the EU's Structural Funds and resulted in the establishment of regional vocational training centres, equipped with practical training facilities. The first regional training centres were created by merging training institutions within a given region and focussing their provision on one or several sectors of the Lithuanian economy, which caused a significant reduction in the number of VET schools. By 2008, 13 of these training centres had been granted self-governing status and increased budgetary autonomy, which allowed them to involve a greater variety of stakeholders in their management (including enterprises alongside regional and municipal government representatives).

Likewise, support from EU Structural Funds has allowed some Lithuanian municipalities to create "multi-function centres" (*daugiafunkcis centras*) that bring together day care services with pre-primary and primary education, as well as a community facility under a single management structure. In 2015, 11 municipal primary schools and 40 municipal basic schools were operating as part of such multi-function centres. Their primary purpose is to improve the quality and accessibility of public services in rural areas and reduce their isolation. This integrated approach allows for the benefits from economies of scale and collaboration which a small, isolated primary school could not, on its own, provide. It also provides the opportunity to better align pre-primary and primary education – a concern that had been picked up in an EU funded research project in 2012.

Source: Shewbridge, C. et al. (2016), *OECD Reviews of School Resources: Lithuania 2016*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264252547-en, p. 62; Santiago, P. et al. (2016), *OECD Reviews of School Resources: Slovak Republic 2015*, OECD Publishing, Paris, http://doi.org/10.1787/9789264247567-en.

Early tracking of students may limit educational efficiency and equity

Despite the potential benefits of high-quality vocational programmes, concerns remain regarding the selection of students into these programmes. In some OECD countries, students can be placed into selective tracks from as early as age 12 (e.g. in the Netherlands and Belgium), age 11 (e.g. the Czech Republic and the Slovak Republic) or even age 10 (e.g. Austria and some German states) (OECD, 2016, p. 167 Figure II.5.8[2]). Particularly where tracking occurs at a young age, students' choice of or selection into tracks tends to be strongly associated with their socio-economic background. School education may thus contribute to reproducing – rather than mitigating – initial differences in educational opportunities. In most OECD countries, students from disadvantaged socio-economic backgrounds are significantly overrepresented in vocational tracks. According to PISA 2015, the share of 15-year-old students enrolled in a vocational track is 21 percentage points smaller among students in advantaged schools (the top 25% of schools ranked by the average socio-economic status of their students) than among students in disadvantaged ones (the bottom 25% of schools) (OECD, 2016, pp. 168; 375-377 Figure II.5.9 and Table II.5.17[2]).

Selection into different educational tracks and separation of students according to academic ability has been extensively studied. While proponents of early tracking argue that educating children in different learning environments allows more tailored pedagogical practices from a young age, cross-country evidence rather suggests that such practice yields no significant gains for students. In multiple contexts, tracking has been shown to marginally increase the educational outcomes of high achieving students, while substantially decreases the performance of low-achievers; thus increasing educational inequality with no overall average benefits to academic performance (Hanushek and Wossmann, 2006[77]; Epple, Newlon and Romano, 2002[78]; Schütz, Ursprung and Wößmann, 2008[79]). Causal evidence on a reform in the German state of Bavaria in 2000 showed that moving forward the timing of student selection into basic (*Hauptschule*) and middle-track (*Realschule*) schools from grades 6 to 4 significantly decreased student performance in both types of schools. Moreover, the share of very low performing students significantly increased, while the achievement of students selected into the academic track (*Gymnasium*) remained unchanged (Piopiunik, 2014[80]). Descriptive data from PISA lends further support to the claim that separation into different learning environments may be detrimental to overall cognitive development. In fact, OECD countries that tend to educate students from different ability levels in the same classes and schools also have higher levels of performance in science. Furthermore, less of the variation in students' achievement in these countries can be explained by students' socio-economic background (OECD, 2016, pp. 172;383-385, Figure II.5.12, Table II.5.25[27]).

Separation of students into different schools according to ability is a common practice in some of the countries visited by the OECD School Resources Review. In the Czech Republic, where selection into competitive strands first begins at age 11, students move into either a basic school or an eight-year *Gymnasium*. Students can later move to a six-year *gymnasium* after two years of basic school and finally be selected into one of six different tracks in upper secondary education. Educational offer in the country is thus highly stratified. In particular, and similar to other countries, family background significantly influences selection into programmes offered in the most prestigious tracks (*Gymnasium*) (Santiago et al., 2012[81]). Concomitantly, even if not causally, the Czech Republic has the lowest upward educational mobility rate of all OECD countries: 82% of 25-44 year-olds failed to complete tertiary education if both their parents only accomplished upper secondary or post-secondary non-tertiary (compared to an OECD average of 57%) (OECD, 2016[5]).

The Flemish Community of Belgium also tracks students relatively early, between the ages of 12 and 14. Secondary school is divided into three stages, and educational pathways are further multiplied within those stages. While students can move from the vocational to the academic track, this rarely happens at the upper secondary level (see Figure 4.8, Panel B). Instead, students frequently transfer to less academically oriented schools or programs (known colloquially as the "waterfall system"). As a policy response to the negative effects of early tracking, the Flemish Community of Belgium has developed a "Master Plan for Secondary Education" aimed at – among other objectives – attracting and retaining more students from disadvantaged socio-economic backgrounds in general programmes. In order to reach such objective, the reform envisioned creating a more comprehensive stage of schooling in lower secondary education, delaying early tracking. While delaying early tracking as a means to reduce the impact of student background in the selection of study programmes seems promising, its effectiveness crucially depends on other complementary policies, such as the introduction of better system to monitor the characteristics of students going into different tracks and a strengthened early diagnosis and response to language

learning needs as a means to avoid students being referred to vocational programmes due to language difficulties – a common reason for student selection into VET courses in the Community (Nusche et al., 2015[55]). Similar to Belgium, Austria has also made recent efforts in moving towards a more comprehensive system and reducing inequality in student learning opportunities (Box 4.3).

Box 4.3. Towards a more comprehensive system - New Secondary Schools in Austria

The New Secondary School (*Neue Mittelschule*, NMS) was introduced in 2008 as a pilot project. It was originally designed as a comprehensive school for all 10-14 year-old students (Years 5 to 8), combining the lower secondary stages of general secondary school (*Hauptschule*, HS) and higher-end academic secondary schools (*Allgemein bildende höhere Schule – Unterstufe*, AHS). While the initial intention was to abolish early tracking in the long run, due to a political compromise within the government coalition, all lower secondary stages of academic secondary schools continued to exist next to the NMS. However, since their introduction the NMS have become the standard lower secondary schools in the country, with most students enrolling and effectively replacing HS in 2016.

The NMS has similar curricula to the AHS-U, but different educational goals. Unlike the previous HS, students are not separated into different ability groups in core subjects. Rather are assessed on a differentiated grading scheme depending on students' academic ability in Years 7 and 8. Better results in the NMS are also sought by applying new pedagogical approaches, including more individualised and project-based learning and a competence-orientation.

The NMS were introduced as a means to mitigate the effects of early tracking and ability grouping in lower secondary education. Students are admitted to the NMS after completing their primary education without further pre-requisites. The NMS are also intended to open up better chances for their students, and particularly to help them continue their education at an upper secondary academic secondary school (*Allgemein bildende höhere Schule – Oberstufe*, AHS-O) and follow to an academic leaving certificate (matriculation examination, Matura).

The governance and funding distribution of New Secondary Schools is retained at the provincial level. Provincial schools are financed by provinces and municipalities using funds which are largely raised at the federal level and distributed across provinces. Political commitment to the development of NMS has been followed by a significant increase in public spending with relatively higher per-student expenditure than in AHS-U schools. The additional spending is largely dedicated to introduce new pedagogical methods in order to respond to the heterogeneity of the student population in the NMS. However, by the time of the review visit, available evaluations were limited to the schools in the pilot phase and the NMS as a new school type had not yet been evaluated on full-scale.

Source: Nusche, D. et al. (2016), *OECD Reviews of School Resources: Austria 2016*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264256729-en.

The vocational offer is often misaligned with labour market needs

The design of high-quality vocational programmes crucially depends on the adequate match between student preferences and the skills demanded by the labour market. However, vocational programmes in many countries are often artefacts of past labour market needs, relying on outdated curricula and insufficiently informed by system-wide planning and

strategic steering. Evidence-based strategies for governing and regulating vocational programmes are critical to developing a VET sector aligned with the needs and opportunities of evolving labour markets. Given recent trends in the development of artificial intelligence and continued integration of technological replacements for traditionally human skills, there are growing concerns related to the development of an adequate set of skills in secondary education. A recent OECD report based on the assessment of different computer science experts and PIAAC data points out that while literacy skills are increasingly used at work, only 13% of workers use them on a daily basis with higher proficiency than computers (Elliott, 2017[82]).

One of the major concerns across OECD countries is that demand for the skills that students acquire through vocational programmes may be short-lived in rapidly changing labour markets. VET that certifies narrow or non-transferable skills is more likely to lead to periods of under-employment or unemployment over the individual's life cycle. International evidence on the impact of VET on long-term labour market trajectories showcases informative differences in outcomes throughout an individual's career. While graduates from general education programmes experience greater initial difficulties in finding employment, they also tend to have higher rates of employment as they age, compared to VET graduates. Additionally, graduates from general programmes also earn more as they age and are more likely to receive additional on-the-job training (Hanushek et al., 2017[83]). Similar evidence shows that, although graduates from vocational programmes have an easier transition from school to work, the value of vocational education relative to general programmes tends to decrease over the career span (Lavrijsen and Nicaise, 2017[84]). Differences associated with gains throughout life can be partially explained by the relative struggles of vocational graduates have in adapting to changing skills demands. Adult workers require high levels of transferable skills – often in advanced literacy and numeracy – to update their skills profile (Abadzi, 2015[85]). Therefore, forecasting of long-term skills needs, strategic planning of the educational offer in consultation with labour market actors and building transferable literacy and numeracy skills into VET curricula are crucial to enhance long-term outcomes of vocational graduates.

Education systems increasingly recognise the need of students in vocational programmes to learn more transferable skills. The continuous evolution of the skills profile sought by companies and technological developments have led to a wider and more flexible range of abilities required from workers (Autor, Levy and Murnane, 2003[61]; Goldin and Katz, 2008[86]). Nonetheless, the development of transferable skills that are simultaneously appropriate to firm- or occupation-specific needs depend on the close involvement of labour market stakeholders. As firms rarely have a short-term incentive to unilaterally invest in the development of long-term human capital, education systems must support vocational programmes that meet these complex demands (OECD, 2016[87]).

Government authorities use complementary mechanisms to inform curriculum options in vocational education, such as regular consultation with labour market actors and rigorous forecasting of projected skills supply and demand. Co-ordination among stakeholders in advisory boards, councils or associations is commonly found across OECD countries. For instance, in the Slovak Republic, the government established a National Council for Vocational Education and Training alongside regional and sectorial VET councils, with the purpose of fostering links to the labour market. The Council has the mandate to discuss and review VET programmes and recommend to the Ministry of Education the fields of study that ought to be kept or excluded. Its members include employers' representatives and regional educational authorities (Santiago et al., 2016[11]).

Other countries have a long tradition of early identification of skills demand. Since 1999, in Germany, the Federal VET Institute, the Trade Union Confederation and the Employers' Organisation for Vocational Training co-ordinate with a network of research institutions (*FreQueNz*) to anticipate skills needs and adapt the vocational offer accordingly. These institutions work in close collaboration through the use of various complementary approaches such as: the development of forecasting models of labour market development, early identification of skills shortages, surveys of companies and employees, job advertisement analyses, among others (Hensen-Reifgens and Hippach-Schneider, 2014[88]). Long-term forecasts are complemented by short-term forecast exercises that directly feed into the planning of vacancies in apprenticeships, which permits the system to be flexible enough to respond to short-term fluctuations in qualification needs (OECD, 2016, p. 40[87]).

With the objective of better aligning educational offer with labour market needs, several countries have also been recently designing and implementing national qualification frameworks. National qualification frameworks provide a systematic recognition of qualifications – such as degrees, diplomas and other credentials – that are agreed among multiple stakeholders and help to signal the competencies of graduates to employers in the country. Additionally, these frameworks are intended to explain how qualifications relate to each other, and to build pathways within education systems. While national qualification frameworks have been widely applied, there is little empirical research on its effects in the gap between skills supply and demand, mostly showing mixed results (Raffe, 2013[89]). Two recent reports from the International Labour Organisation (ILO), comparing across more than 20 countries, have found little evidence that such policy instrument has led to significantly improved communication between education systems, employers and trade unions. Countries that most benefited were those able to develop national qualification frameworks as a complement, rather than a substitute, to other policies targeted at improving the recognition of qualifications (Allais, 2010[89]; Allais, 2017[90]).

The costs of implementing a national qualifications framework can be significant: policy analysis, assessment of international experience, development of qualification options, engagement of labour market stakeholders, and establishment of specific national agencies can all be particularly resource intensive activities. In fact, the OECD report *Learning for Jobs* points out that where national qualification systems are seen as a separate policy initiative (e.g. New Zealand, South Africa or the United Kingdom), they tend to be seen as capturing resources from other activities. In more embedded qualification systems building on a broader set of strategic, complementary policies (e.g. Scotland [UK]), there is greater potential for efficiency (OECD, 2010[19]). Therefore, gradual institutional change, grounded on capacity building, improved training and professional development for teachers and trainers and continued improvement of VET programmes seems to be more likely to lead to successful and less costly national qualification frameworks (Allais, 2010[89]; Allais, 2017[90]; OECD, 2010[18]).

Work-based learning has the potential to reduce the skills gap and further involve labour market stakeholders

A distinctive feature of upper secondary VET systems across OECD countries is the extent to which the vocational education offer incorporates work-based learning. Work-based learning – typically by means of apprenticeships or traineeships – involves the formal acquisition of knowledge and skills at the workplace enabled by employers' involvement in vocational training. Combined school- and work-based programmes are ones where between 25% and 90% of the learning activities take place in the work environment (OECD, 2016, p. 287[5]). Evidence from OECD countries shows that labour-market

outcomes of VET graduates are stronger if their programmes include substantial work-based learning time (OECD, 2014[72]).

There are several potential reasons behind the observed benefits of work-based learning. First, it fosters the application of theoretical and technical skills obtained in a school context to a workplace setting. Through direct contact with employers, students have more opportunities to learn about the nature of the workplace and determine the best fit for them. A dual system based on apprenticeship helps to ensure a smoother school-to-work transition for students who do not wish to continue on to tertiary education (OECD, 2010[92]). Second, students have the opportunity to apply their new-found skills in an authentic setting, and may, therefore, feel more motivated to learn necessary skills in the classroom context. Third, it enables employers to have access to a pool of skilled and potential future employees. This is especially relevant in strongly regulated labour markets, where companies have fewer incentives to provide initial training. In some contexts, graduates of work-school programmes have priority-status in applying to positions within the partner company (MDRC, 2017[49]). Finally, it enables budget-constrained schools to keep specialised types of training, while restraining costs through transferring part of the training responsibility to employers.

Over reliance on school-based vocational learning may cause inefficient purchasing patterns for schools. In particular, limited work-based learning and involvement with employers makes it more difficult to flexibly adapt the type of vocational training on offer to the skills demand of the labour market, as purchasing new equipment relies mostly on school systems' budgets. For schools, continuously updating the vocational offer to ensure its relevance to the labour market involves significant investments into equipment and physical infrastructure, discouraging innovation in the vocational offer (OECD, 2017[93]).

Despite its benefits for the quality and efficiency of upper secondary VET, most students across the OECD are enrolled in programmes where work-based learning is limited or non-existent (Figure 4.6). In several education systems visited by the OECD School Resources Review work-based learning in upper secondary VET is in the initial stages of development. For instance, in the Czech Republic, work-based learning remains limited, with no mechanisms to involve small companies in the provision of apprenticeships (Shewbridge et al., 2016[71]). In fact, despite high overall rates of enrolment in vocational programmes, most initial VET programmes take place exclusively in the school context. Only around 9 in each 100 students enrolled in vocational programmes in 2014 participated in some form of work-based learning (Figure 4.6).

However, there exist countries that have a strong work-based learning tradition. Austria, Denmark, Germany, and Switzerland have a long history of training through apprenticeships. These so-called dual systems employ a structure in which practical training in an apprenticeship is combined with a sound theoretical knowledge base obtained in a school context (see Box 4.4). In countries with substantial work-based learning in upper secondary VET, collaborations with employers are strong both in the form of cost sharing arrangements and the direct provision of apprenticeships. As a result, transitions from school to work tend to be relatively easier in countries with dual systems: the median age for leaving formal education is higher and a greater share of students aged 15-29 are already working (OECD, 2010, p. 55[92]).

In light of the evident benefits, some countries have enacted recent policies to create more work-based learning opportunities. For example, in the Slovak Republic a new VET Act came into force in 2015, introducing features of a dual system. Employers contribute to the practical component of students' training and the state provides tax incentives to employers

for their participation in the dual system. The new legislation has supported work-based learning as schools are now encouraged to establish partnerships with companies for providing practical training in accordance with their needs (Santiago et al., 2016[11]).

In the Flemish Community of Belgium, the offer of vocational programmes was perceived to be primarily determined by the interests of schools and their staff rather than by labour market demand (Nusche et al., 2015[55]). In particular, employers are minimally involved in the content and organisation of the programmes (Musset, 2013[94]). In order to address such concerns, a recent reform has separated VET into two strands: a fully school-based track and an improved dual learning track with 60% of the time spent in the workplace context. In the new system, a closer articulation with employers is also sought. Companies are involved in interviewing potential candidates and evaluating their training performance. Completion of any of the tracks leads to the same certification, organised in modules. This way, students who fail to complete the school-based component are still able to get professional qualifications or modular certificates for the competencies acquired during their work-based training (OECD, 2017[95]).

Box 4.4. Vocational programmes in Northern European countries

VET programmes in Northern European countries are offered relatively late. Either due to prolonged pre-primary education (e.g. Finland and Sweden), or by having 10 instead of the typical 9 school years leading to the completion of lower secondary education (e.g. Denmark or Norway), student transitions to vocational programmes typically occur at age 16.

VET systems in these countries enjoy a high-status; they are regarded as instrumental for successful transitions from school to work. The high degree of confidence among stakeholders in vocational pathways is partly owed to work-based learning being an integral part of the curriculum, and also to the solid theoretical knowledge learned in the school context. Nonetheless, the development of relevant work-based learning opportunities is not without challenges.

Different admission criteria

Admission criteria for vocational routes in Northern European countries vary considerably. For instance, in Sweden, fewer courses with passing grades are required for entry into the vocational pathway. Other countries opt for stricter admission policies; Denmark launched a reform of its VET system in 2015 that included increasing performance requirements in Danish and maths to gain access to vocational schools (Cedefop, 2018[96]). In Finland, student selection is based on students' grades. VET providers also have the right to set selection criteria that may include work experience or aptitude tests, according to government regulations.

Alternative arrangements of work-based learning

In Norway, work-based learning is built into vocational programmes in a series of alternative arrangements. Most upper secondary VET programmes in the country follow a 2+2 model, implying two years of school-based learning followed by two years of paid apprenticeship training in a company or public institution. Other models place more emphasis on school-based and work-based learning respectively (e.g. 3+1 or 1+3). Graduation from these

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programmes allows students to earn a trade (or journeyman's) certificate and to enter the labour market. Nonetheless, Norway is currently working to increase the participation of employers in VET.

In other countries, work-based learning requirements are somewhat more flexible. In Finland, a VET qualification can be earned either through apprenticeship training or competence-based qualifications. In apprenticeship training, learning takes place in a working context 70% to 80% of the total learning time, while a competence-based qualification only requires students to sit through competence tests.

Sweden's VET system also enables different dosages of work-based learning. Students in vocational programmes can attend either a school-based education or an apprenticeship education. In order to complete their upper secondary degree, apprentices need to spend a minimum of 50% of their time in work-based learning, while school-based learners only need a minimum of 15% of on-the-job training.

Integrated general and vocational certification

In Denmark, vocational learning is offered in a range of different programmes, with varying duration and focus on practical training. From short basic vocational programmes with practical training in enterprises, to longer VET combining longer periods of theoretical education in a secondary vocational college. In particular, the Danish education system offers a combination of VET with a three-year general education programme enabling students to gain both a vocational and a general upper secondary school leaving certificate. The integration of both paths allows the development of job-specific skills without jeopardising the acquisition of general academic ones.

Another option for integrating general and vocational education is by increasing the permeability of the pathways. In Norway, students enrolled in VET programmes, with two years initial education in schools, can opt to change to an academic bridge course in the third year, replacing two years of apprenticeship in a firm. Despite not leading to a trade certificate, successful completion of the bridge course grants access to academic higher education. Students who have also attained trade certificates have the right to attend a fifth year of general supplementary studies. On the other hand, Sweden opts for a modularised approach. In order to facilitate transitions across tracks, students are allowed to transfer completed courses across study pathways and gain alternative qualifications based on accumulated curricular credits.

Sources: Nusche, D. et al. (2016), *OECD Reviews of School Resources: Denmark 2016*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264262430-en; Norweigian Centre for International Cooperation in Education (SIU) (2016), *Vocational education and training in Europe - Norway*, Cedefop ReferNet VET in Europe reports, http://libserver.cedefop.europa.eu/vetelib/2016/2016_CR_NO.pdf (accessed on 06 September 2017); Koukku, A. and P. Paronen (2016), *Vocational education and training in Europe Finland*, http://libserver.cedefop. europa.eu/vetelib/2016/2016_CR_FI.pdf (accessed on 19 September 2017); Skolverket and ReferNet Sweden (2016), *Vocational education and training in Europe Sweden*, Cedefop ReferNet VETin Europe reports, https://cu mulus.cedefop.europa.eu/files/vetelib/2016/2016_CR_SE.pdf (accessed on 19 September 2017); Cedefop (2018), *Developments in vocational education and training policy in 2015-17: Denmark*, Cedefop monitoring and analysis of VET policies, Brussels, http://www.cedefop.europa.eu/en/publications-and-resources/country-reports/vet- (accessed on 16 July 2018).

Opportunities for transitions across tracks are critical to meet students' changing interests and skills

The way in which programmes and course pathways are designed may help to reduce the impact of socio-economic background on students' choice of pathway and outcomes. A crucial design feature is the way in which opportunities for horizontal transitions across tracks exist. Early tracking risks placing young students in programmes that do not correspond to their potential performance and changing interest. Effective barriers to transitions can further accentuate the mismatch between the profile of the student and the track initially assigned, often leading to early school leaving. Moreover, inflexible transitions from vocational programmes in upper secondary education to post-secondary studies may exacerbate the separation of tracks and limit the progress to tertiary education opportunities.

In order to allay these concerns, education systems across the OECD have made efforts to ease the progression of students desiring to change tracks, and thereby better match their evolving needs with the available educational offer. In the Netherlands – where a wide range of vocational education programmes is offered starting at age 12 – teachers have the discretion to delay tracking of students in lower secondary education by placing them in "bridge classes". Additionally, a legal framework for "scaffolding diplomas" allows students, upon graduation from a longer vocational programme in upper secondary education, to have unconditional access to academic tertiary education (OECD, 2016, pp. 173-175[2]; OECD, 2016[96]). In Germany, where tracking may occur as early as Year 5, students are allowed to change tracks when moving from lower to upper secondary education. Recent evidence shows that for marginal students – i.e. students close to the threshold between two different tracks, and potentially misallocated – attending a lower track in lower secondary education has no significant impact on long-term outcomes such as wages, unemployment or occupational choice relative to individuals early assigned to the academic track (*Gymnasium*). The authors present evidence for the fact that such outcomes are only possible due to the in-built flexible mechanisms allowing students to change tracks when entering upper secondary education (Dustmann, Puhani and Schönberg, 2017[97]).

Other countries opt to create direct pathways from upper secondary VET to post-secondary VET and tertiary education. In Austria, students graduating from part-time vocational schools (*Berufsschule*, BS) and secondary technical and vocational schools (*Berufsbildene mittlere Schule*, BMS) have the option to gain access to higher education by sitting a series of general tertiary entrance examinations (*Berufsreifeprüfungen*). Additionally, graduates from ISCED 5-level Colleges for Higher Vocational Education *(Berufsbildene höhere Schule*, BHS) – required to complete one additional year than students in the academic track or other vocational strands – gain direct access to university entrance (*Matura*) (Nusche et al., 2016[20]). Similarly, in Denmark, students can combine a VET programme with a general academic examination to gain access to tertiary education. Moreover, an upper secondary track combining vocational and general programmes enables students to gain both a vocational specialisation, as well as a general upper secondary school leaving certificate to access tertiary education (Nusche et al., 2016[70]).

Combinations of VET and general curricula have been one of the strategies used by countries to improve horizontal transitions in upper secondary education and facilitate progression to tertiary education. This combination is often eased through the modularisation of curricula – i.e. the division of traditionally full-year courses into short duration modules – which has been widespread in the VET sector, particularly among European countries. Modular VET may provide greater flexibility to students and aide the

adaptation of curricula to the changing demand for skills (Cedefop, 2015[98]). For instance, Sweden opted to modularise vocational programmes, allowing students enrolled in upper secondary VET to transfer completed courses to any other programme and graduate from the general track (Skolverket and ReferNet Sweden, 2016[100]).

Despite these efforts, OECD data for a small cohort of countries indicates that, even where there are in-built mechanisms to facilitate flexible transitions across pathways, students rarely transfer across programmes. Figure 4.8 reports the graduation status from upper secondary education two years after the theoretical duration of their studies, i.e. two years after the regulatory or common-practice time it takes a full-time student to complete a level of education. While Panel A describes the graduation rates of those that entered into general programmes, Panel B displays the successful completion of entrants into vocational programmes. Crucially, both panels show that few students transfer across programme orientation before completion. In 5 of the 11 countries for which there is available data, the proportion of students that transition from vocational to general programmes rounds to zero. For instance, despite Sweden and the Netherlands policy efforts, fewer than 5% of students actually transition from one track to the other (Figure 4.8, Panel B). High transition rates across pathways could be indicative or poor initial placement, and it is impossible to fix a goal rate of transition. Nevertheless, very low rates of transition, particularly from the vocational to the general pathway, indicates few opportunities for students to move from the traditionally disfavoured VET track and bears further scrutiny.

Figure 4.8. Completion rates and track-switching of upper secondary students, 2015
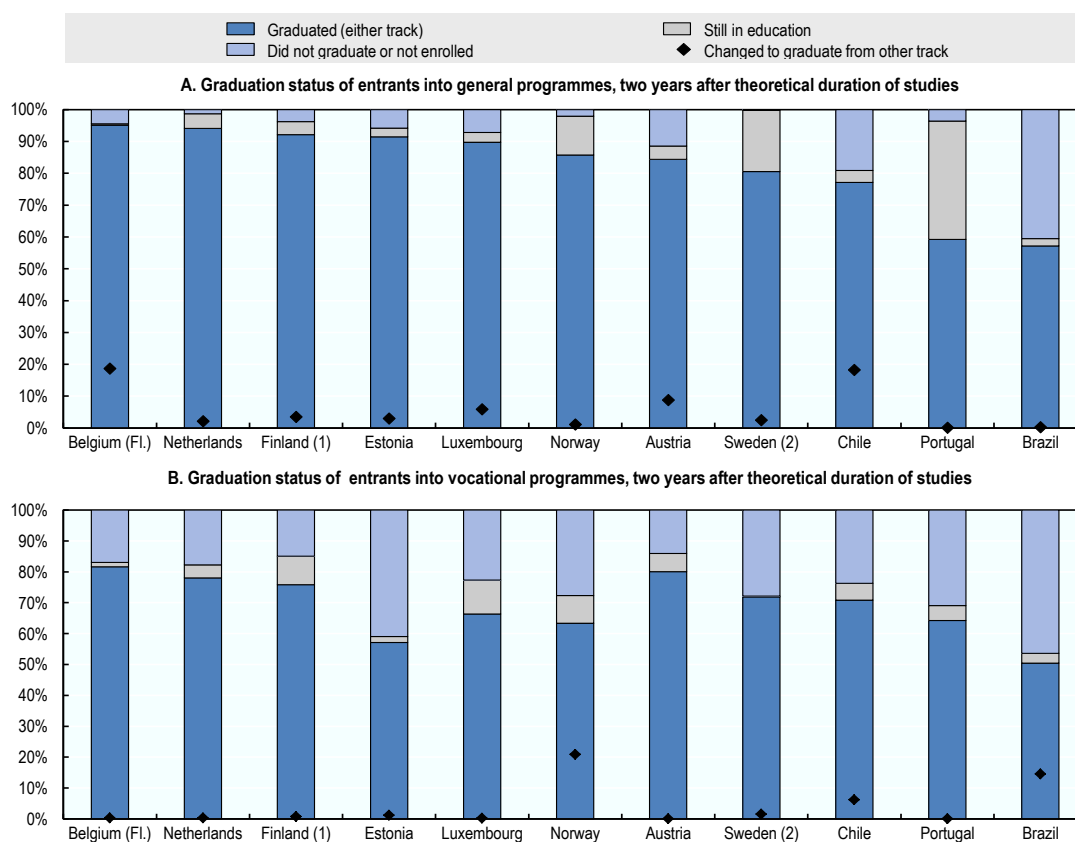
Note: Data presented in this figure come from an ad hoc survey and only concern initial secondary education programmes for young people. It is based on a true cohort method, following one cohort of students for a period corresponding to the theoretical duration of their degrees (N) and N plus two years (N+2). N is defined as the regulatory or common-practice time it takes a full-time student to complete a level of education.
1: Year of reference 2014.
2: Students who continued their studies in the adult education system are included in the column of "Did not graduate or not enrolled".
Source: OECD (2017) *Education at Glance 2017: OECD Indicators*, OECD Publishing, Paris, http://dx.doi.org/10.1787/eag-2017-en, Table A9.2.

StatLink 🔗 https://doi.org/10.1787/888933831545

Designing effective opportunities for flexible transitions is possible, however. More than one-fifth of Norwegian students who begin in vocational programmes end up earning a general upper secondary education degree within two years of the end of their theoretical time in this system. An explanation for this might be the structure of the vocational offer in Norwegian schools (see Box 4.4). At the end of a two-year school-based component, students may apply to an apprenticeship position in a company or transfer to a third year of bridging course, enabling them to qualify with a general upper secondary certificate (Norwegian Centre for International Cooperation in Education (SIU), 2016[101]). Such structure helps alleviate the relatively high share of students who do not complete vocational programmes or are still in the same education level two years after the duration of theoretical studies (36%; Figure 4.8, Panel B).

Transitions from general to vocational programmes are somewhat more common across the countries presented. Nevertheless, only in the Flemish Community of Belgium and Chile did more than 10% of students who started in a general programme ultimately graduate from the vocational track (Figure 4.8 Panel A). While it is possible to view such a transition as a stronger match between student interest and programme, many countries use a "waterfall" system such as this as a justification for failing to support struggling students in general programmes. As students experience failure in general settings, they may be pushed into low-opportunity vocational tracks. In this light, the low rate of transfers from general to vocational pathways can be considered a relative success. On the other hand, where vocational programmes can still lead to access to higher education (e.g. Austria) and good labour market opportunities, higher rates of transition from the general to vocational track may also signify success in addressing the risk of students otherwise dropping out from education altogether.

Co-ordinating pathways for mainstream and special needs education

Historically, school opportunities for students with SEN have been limited in OECD countries. Prior to the 1970s, students with moderate or severe SEN were typically excluded entirely from school. Minimal supports existed for students with mild- or moderate SEN in mainstream settings, and they were often tracked into low-skills classes, having significantly lower levels of educational attainment (Shapiro, 1993[102]). In the worst cases, children with disabilities were relegated to overcrowded, abusive and unsanitary institutions (Fisher, 1997[103]). Over the past 40 years, at varying rates and accelerated by international efforts such as the United Nations (UN) Convention on the Rights of Persons with Disabilities, countries have recognised the moral imperative to provide equal educational opportunities to students with SEN (see Box 4.5 for an example from the Flemish Community of Belgium) (OECD, 2017[104]).

Box 4.5. Reforming special education provision in the Flemish Community of Belgium

After the Flemish Parliament ratified the UN Convention on the Rights of Persons with Disabilities in 2009, the Flemish Community legally reinforced the right of students with special educational needs to be enrolled in mainstream education, through the passing of the M-Decree in 2014, with measures that included:

- Updating the definition categories for special needs students, including a category for children with autism.
- Requiring mainstream schools to make reasonable adjustments, such as providing specialist equipment and support staff to accommodate special needs students in the mainstream system, and requiring mainstream schools to only refer a student to special needs education once all such "reasonable adaptations" have been tried.
- Providing parents of a child with special educational needs who disagree with a school's refusal to enrol their child with the right to appeal to a Student Rights Commission (*Commissie inzake leerlingenrechten* or CLR). This commission is comprised of experts in equality and education law and was created by the Parliamentary Act of 2002 on Equal Educational Opportunities.

The measures imposed in the M-Decree were implemented in 2015/16, and national sources indicate an already noticeable decrease in the number of primary students in special needs education in the first school year under the new measures (Department of Education and Training et al., 2017[105]).

Source: OECD (2017), *Education Policy Outlook: Belgium*, OECD Publishing, Paris, available at: www.oecd.org/edu/profiles.htm.

In 2015, the UN's adoption of the Sustainable Development Goals in 2015 underlined this imperative in its Goal 4: "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all". Consequently, countries have set themselves the target to "build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all" and to ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations, by 2030 (United Nations, 2015[106]).

Recently, empirical evidence has added to the ethical argument for inclusion as it has demonstrated improved academic and life outcomes from educating students with SEN in the least restrictive environments while providing additional supports (Hanushek, Kain and Rivkin, 2002[107]). In some cases, however, education systems have used special needs education as a catch-all to respond to educational difficulties for some students, resulting in the over-identification of racial and ethnic minorities, low-income students and boys (Losen and Orfield, 2002[108]; Harry and Klingner, 2006[109]).

Due to substantial differences in how countries classify students with SEN, internationally comparative data is difficult to collect. The OECD Teaching and Learning International Survey (TALIS) 2013 data includes 26 countries where more than 5% of principals reported that their schools comprise a population of students with SEN of at least 10%. Teachers working in these schools educating a substantial proportion of SEN students represented an average of 26% of the countries' total teaching populations (OECD, 2014[110]).

The decision about the setting in which to educate students with SEN is a highly complex one. The causal evidence does not generally show harm to SEN students, or their general education peers, by including them in mainstream settings (Hanushek, Kain and Rivkin, 2002[107]; Ruijs and Peetsma, 2009[111]). However, neither does it show consistent benefits. Analysis using TALIS 2013 data suggests that where there are more students with disabilities included in mainstream settings, greater classroom disruptions occur and teachers spend less time teaching and more time correcting student behaviour (Cooc, 2018[112]). This accords with evidence from the United States context suggesting negative peer effects and increased teacher turnover associated with the inclusion of students with an emotional or behavioural challenges (Gilmour, 2018[113]). Additionally, every student has an individualised range of specific supports and environments in which he or she will experience the most educational success. Further complicating comparative analysis is that the categorisation of students with SEN is highly idiosyncratic within countries, let alone in cross-country samples. Nevertheless, it is instructive to note that there is an enormous spread in the proportion of SEN students who are fully included in mainstream settings.

As increasing numbers of SEN students are educated in mainstream settings, education systems must make significant investments and build capacity in mainstream schools to meet the needs of students with SEN. Schools are often not physically designed to be accessible to all SEN students. Finally, and most critically, teachers in the TALIS surveys indicate significant levels of discomfort and lack of experience in working with students with SEN (OECD, 2014[110]), necessitating meaningful embedded professional development to create more welcoming and productive classrooms for students with special needs.

School systems struggle to properly identify, resource and integrate students with SEN

As noted above, the rate at which School Resources Review countries identify and include students with SEN in mainstream settings varies widely. Lithuania, for example, has an official SEN identification rate of 11%, more than three times that of Uruguay at 3%. Even when countries have relatively similar rates of SEN identification, the setting (general or special needs-specific schools) in which they educate those students can vary (see Table 4.1).

These discrepant rates of special needs identification and inclusion are a product of differing statutory, regulatory, cultural and demographic conditions. Some countries have mandates imposing upon school systems a legal obligation to identify cases of SEN in their student population and requiring schools to educate students with SEN in the most mainstream setting possible. For instance, in the Czech Republic, there exist five legally defined categories of disability. According to Decree No. 72/2005, a team of "school advisors" (a team of psychologists, social workers and pedagogical staff established and overseen by the National Institute for Education) is responsible for identifying and providing services to students with SEN. Critically, if the school advisory team provides a professional evaluation of disability, the student's parents or guardians are consulted and have a veto power over the child's placement in a separate setting (Shewbridge et al., 2016[71]). However, in 10 of the 12 completed School Resource Reviews countries, these requirements to educate substantial proportions of students in mainstream settings either do not exist or have only been instituted in the previous 15 years. Thus, there is a limited evidence and knowledge base built around long-term inclusion practices.

As a result of the differing standards for identification, cross-country differences in identification rates are difficult to interpret, particularly as they relates to "softer" categories of special needs (Categories C, I, J, K, L and M in Chart 3.1 in the OECD's comparative classification system (OECD, 2005[114])). For instance, low rates of identification of "K. Severe and/or Moderate Learning Problems" could be indicative of effective early intervention programming that prevents students from falling behind, or it could be due to neglect in identifying these learning problems. Similarly, high rates of inclusion could be indicative of a school system that has successfully promoted equitable practices, or it could be a cost-saving effort providing minimal supports and weak outcomes for struggling students.

In fact, in the majority of the OECD review countries, the ministries of education reported concerns around incentives built into funding formula provisions for special education students to retain students in separate schools. Indeed, in several OECD review countries, the overall secondary school populations are declining while the enrolment in special needs schools has remained consistent, with growing shares of students educated in these separate settings. Additionally, educators working in separate schools may only have qualifications to work in these settings, or may only work without qualifications in special education

schools. Educators in this situation may feel pressured to identify more students as disabled and requiring separate schooling in order to retain their positions. Non-transferable licenses also prevent reallocation of these teachers in the event of school consolidations.

As with most OECD countries and partner nations, OECD review countries struggle to avoid inaccurately identifying students who are simply struggling in school or suffer from other societal disadvantages as having special needs. Some of the OECD review countries have disproportionate rates of special needs identification for low-income, immigrant and ethnic populations (particularly Roma). Despite legal provisions in Austria, for example, against labelling a students as having a SEN simply due to unsatisfactory achievement, this continues to be an issue when students show learning problems, especially when they are also migrants (Bruneforth and Lassnigg, 2012[115]). Box 4.6 describes some of these cultural biases and other barriers to successful integration of SEN students in more detail.

Misidentification may be stigmatising, result in lowered expectations or inappropriate types of support for the affected student. It also has negative externalities on the entire education system. The costs of educating students with SEN are high and resources may be inaccurately channelled to some students at the expense of others.

What is without question is that international evidence indicates that teachers and school leaders do not feel prepared to meet the needs of students with SEN. Almost half of teachers in TALIS have a principal who reports working in a school where "a shortage of teachers with competencies in teaching students with special needs" hinders the school's capacity to provide quality instruction (OECD, 2014, p. 47 Figure 2.6[110]). Only about a quarter of TALIS teachers report having participated in professional development in the past 12 months that had "a large" or "moderate" positive impact on their teaching of students with special needs (OECD, 2014, p. 106 Figure 4.12[110]). However, the single highest-need topic of professional development for TALIS teachers was teaching students with special needs (OECD, 2014, p. 109 Figure 4.14[110]).

Despite the expressed need educators report for expertise in serving SEN students, the results from the TALIS survey indicate that there are fewer experienced teachers (more than 5 years of teaching) in schools where more than 10% of students have special needs (OECD, 2014, p. 41 Figure 2.4b[110]). Thus, consistent with other similar evidence, school networks struggle to effectively distribute skilled (or, minimally, experienced) teachers to the students who need them the most.

Box 4.6. Cultural barriers to the inclusion of SEN students

In addition to the policy and practice barriers to successful integration documented in this report, OECD country review teams consistently heard concerns in country background reports and in interviews with stakeholders that there exist persistent cultural biases against the integration of students with SEN in mainstream settings. This accords with practitioner interview research on this topic (Skiba et al., 2006[117]).

Given the spectrum of ability within each SEN category, this can result in special education evaluation teams assigning students to a separate class or school even if the severity of the student's special educational need does not preclude them from a general education setting. Since each presentation of learning disability or difficulty is so unique and contextual, there are few ways to correct this through a document review or inspectorate process.

These cultural biases can distort the intended effects of inclusion policies even when SEN students are nominally placed in general education classes. For example, a classroom that is designed to be inclusive by policy may have two teachers: one responsible for general education students, the other for SEN students. They can be in the same physical space, but be working towards entirely different learning objectives and organised in groups that interact only minimally with each other.

Strategies to overcome cultural barriers to inclusion:

- Advocacy on the part of system leaders for attitudinal changes.
- Professional development to build educators' self-belief and efficacy in working with this population of students.
- Time and protocols for special needs and subject-area teachers to collaborate during the school day to design fully inclusive lessons.
- Inspectorate monitoring reviews to ensure that legal requirements for inclusion are followed both in the letter of the law and in its spirit.

Source: Skiba, R. et al. 2006, *The Context of Minority Disproportionality: Practitioner Perspectives on Special Education Referral*, *Teachers College Record,* Vol. 108/7, pp. 1424-1459.

Standards, procedures and training for the identification of SEN students

Several OECD review countries have enacted recent legislative reforms to improve the identification process to avoid under-, over- or misidentification. In June 2015, the Slovak Republic passed an amendment to the School Act which defines criteria for placement for students with special educational needs. It precludes students from being assigned to special classes or schools based on socio-economic disadvantage and limits assignment to such a setting for students with a medical disability. The amendment also mandates that the Slovak State Schools Inspectorate monitor the organisations responsible for managing identification (Pedagogical and Psychological Consulting and Prevention Centres). The Inspectorate may require corrective actions from the Centres and impose sanctions if their identification practices result in over-identification or excessive exclusion of socially disadvantaged groups (Santiago et al., 2016[11]).

To support these appropriate identification standards, funding formulas must avoid creating perverse incentives to over-identify students or place them in more restrictive settings. This could mean equalising weighted per-student allocations across placements and

differentiating them based on the objectively defined category of disability or special educational need.

In addition to providing legal guidance for identification, clear protocols for how teams of educators and health professionals recognise students' special needs help avoid misidentification. In fact, in one sample of schools in Chile, more than 30% of schools designed their own protocols for detecting learning disabilities (Marfán et al., 2013[118]). This makes it difficult to gain a precise understanding of students' educational needs and may lead to a misidentification resulting in inappropriate kinds of support being offered.

Developing standardised protocols to be used in evaluation meetings can ensure that all actors (student, family, teachers, school leaders, social workers, guidance counsellors, psychologists, health professionals and others) have appropriate voice in the decision making. Additionally, these protocols can ensure all students have access to appropriate testing and evaluation procedures. Finally, these protocols can mandate the collection of data that facilitate agencies that monitor whether all steps of the evaluation process have been taken and potential differentials in identification by student demographic background (Santiago et al., 2017[117]).

With the support of these protocols, it is critical to assemble the appropriate collection of stakeholders to determine a students' need for special education services and his or her most appropriate educational placement. Students of different socio-economic backgrounds have differential access to mental and physical health personnel which can result in under- (and sometimes over-) identification in certain communities. Timely identification and provision of services to socio-economically vulnerable children depends on access to healthcare professionals. At the same time, teachers and other educators who observe students every day in classes can have more in-depth and extensive insights than a health professional who may observe a child sporadically in a clinical setting (Fletcher and Vaughn, 2009[120]). This may be particularly true in situations in which the child's special educational need may be informed by his status as a language learner (Ortiz et al., 2011[121]). Thus, all perspectives are critical to the evaluation process.

However, as evidenced in TALIS 2013, at least a quarter of mainstream and special education teachers feel they need additional professional development to understand and meet the needs of students with SEN. Appropriate training for educators to effectively participate in the evaluation and identification process can improve the quality of these practices.

Integration of mainstream and SEN schools and staff

To ensure that investments into appropriate identification and integrated learning improve educational opportunities for SEN students not only in terms of access but also quality, attention should be paid to both the inclusion of special needs students, as well as the specialised materials, human resources and skills required to serve students with SEN. In order to benefit from the resources and experience of SEN schools and staff, OECD review countries have used a variety of strategies to create synergies between the two sectors. This can take structural forms such as physically siting special needs schools in the same building as mainstream school to provide opportunities for SEN students to take more classes in general education settings. It can also involve efforts to build professional connections between mainstream and special educators, and to encourage teachers with special education expertise to coach their colleagues. Finally, any efforts to mainstream special education students will require a reallocation of human and physical resources. This can be a budget neutral proposition (or even result in some cost savings if special education

schools are closed), but it does require an increase in the level of resources targeted towards mainstream schools for the purposes of SEN.

In some countries such as the Czech Republic and the Slovak Republic, special education schools are governed by different authorities than mainstream schools. In addition to the difficulties this creates in monitoring school quality, licensing teachers, co-ordinating resources, and the creation of staff development plans, different governance structures make partial integration of students difficult. For instance, students in the two systems might be on a different daily schedule, so having them travel between schools would be difficult. Without a common oversight body, adjusting schedules would require negotiations across the two schools and systems.

To promote learning by and between SEN and mainstream staff, several countries have developed centres devoted to special needs capacity development. In Estonia, regional support centres (called "Pathfinder Centres") provide services to students, parents, teachers and schools to support children with special educational needs. This might include the provision of speech therapists, special education teachers, social pedagogues and psychologists (Santiago et al., 2016[56]). Similarly, the Czech Republic has four regional "pedagogical advisory centres" that provide support to the school advisory facilities in the identification of and support for students with disabilities (Categories 2 through 5) (Shewbridge et al., 2016[71]). Danish special education service organisations like VISO (*Videns- og Specialrâdgivningsorganisation* – Specialised Knowledge and Counselling Organisation) and municipal PPRs (*Paedagogisk Psykologisk Râdgivning* – Local Educational-Psychological Advisory Services) play key roles in facilitating the inclusion process in mainstream schools (Nusche et al., 2016[70]). These types of centres can be responsible for the provision of sequences of professional development courses, add-on special needs licenses for subject-area teachers, and curriculum to facilitate integration. In Portugal, specialised support to students with SEN within schools is complemented by a network of 93 specialised resources centres for inclusion (*centros de recursos para a inclusão – CRI*) and 25 ICT resource centres for special education spread across the country. The resource centres are designed to support the inclusion of children with disabilities, build partnerships with local actors and facilitate the access of students with SEN to different activities (Liebowitz et al., 2018[74]).

In New Zealand, schools have worked together in Communities of Learning (*Kāhui Ako*) to develop a Learning Support Service Delivery model where multiple stakeholders contribute to the services that children receive. Specialists, teachers, resource providers and others collaborate to follow a six-point approach: (i) family and extended family (*whānau*) connections; (ii) individualised child educational plans with goals and supports required to meet them; (iii) flexible support services; (iv) increased co-ordination of services cross providers; (v) use of data to identify successful interventions; and (vi) the use of a facilitator to ensure all parties are able to co-operate and work together. New Zealand has attempted this integrated approach in one region, and is gradually extending it nationwide. Additionally, New Zealand has developed an Inclusive Education website that provides schools, leaders and teachers concrete resources to help with inclusive practices ranging from language-based strategies to initiate cultural shifts to classroom strategies to make curricular material more accessible to all students (New Zealand Ministry of Education, 2018[122]). Nevertheless, continuing to develop teacher capacity to support the needs of students with SEN remains an ongoing policy priority in New Zealand.

Promoting collaboration between mainstream and special education staff requires schools and networks to dedicate time during teachers' contractual days and develop protocols to

effectively guide the process. Dedicated regional support centres can play a role in creating teacher professional learning team protocols, modelling effective team-taught lessons, writing curriculum to promote integration, and creating teacher schedules that provide collaboration time.

Funding robust inclusion systems

The integration of SEN students requires time and short-term resource investments, although cost savings may be achieved in the long run. To improve the provision of services for children and youth with permanent SEN and the quality of education for these students, authorities should make sure that schools which enrol and retain SEN students have the resources, as well as incentives in place to serve these students. Funding approaches must recognise the additional investments needed to provide an inclusive education to students with SEN in terms of infrastructure, educational materials and human resources.

Increasing the capacity of mainstream schools to provide integrated instruction may require infrastructure adjustments including additional classrooms for pull-out options in mainstream schools and the conversion of some special schools into resource centres supporting the integrated work of mainstream schools. This may also involve refitting some special schools to serve mainstream and integrated populations of SEN students (Nusche et al., 2015[55]). Some school systems have particular holes in their apportionment of special education funds. For instance, Estonia and Portugal were particularly under-staffed in special education teachers and teaching assistants to support mainstream inclusion (Santiago et al., 2016[56]; Liebowitz et al., 2018[74]). These types of staffing shortfalls may require the development of a funding formula with additional weighting for the education of special needs students in mainstream settings, the re-calculation of the appropriate coefficient for this additional weight for students at different levels of special needs, the reapportionment of staffing from more costly special schools to mainstream settings, or some combination of these three depending on the country context.

As one example of a country policy to ensure that additional funds for special education are effectively used, Chile requires schools that receive specialised grants for inclusion provide a rigorous investment plan detailing how the funds will be invested in resources that directly benefit students with special needs, including teachers or specialists, teacher training, teaching materials, diagnostics, co-ordination or collaborative work between specialists and teachers (Marfán et al., 2013[118]).

Accountability and flexibility in the use of SEN funding

In order to effectively integrate SEN children in mainstream schools and classroom, care must be taken in how funding is allocated and monitored for these purposes. Schools are often resource constrained and attention must be paid to ensure that these funds are not re-purposed for general education. At the same time, the categorical nature of these funds should not prevent schools from using funds such as these for the purposes of intervening with students who face the same learning difficulties as SEN students but have not (yet) being identified as such. In some contexts, for example, students without explicit learning disabilities are prohibited from participating in reading or mathematics support classes if students are part of the school's special education programme, even if these other students would benefit from them.

School actors would often like to be able to use some of their targeted SEN funds to provide intensive support to struggling students to prevent them from needing to experience

complete failure before they can receive additional support. This sort of an approach is justified by the educational research literature on the Response to Intervention (RtI) strategy (RTI Action Network,(n.d.)[123]), but often not supported in practice due to constraints on how special education funding can be spent.

In the United States, policymakers attuned to this situation provide for two side-by-side solutions. First, school districts operating a school receiving categorical funding for a high-incidence of low-income students may combine their special education funding under the Individuals with Disabilities in Education Act (IDEA) with their compensatory programming for low-income children to design a school-wide system of remediation (Individuals with Disabilities Education Act, 2004, p. §300.613[124]). There are limits on the total amount of special education funds that a sub-national school district can provide to a school for that purpose, depending on the total number of students with SEN enrolled in the school, but this program ensures that schools and school districts can use their special education funds in a flexible way to address all needs, while maintaining services for students with SEN. Secondly, school districts with a history of over-identifying sub-populations of students may be required, and others may choose, to use up to 15% of their special education funds for Comprehensive Co-ordinated Early Intervention Services (CEIS) that provide intervention programming intended to limit the number of students identified for special education placement (Individuals with Disabilities Education Act, 2004, p. §300.646[124]). Nevertheless, there is wide variability in states' and districts' use of these opportunities, ranging from 0% of eligible districts taking advantage of this provision in several states to over 64% in Louisiana (U.S. Department of Education, 2016, pp. 270-1[125]). Thus significantly more must be done to ensure that appropriate guidance, incentives and capacity building are in place to promote early intervention to minimise over-identification.

Supporting the transition of students with SEN into independent lives and work after school

Students with SEN have substantially worse levels of educational attainment and labour market participation rates than peers without special needs. Their long-term rates of employment, wages, post-secondary education attainment, residential independence and other indicators are lower than their general education peers (Blackorby and Wagner, 1996[126]). Though their experience in some contexts has improved in recent years, including their level of community and civic engagement (e.g. seeing friends, voting), their post-secondary experiences generally measure worse than their peers (Newman et al., 2011[127]). This challenge speaks to the inter-connected dimension of horizontal and vertical transitions. Students entering the special education pathway sometimes struggle with transitioning to a parallel system, as well as from one level of education to the next and further into the world of independent living.

Though few school systems explicitly plan for transition activities after the age of compulsory education, these strategies hold promise. Participation in post-schooling transition planning programmes increased rates of post-secondary enrolment for youth with autism spectrum disorders (Wei et al., 2016[128]; Chiang et al., 2012[129]). Transitional activities improve functional independence (Wagner et al., 2005[130]; Carter, Austin and Trainor, 2012[131]), post-secondary attainment and employment (Shattuck et al., 2012[132]).

Minimal standards to ensure access to school for special needs children

Some OECD review countries are substantially further behind in meeting the basic requirements of identification and service provision. In some cases, they fail to identify many students with SEN. In others, they educate all but a handful of students with SEN in entirely separated facilities. In the most serious cases, they fail to provide any schooling options to some categories of students with SEN beyond the primary years. In these situations, countries must develop a comprehensive strategy that includes: i) categories of special needs and a definition of educational success or goals for students in each of the categories; ii) mechanisms to identify students with special needs; iii) a shared reflection process about the role of special schools with respect to the mainstream setting; and iv) a significant increase in the resources allocated for special education services.

4.4. Policy options

Ease students' vertical transitions across school years and levels through effective co-ordination and targeted support

Provide incentives for collaboration and transitions across levels of education

Well-designed pathways through all levels of schooling and into the workforce can help young people develop as human beings and gainfully transition to adult life. Smooth transitions facilitate human capital development, ease entry into the labour market, and reduce costs associated with youth unemployment and worse health outcomes for under-educated adults.

Enhancing the co-ordination between different levels of education yields several efficiency and quality improvements. First, it facilitates resource sharing between school providers, especially when incentives for joint provision are aligned with the goals of each individual school. Ensuring the conditions for reaching agreements across schools specialised in providing different levels of education incentivises sharing of facilities and materials. Second, it fosters greater co-ordination for articulating the curricular and pedagogical offer, facilitating the progression of students throughout the system and helping them to integrate skills and capacities acquired at each level of education.

Ensuring that the curricular sequence progresses smoothly from the initial stages of children's development to completion of upper secondary education helps students successfully move from year to year and minimises reasons to drop out of school. The transition to primary school can be challenging for children faced with the need to adapt to a new environment, with new daily routines. Especially in systems where ECEC has formal learning curricula, co-operation between pre-school and primary school providers can help smooth this transition. This may entail the provision of multiple levels in integrated schools or the exploration of common pedagogical strategies and efficiency gains through organisation into school clusters.

At higher levels of education, and particularly in education systems with early separation of education pathways, it is important to guarantee that the curriculum of less academically-oriented tracks flows smoothly from lower to post-secondary education. Building a shared vision of purpose for all strands and tracks helps providers of different levels of education to explore common curricular options and ensure a continuum of curricular offer.

Policymakers should address the relevant curricular options in consultation with stakeholders and reflect on the appropriate configuration of years and levels of education. Such configuration affects the extent to which services, facilities and materials can be efficiently shared. Greater scale in provision and having curricular options based on shared goals can yield greater school network collaboration and richer learning environments.

Provide effective alternatives to year repetition

School systems can minimise inappropriate year repetition through: i) robust early warning indicators, ii) careful, standardised screening processes, iii) individualised, targeted support, iv) "conditional promotion" practices, and v) symbolic guidance from system leaders and public data reporting intended to shift cultural attitudes around grade repetition practices.

Identifying the contextually specific indicators that are simultaneously highly predictive of year repetition and easy for all stakeholders to interpret is a critical first step to intervening early. This may require building data systems that can track in an integrated fashion student attendance, course marks and behaviour. Once these data systems are built, educational professionals at the school level must be trained to interpret their outputs and design a standardised response protocol.

When students are identified as "at risk" as a result of early warning indicators, they should receive immediate additional help in the form of individualised coaching and extra remedial help both within- and outside of the standard school day. The impact of the coaching and additional academic help should be regularly progress-monitored to assess its effectiveness. For the coaching intervention, this can be accomplished through regular surveys of students' attitudes towards school or sense of self-efficacy. For academic support, short-term monitoring of student grades and exam scores is critical. Adjustments can then be made following these interim progress checks.

If despite intensive intervention, students continue to struggle to demonstrate competency on year-level skills, there may be some students for whom year repetition can be helpful. Employing a culturally relevant screening tool that is validated by comparing recommendations of year repetition to subsequent outcomes and tested for bias in its application is critical to ensure that choices to retain a student in year are done so with the expectation that this decision will benefit the student and are not systematically influenced by cultural biases. Furthermore, school systems can shift away from understanding the year repetition decision as a binary choice. Particularly in higher years, students can be required to take, for example, a prior-year mathematics course in place of an enrichment activity if this is the subject in which they have struggled, rather than repeating the entire previous year. With thoughtful student scheduling, this approach can be implemented at earlier year levels as well.

Finally, in many countries, educators and the public see year repetition as a valuable tool to maintain high standards and there are deep cultural concerns around lessening its practice and the impact it may have on students' sense of personal accountability. In order to allay these concerns and challenge misconceptions of the effects of year repetition, system leaders must publicly present data on the outcomes of year repetition and take strong public stances against its widespread practice. Only through such leadership will long-standing practices shift over time.

Guarantee appropriate student guidance and counselling, informed by latest insights in behavioural science

Students' education pathways are marked by crucial decisions at key transition points. Failing to support students in such significant moments yields several costs, as the consequences of sub-optimal choices impact both the individual and society. Especially in systems with early tracking, students must be adequately supported in selecting the educational pathway that does not unduly limit their ability to make different pathway choices as their individual interests, aspirations and competencies clarify themselves over time. Progression from lower to upper secondary education is a crucial transition point. Typically, common curricular paths are separated into different streams and tracks in the progression to upper secondary education. Student counselling is key to help students navigate the set of available options.

Moments of transitions from upper secondary education to post-secondary education and the labour market are also critical. In some cases, students are unaware of their academic or financial eligibility for tertiary education opportunities. Students' socio-economic background frequently plays a role not only on their ability to financially invest in post-secondary education, including the opportunity costs of not working, but also in their lack of exposure to the necessary qualifications for entry. Students must have adequate information on their post-secondary education options, as well as on the processes for application and enrolment.

Educational authorities should consider the appropriate frameworks for the certification of counsellors who can support students at these critical moments. Advice to students should rely not only on appropriate assessments of student interest but also on future tertiary education and labour market prospects of their choices. Counsellors must also be supported to interpret the course offer in post-secondary education, as well as labour market trends to inform their advice.

Unfortunately, in many contexts, barriers such as complex application and financial support forms, enrolment deadlines, and other logistic concerns prove limiting to students who lack family members or other connections who have already navigated these processes and can guide them through. As a result, even high achieving students may fail to enrol in their best matched post-secondary institution (Hoxby and Avery, 2013[16]).

A first, though costly, investment is to ensure that sufficient guidance counsellors exist and that they are effectively distributed throughout the education system. In the context of constrained resources, investing in guidance counsellors, ensuring their availability in both lower and upper secondary, and disproportionately assigning them to schools with concentrations of high-needs students is a first step.

Complementary strategies, informed by insights of behavioural science, can accomplish similar outcomes at a much lower cost. Systems can provide clear information on post-secondary options, remove unnecessary bureaucratic barriers, and repeatedly remind students of the steps to take to complete their enrolment. These interventions can have major impacts with minimal resource investment.

Use data-tracking systems to develop early warning indicators for students at risk of repeating years and/or dropping out of school

A critical factor preventing many school systems from intervening early and effectively with at-risk students is a failure to systematically identify them early, before their struggles are so pronounced as to minimise the efficacy of interventions. Some profiles of students

who risk repeating a year or dropping out of school are obvious for school staff to identify: students who are frequently disruptive, refuse to complete work and fail examinations. There are, however, other profiles of quieter struggles: students who attempt to avoid being noticed, students who produce the minimal required work at low levels of proficiency, and so on. Designing a comprehensive system to identify all students who are at risk requires robust data systems that are regularly used by school staff.

As a first step, ensuring that each student has a unique identifier that can be tracked across schools and networks is critical to follow highly mobile students who are at significant risk. Second, combining educator expertise with empirical analysis to identify the factors that are most predictive of students failing a course, repeating a year and dropping out of school can clarify which are the key indicators to track. In some contexts, these results can run counter to accepted wisdom. For instance, in the United States context, school attendance, course marks, and behavioural conduct are much stronger predictors of school completion than external test scores (see Box 4.1).

Once countries have built data infrastructure systems and agreed on which indicators to track, extensive training of school personnel (teachers, counsellors and school leaders) must take place to ensure that they both understand the meaning of the early warning indicators and believe in their value. For school staff to see value in this data, clear steps for intervention must exist. This might include targeted small-group teaching and counselling sessions or references to social service providers. The key is a clear protocol for what happens when students are flagged as in need, and then a system to track and ensure that these interventions have, in fact, occurred.

The last step to ensure that the data-tracking system has meaningful impacts is to periodically review the intervention impacts at the school and system levels. This involves analysing trends in early warning indicators across types of students and schools, comparing students' outcomes on the early warning indicators before and after the interventions to track individual growth, as well as more formal evaluation studies using regression discontinuity or matched student to identify the causal effects of the interventions. These types of analyses permit review of areas in which students or schools need extra support, an assessment of the efficacy of specific types of interventions, and an overall evaluation of the programme.

Invest in complementary second chance and early acceleration programmes to re-engage struggling learners and minimise school dropout

Second chance and early acceleration programmes are specific types of interventions for students who have struggled or are struggling to make successful transitions through secondary education and into post-secondary education and the labour market. These differ in substance from the previous types of interventions as they provide a different curriculum and schooling structure to re-engage students, rather than aiming to better support students in the common curriculum.

These two types of programmes tackle the problem in substantially different ways. The classical way of addressing students who have dropped out of school, but later express interest in gaining skills and credentials at the secondary level as adults, is the second-chance programme. Second-chance programmes can tackle skill gaps and school failure in a variety of ways including literacy and numeracy remediation, course repetition through online or in-person classes, or test-based competency demonstrations.

While there is evident potential for benefits from a second-chance system, it may also induce students to dropout at earlier ages if they know they can always re-enrol (Field, Kuczera and Pont, 2007[39]). Additionally, the quality and rigour of these second-chance courses are often low (Kohli, 2017[53]), which may mean that employers discount the value of a second-chance credential as it implies no additional skill acquisition on the part of the student. Thus, careful attention must be paid to the timing of the offer of second-chance programmes to students, the standards of the course materials, and the qualifications of the instructors.

An alternative to the traditional second-chance programme is that one that seeks to alter a student's trajectory before she experiences failure in the first place. School systems can use predictive data to identify students who are at risk of dropping out and intervene before it occurs. These types of early intervention programmes are often premised on an idea of acceleration rather than remediation. Though such strategies assume a variety of models, a common structure involves providing students with the opportunity to earn tertiary credits and credentials while enrolled in secondary school, and often with the opportunity for embedded employer internships. Students are assigned professional mentors, visit multiple workplace environments on learning missions, and access paid or unpaid internships. In some cases, graduates from these early acceleration programmes are given priority in job opportunities with partner private employers.

Ensure greater fluidity in students' horizontal transitions and the coherence of the educational offer

Limit the dispersal of educational options as a resource saving opportunity and leverage models that better meet individualised student demand

The type of opportunities that families and students want from schools is growing all the time, and schools are responding by offering increasingly diverse choices. While students and families demand more customisation, school providers sometimes struggle to adapt and fit the curricula according to the specific options that families seek. This can be due to constraints on the number of highly trained teachers in a particular sub-field of study, or the high costs of building and maintaining multiple high-quality facilities such as a school theatre, chemical laboratories, art studios etc.

Limiting the diversity of educational strands may be an opportunity to free resources up to invest in fewer, higher-quality options. In concrete terms, this may mean that smaller schools do not offer multiple educational pathways, and instead leverage blended-learning models to provide both quality core general and vocational curricula, alongside customised online learning options. Decisions would be made at a higher organisational level (national or sub-national). This would require stakeholder involvement to ensure that these decisions were well-informed and may involve difficult trade-offs and decisions running counter to the interests of some groups.

Educational authorities, in consultation with all relevant stakeholders, should reflect on the adequate balance between quality and variety. In particular, reforms to the curricular structure and the existing educational offer should ensure that each educational strand meets broadly agreed-upon student needs. Where the organisation of the educational offer is planned at sub-central levels of governance, it is important to couple the authority to consolidate programmes with greater local flexibility in resource distribution. Combining these two authorities allows decisions to be made without worry that ending a particular educational pathway will result in fewer overall resources, or that newly created,

labour-market relevant pathways receive insufficient support (OECD, 2017[93]). Aligning financial and human resource incentives with curricular pathway rationalisation is critical for effective implementation.

Reflect on effective alternatives to early tracking

Early tracking of students is a common feature of various OECD education systems. However, international evidence suggests the adverse effects of selecting students to different education streams at an early age. Importantly, the socio-economic background of students is often a significant factor for selection into different tracks. Separation into different streams at an early age often prevents students from maximising their potential, especially when admission into less academically oriented tracks entails less stimulating learning environments. As children develop their capacities at different rates, education systems should flexibly adapt to such differentiated needs. Therefore, delaying the age of first tracking has the potential to allow students to cognitively and socio-emotionally mature and enter the most challenging pathway they can successfully complete.

Where delaying the age of tracking is politically infeasible or undesired, education authorities should consider alternative policies to attenuate its potentially negative effects. Some education systems have been moving towards greater integration in the provision of general, accelerated, pre-vocational and vocational tracks into the same lower and upper secondary schools. Even with early selection, integrated schools providing multiple pathways may generate both better outcomes and free resources to invest in other priorities.

Integrating elements of vocational and general education can create synergies and raise students' awareness of the merits of each of the tracks. Through mingling with peers enrolled in different tracks but in the same school, students also enjoy greater opportunities to observe, experience or be aware of other learning environments. Integrated school settings may also attenuate the impact of socio-economic differences as integrated schools can lead to more fluid transitions for students.

An integrated approach also allows for a more modular approach to tracking where students may pursue different types of applied versus theoretical learning depending on the subject area. Combining this modular approach with intensive counselling (see previous policy recommendation) surrounding selection and admission of students into different tracks can allow students to test out multiple types of courses and pathways before making a supported decision about which direction to pursue.

Such integration of services thus enables a more coherent organisation of educational planning for improved progression throughout the school system. As promising as these integrated approaches may appear, it is important to design them in such a way as to not create a two-tiered school in which some tracks are seen as less prestigious and inferior to the general programme. Counteracting this dominant perception with investments in state-of-the-art facilities and vocal leadership on the benefits of applied learning can help to mitigate these concerns.

Promote strong VET programmes and facilitate their students' horizontal transitions

Use labour market forecasting and local industry consultation to govern the vocational offer and better match supply to labour market needs

Consultations with employers and workers' representatives are important to get a pulse of how labour market actors perceive the skills of the new entrants and project future skills that will be needed. In addition to the qualitative perspective of stakeholders, effective tools for the forecast of skills demand and supply should also be in place to provide evidence-based guidance to educational authorities.

These forecasting processes should be based on high-quality data, including both learning and labour market outcomes. They should be as local or regional as possible, while also considering overall country and international economic trends.

There are at least two critical features of successfully aligning labour market projections with VET programmes: i) convening broad stakeholder groups in some form of Council and providing them with high-quality data on the future of employment; and ii) assigning these Councils with meaningful authority to open, consolidate, shift and otherwise plan the network of the VET offer. Examples such as those found in Austria, Germany, the Slovak Republic and Switzerland can be adapted to fit the particular profile of other countries.

Ensure that the vocational pathway has a well-defined profile while ensuring the development of transferable skills

VET systems are widespread across OECD countries. However, while some education systems limit VET to post-secondary levels others offer it as early as lower secondary education. Whether at the lower secondary or post-secondary levels, several countries struggle with the poor reputation of VET schooling. Vocational pathways are costly and often have higher rates of student dropout. VET is also often regarded as a lesser version of the academically-oriented tracks. Policymakers should thus reflect on the strategies to improve the status of VET programmes. Vocational programming should have a well-defined profile, broadly agreed upon by stakeholders, in order to confer it purpose and esteem. The goals of vocational and general tracks should thus be strictly defined and well understood among all educational stakeholders. Other strategies that can contribute to more positive perception of VET programming among stakeholders include: clearly publicising the value of the VET certification in the labour market, investing in high-quality facilities and equipment, attracting high-profile employers to partner with VET programmes, opening the culture of VET schools and programmes to allow students and families to visit and tour their operations from an early age and including first-hand experience in working environments (see policy recommendation on work-based learning).

Nevertheless, clearly differentiating the profile of VET from that of general education does not necessarily imply a complete separation of their curricula. In light of recent developments in labour markets, educational authorities should aim to strike a balance between an adequate provision of transferable skills with specialised know-how in vocational curricula. In particular, they should ensure that core academic skills – such as literacy and numeracy – are built into vocational programmes. An important consideration in the planning of vocational programmes is whether the skills students are learning will serve them only in the short-term or will allow them to learn and grow in an evolving

labour market. An excessive focus on developing specific "employability" skills at an early age risks limiting students' options to specific jobs that may not exist later in their careers.

Policymakers should also consider incentivising the use of innovative pedagogical approaches to include transferable skills in practical subjects. Hands-on and practical application of theoretical knowledge in vocational programmes may be a way of appealing to students at risk of dropping out, without jeopardising the acquisition of crucial general skills.

National qualification frameworks, systematic frameworks of study and skill verification confirming students' eligibility for jobs in fields with labour market demand, can reduce fragmentation in the educational offer and provide a basis for steering the provision to match students to jobs. Developing qualification frameworks which are nationally consistent and agreed among the different stakeholders – in particular, employers and workers – is critical. This includes keeping the total number of qualifications manageable, while permitting enough flexibility to meet the local conditions.

Reduce barriers to students' mobility across tracks and ease transitions from VET to tertiary education

Having clear goals and a unique profile for vocational programmes should not compromise students' mobility across tracks and the choice of a vocational programme in lower- or upper secondary education should not deter students from progressing to tertiary education. While many countries, in principle, allow students to move across educational pathways, the actual rate at which this occurs is relatively negligible in most school systems.

Some school systems have begun exploring different strategies to ensure greater fluidity between VET and general pathways and into tertiary education. Some of the options followed by countries with strong VET systems include "bridge courses", the modularised provision of courses, joint general-vocational upper secondary diplomas, and legal entitlements to "scaffolding" diplomas that allow students to proceed to the next level of education upon the successful completion of the prior level, regardless of their track.

Include a work-based learning component in vocational programmes

The status of VET systems is often hindered by challenges in making the educational offer relevant to the workplace. Evidence shows that including strong components of work-based learning in this type of programme can decrease dropout rates and ensure smoother transitions to the world of work. Especially in countries with strongly regulated labour markets, policymakers should consider increasing the component of work-based learning in vocational programmes. Strong regulations in the labour market are often effective in protecting employees but may also hinder the entrance of young graduates from upper and post-secondary levels of education. Creating policy frameworks for strong work-based components of learning (e.g. through apprenticeships) may ease the transition to the labour market and help reduce youth unemployment. Nevertheless, the effective promotion of work-based learning depends on striking the right balance between the added-value of the apprentice to the company and the salary paid. Public authorities can explore alternative strategies that can be used in order to increase employer involvement. Tax allowances or subsidies to companies hiring apprentices can help by expanding the opportunities of VET students to deliver productive work while learning in the firm context.

Furthermore, effective work-based learning depends on the right balance between the skills attained in the context of work and those in classroom. Educational authorities, in

co-ordination with employers, should seek to ensure that curricular options enable the adequate combination of general skills and learning on the job. Such integration helps to guarantee that the acquired human capital is neither too general nor too specific to the training firm.

But while work-based VET systems hold the potential to facilitate smooth transitions from school to the labour market, this can only work with significant support by major stakeholders. Apprenticeship systems can only be effective if employers are adequately involved in setting this type of structure – through the provision and design of training schemes, as well as development of curricula.

Provide stronger frameworks for co-ordination in the use of resources in VET institutions and with the private sector

Besides co-ordination in curriculum and between employers and VET providers, policymakers should consider promoting co-ordination across VET providers in their resource usage. Vocational programmes can secure higher quality equipment at lower costs by collaborating within VET networks and across public-private sectors. This would allow more efficient use of high-cost infrastructure and equipment resources that can truly modernise VET curriculum.

Educational authorities should explore different incentive mechanisms for a more adaptable provision of VET. Options may include shared purchasing of equipment and its associated insurance. This would permit a reduction of costs and would incentivise the investment in specialised infrastructure shared between different institutions.

Other cost-saving approaches involve alternative models of equipment provision in co-operation with local and national employers, such as the use of companies' old material - which can still be relevant for learning – or sponsorship agreements.

Ensure the appropriate identification and supportive placement of students with special educational needs

Develop common, standardised definitions of SEN categories and publicly report data in an internationally comparable format

Countries should work with various stakeholder groups within the educational and disability advocacy communities to develop clear definitions of SEN categories. In many instances, countries do have medical definitions of disabilities such as auditory or physical ones. However, several OECD review countries do not have any clear frameworks for categorising SEN. These shared definitions are critical to ensure common identification and reporting standards, and to ensure that resources are allocated in fair and equitable ways. Countries should work towards adopting SEN categories that map to a common framework so that cross-country comparisons around SEN policy are possible. One potential framework for SEN categories is articulated in the OECD 2005 report on *Students with Disabilities, Learning Difficulties and Disadvantages: Statistics and Indicators* (OECD, 2005[114]), which lists 13 different categories related to Special Education, grouped into two broad cross-national categories of Learning Disabilities (A) and Learning Difficulties (B). A third category of Learning Disadvantages (C) describes challenges faced by students such as migration, language learning and poverty.

Once data are collected in a nationally and internationally comparable way, school systems can track identification rates across socio-demographic groups and regions and benchmark

them against other countries. This permits more effective planning of the allocation of school resources, spotlights problem areas and allows research projects to explore patterns of SEN.

Articulate clear standards, involve all relevant actors and implement staff training in the special education evaluation process

In order to promote positive outcomes, limit inappropriate identification, and ensure each child gets what they need in the special education identification process, there must be clear standards for how students are evaluated for special education. This involves creating consistent protocols to incorporate relevant input from the child, family, educator and medical community. Access to specialists such as occupational therapists, psychologists, and other medical personnel should be provided free of charge to all families to ensure that additional support is not contingent on families' socio-economic status.

All staff who participate in the special education evaluation process should be trained to understand the assessment process and how they can contribute to it. Participants may bring different types of contributions to the special education evaluation process (medical reports, classroom evaluations, academic data etc.) and should provide evidence of the types of interventions that have been attempted already to assist the child in overcoming her educational difficulties.

Equalise funding across placement and settings based on agreed-upon SEN categories to limit incentives for retaining students in separate schools

Once school systems reach agreed-upon SEN categories, they can address perverse incentives to retain students in more restrictive educational settings. In several OECD review countries, special SEN schools received their funding precisely because the students they educated were classified as needing to be educated in separate schools. Once categories of SEN are established, however, funding can be set at equitable levels based on the category of SEN, irrespective of the context and setting in which the student is educated. School systems can shift policy, and families can more easily advocate, to encourage more integrated settings for students with SEN. This approach can accomplish three critical objectives: i) it fulfils the ethical obligation to integrate different learners in general settings; ii) it can provide a more intellectually stimulating and challenging setting to a student with SEN, while ensuring complementary supports exist due to the additional funding associated with that child; and iii) it can produce financial savings for the system as the overhead costs associated with running a stand-alone school disappear without any negative impact on the quality of services the child receives.

However, if mainstream schools do not receive adequate support and resources to provide SEN students with an education that is at least of equivalent quality as that offered by special schools, stakeholders are unlikely to support inclusion. To transition towards inclusive education, mainstream schools therefore require investments into infrastructural adjustments and equipment (specialised materials), human capital development, and assistance in using these additional resources to create inclusive learning environments. There may be, therefore, some initial upfront costs as systems transition towards more inclusion, though little empirical evidence exists verifying this in one direction or the other.

Integrate co-ordination and collaboration between mainstream and SEN providers and educators

In many contexts, including several OECD review countries, special education teachers working in separate schools either have a different type of certification or are not certified at all. This creates substantial barriers to efforts to integrate students with SEN as their teachers need to be re-certified. This licensure structure can also create a built-in advocacy group that argues against integration as it jeopardises the stability of their employment conditions. Therefore, creating a certification process that permits the transfer of a special education license between special and general schools is critical. In addition, high-quality in-service professional development can enhance general education teachers' interest and ability to integrate SEN students by providing them with the skills to support SEN students and a license or certificate to attest their capacity.

In addition to ensuring that teachers can move more easily between special and general education programmes, aligning the governance and oversight of the two school pathways is necessary to promote greater integration. If SEN students are to take classes in both mainstream and special settings, or if they are to be able to transition between a special lower secondary school and a general upper secondary school, this transition must be seamless. Their unique identifier must travel from one system to the other, class schedules must be aligned between schools and programmes and course credit must be transferable. All of this is difficult to accomplish when the two different types of schools are governed by different bodies as is the case in several of the OECD review countries. Thus, either placing all pathways of schools and programmes under the same governance within the Ministry of Education, or defining authorities and responsibilities and aligning systems are necessary steps to ensure sufficient opportunities for students to smoothly transition between one system and the other.

Developing a continuum of service models will require re-envisioning the role of special education teachers and schools. Rather than being responsible for a separate class of students with SEN, teachers of SEN students could provide integrated co-teaching, act as consultant teachers to build the skills of general education staff, teach separate special education classes, lead professional development seminars, design individualised learning plans for SEN students and more. Their end goal will be to maximise integration of students with SEN, while ensuring that sufficient supports exist, including targeted separate instruction, to promote SEN students' academic and social success.

Special schools can take on new roles and undergo functional transformations to support the integration of SEN students in mainstream schools by acting as "resource centres" offering specialised diagnostic services or support from speech and occupational therapists, special education teachers, social pedagogues and psychologists to multiple mainstream schools. Support from central authorities and private providers can also play a role in advancing integration, but channelling these supports through the regional resource centres can provide a more seamless one-stop-shopping experience for general education schools.

Design funding mechanisms that allow categorical funds to be used for early intervention, without jeopardising SEN students' funding

In designing compensatory funding schemes, tensions frequently exist between the desire to ensure that the additional funds reach the intended group and a recognition that local actors may have a better sense of their students' needs. There can be particular tensions around categorical funds intended for students who meet certain criteria that cannot be used for

others who fall just short of those criteria. This challenge is particularly pertinent in the area of special needs education, where policymakers are rightly interested in ensuring that targeted funds are not dispersed across students in a way that does not benefit the intended population. However, many students who struggle in school present similar profiles, whether they have or have not been yet formally identified as having special educational needs.

If funding schemes can be designed to permit some flexibility in the use of targeted funds, while ensuring that the use of these resources is transparent and auditable, both goals can be achieved. Explicit provisions such as allowing a fixed percentage of special education funds to be used for early interventions that serve both students with SEN and struggling students who have not been identified for special education is one strategy that preserves the bulk of funds for its primary intended targets while providing some flexibility that can be monitored for its use. Schools or sub-national entities would need to be able to demonstrate that the funds were used for early intervention (such as an instructional period in a special education teacher's assigned schedule), rather than to fill general budget holes (such as a textbook or tablet purchase). Such a strategy would depend on common accounting procedures across schools.

Notes

[1] A key factor in students' vertical transitions is the vertical alignment of the curriculum. Curriculum analysis falls outside the scope of this review, but is addressed in detail in the OECD's *Education 2030 International Curriculum Analysis*, currently underway.

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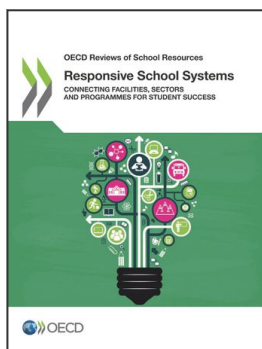OECD (2016), "Selecting and grouping students", in *PISA 2015 Results (Volume II): Policies and Practices for Successful Schools*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264267510-9-en. [26]

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