

## Chapter 3. Access and equity to tertiary education in Colombia

*This chapter examines student access to and retention in tertiary education, the extent to which different groups of students have benefited from recent enrolment growth, and how opportunities might be made more equal in the future.*

*The chapter closes with a summary of findings, and recommendations intended to (i) improve the college-readiness of Colombian school-leavers; (ii) ensure that admissions processes operate fairly; (iii) rationalise tertiary institutions' different funding sources; (iv) enable ICETEX to support more students and improve targeting of students from the poorest backgrounds; and (v) continue offering options to ease loan repayment burdens on young graduates.*

This chapter considers whether young people in Colombia have adequate, fair and equal opportunities to enter and graduate from tertiary education. Access questions arise where there are not enough suitable opportunities or young people cannot, in practice, take them up. Equity issues arise wherever young people who may be assumed to have equal talent or ability to benefit from tertiary education, but who have different characteristics or come from different backgrounds, experience significantly different outcomes. This chapter discusses how easy or difficult is it for young Colombians to find the tertiary opportunities they need or want; to gain entry to their preferred institution; to afford the costs; and to complete their programmes successfully. It also discusses whether their chances of doing all these things vary according to the type of school they attended, their socio-economic background, where they live or whether they are male or female.

## Tertiary places: supply and demand

Numbers in the system have grown in recent years and are planned to grow further. As shown in Chapter 1, Table 1.4, the number of students enrolled in tertiary education increased from 1 000 148 in 2002 to 1 674 420 in 2010. Undergraduate enrolment in 2010 was 1 587 928, a coverage rate of 37.1% of the 17-21 age group, up from 24.4% in 2002.

The government's target is that undergraduate enrolment should reach a coverage rate of 50% of the age group by 2014. Population projections by the Colombian National Administrative Department of Statistics (DANE) suggest that by 2014 there will be some 70 700 more young Colombians aged 17-21,<sup>1</sup> requiring enrolment to rise to around 2 178 700 for 50% coverage. This would seem to require around 590 800 more places than there were in 2010. The government's objective, according to the National Education Plan, is to go even further and increase undergraduate places by a total of 645 000 – presumably to accommodate more students at peak times, give students more choice and improve place distribution between regions.

The government also intends that, by 2014, 45% of undergraduate enrolment should be in professional technical and technology (T&T) programmes, compared with 34% in 2010. If that intention is to be realised, there will need to be over 980 200 T&T places in 2014, 438 000 more than in 2010 – an increase of over 80%. Given that SENA has a target of 569 000 T&T places by 2014, non-SENA T&T places must increase by over 165 500 places.

The government's T&T expansion target limits the need for universities to increase undergraduate places – only around 152 500 bachelor's degree places need to be added to the 2010 total by 2014 (for an increase of 14.6%) – though other government objectives and targets also suggest a need for universities to provide more places on master's and in particular PhD programmes.

Table 3.1 shows current levels of enrolment and 2014 targets at the different tertiary education levels.

Table 3.1 Undergraduate enrolment 2010 baseline and 2014 targets

Level	2010 baseline	2014 target	Required 2010-2014 absolute growth	Required 2010-2014 % growth rate	Required average annual growth rate
<b>T&amp;T</b>	542 358 (34.2%)	980 202 (45.0%)	437 844	80.7%	15.9%
<b>Non-SENA T&amp;T</b>	245 672 (15.5%)	411 202 (18.9%)	165 530	67.4%	13.7%
<b>SENA T&amp;T</b>	296 686 (18.7%)	569 000 (26.1%)	272 314	91.8%	17.7%
<b>University</b>	1 045 570 (65.8%)	1 198 025 (55.0%)	152 455	14.6%	3.5%
<b>Total undergraduate</b>	1 587 928(100%)	2 178 227(100%)	590 299	37.2%	8.2%

*Note:* Enrolment absolute goals, with the exception of SENA enrolment, are based on a gross coverage rate goal of 50%, 45% participation for T&T and 2005 Census projections for population aged 17-21. The source for the SENA enrolment goal is the presentation to the review team.

*Sources:* MEN, SENA.

If these plans are achieved, will Colombia have the right level and distribution of places to meet economic needs and student demands for access? One way of answering this question is by reference to international comparisons. Table 1.5 showed that Colombia's current level of tertiary enrolment compares unfavourably with many OECD countries. If coverage is raised to 50%, that will still be the case, but Colombia will have achieved higher coverage levels than Switzerland and Turkey had in 2008 and be within five percentage points of the 2008 coverage rates of France, Austria and Slovakia.

Table 3.2 shows the gross coverage rates of Colombia and Latin American comparator countries in the latest years available in the World Bank's Data Indicators. Venezuela, Argentina and Chile have already reached coverage rates of more than the level Colombia plans for 2014. Colombia's neighbours Panama and Ecuador could be overtaken if they are not making equal efforts to boost participation in the near future.

Table 3.2 **Gross tertiary education coverage rates in Latin America**

Country	2006	2007	2008	2009
Venezuela			79	78
Argentina	68	68	69	
Chile	47	52	55	
Panama	45	45	45	
Ecuador		35	42	
Bolivia		38		
COLOMBIA	32	33	35	37
Paraguay		29		37
Peru	34			
Brazil		34		
Mexico	25	26	27	28

Source: World Bank.

It should be said here that it would be unsafe to judge countries' relative competitiveness on coverage rate alone. It is also important that the tertiary education in which students enrol is the right tertiary education to meet the country's needs, and that the tertiary system is efficient in ensuring that a high percentage of the students who matriculate go on to graduate successfully. Switzerland is an interesting example. Its coverage rate is relatively low by OECD standards, but the World Economic Forum's Global Competitiveness Report has rated Switzerland as the world's most competitive country in both 2011-12 and 2010-11.

In the view of the review team, the Colombian government's 2014 targets of 50% coverage rate combined with a rise in the proportion of T&T enrolment to 45% are sound and appropriate in relation to the country's current economic needs, provided the efficiency of the tertiary system can be improved to reduce dropout (see discussion of retention below).

A separate question is whether current and planned provision meets student demand. It is relatively easy to calculate that, if 37.1% of a 17-21 age group consisting of 4 286 000 people were enrolled in undergraduate programmes in 2010, then 2 696 000 17-21 year olds were not: but as 37.1% is a gross not a net coverage rate (*i.e.* includes in the numerator many students older than 21 and some younger than 17), the true figure for 17-21 year olds not in tertiary education is higher. Data from DANE's 2008 Quality of Life Survey (ECV, *Encuesta de Calidad de Vida*), can shed some light on this. It shows that only 24% of 17-21 year olds were attending tertiary education, whereas another 24%, or around 1 million young people,

were not attending, but had completed secondary school or had attended a tertiary institution and left it without graduating, making them potential new tertiary education students. Another 12% had already obtained a tertiary degree or title and the remaining 40% were not eligible, because they left school without graduating or have yet to graduate. Clearly, not all students attending higher education need be in the 17-21 age group, but the majority are, and especially so when they first enter this level of education. Table 3.3 sets out these figures.

**Table 3.3 Population aged 17 to 21, 2008 (%)**

Attending tertiary education, undergraduate	24.1
Attending tertiary education, graduate	0.05
Not attending any school, with complete secondary or incomplete tertiary education	24.4
Not attending any school, with complete tertiary education	12.0
Attending secondary or primary school	22.1
Not attending any school, with incomplete secondary education	17.3
<b>Total</b>	<b>100</b>

Source: Authors' calculations based on DANE-ECV 2008.

An alternative way of comparing demand and supply is to compare the numbers of students applying to tertiary institutions with the numbers admitted. The MEN publishes figures for total applications and total admitted students on SNIES, the National System of Higher Education Information. The absorption rate (*tasa de absorción*) can be calculated as the ratio between these two figures. Absorption rates for the years 2002-2011 are shown in Table 3.4.

**Table 3.4 Absorption rates, 2002-2011 (%)**

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011 <sup>1</sup>
Prof. Technical	61	71	76	114	113	73	55	74	87	84
Technological	57	55	58	80	78	54	63	75	70	72
University	32	33	36	43	42	43	41	51	51	49
<b>Total</b>	<b>37</b>	<b>38</b>	<b>41</b>	<b>52</b>	<b>50</b>	<b>46</b>	<b>45</b>	<b>56</b>	<b>56</b>	<b>55</b>

Note (1): Preliminary figure.

Sources: 2002-2008 data: calculations based on MEN/SNIES, quoted in *Informe de Colombia*, by Universidad de los Andes, Universidad del Norte, Universidad del Valle and Pontificia Universidad Javeriana (May 2011); 2009-2011 data: own calculations based on MEN, SNIES.

There must however be doubts over whether the figures in Table 3.4 provide a reliable measure of supply versus demand. There is in Colombia no single agency which knows about all tertiary applications, as there is in countries where all applicants have to go through a common application process or a national clearing system which filters out multiple applications. Tertiary institutions supplying their own application and admittance figures to MEN/SNIES have no way of knowing whether their rejected applicants applied elsewhere, and if so whether they were accepted. MEN/SNIES have no way of identifying and subtracting duplicate applicants, or those who were patently ineligible for entry. It is not clear whether SENA figures are included. (In 2011, only 13% of applicants enrolled in SENA's T&T programmes, but again, this number includes duplicates, as individuals may apply to more than one programme.) For all these reasons absorption rates calculated based on SNIES data most probably overstate unmet demand from applicants ready to benefit from tertiary education – except for professional technicians in 2005 and 2006 where they seem likely to overstate, with rates above 100%. Conversely, there may be other young people who could benefit but did not apply – perhaps for lack of the financial means or lack of local places. These aspects will be discussed below.

The figures in Table 3.4 also suggest that demand is stronger for university places than for T&T places, particularly professional technical places. The high demand for university places may be driven by the prestige of university degrees as well as their high returns in the labour market. Despite this, the review team believes that the government of Colombia is right to wish to raise the percentage of T&T programmes. T&T programmes are likely to be a more realistic option than university for many of the new entrants who will join the system as coverage is expanded from 37% to 50%, and the Colombian economy has a clear need for more well-trained technicians and technologists.

### **Characteristics of tertiary students**

The SPADIES information system, set up to monitor student dropout and identify factors associated with dropout, provides a wealth of information on the characteristics of tertiary students in the system. On the SPADIES website can be found analyses of students by gender, SABER 11 test scores, total household income, mother's education level, whether the student was working when they took the SABER 11 test and whether the family owns its own home.

Tables 3.5, 3.6 and 3.7 draw on the information available on the SPADIES website in November 2011. The only reason to doubt the reliability of the percentages shown is that SPADIES also publishes the numbers of students included in each analysis. Tables 3.5, 3.6 and 3.7 each show different total student numbers for the same period, and some analyses seem to be based on relatively few of the students who would have been enrolled at the time. The total numbers of students in the analyses go down in the most recent periods, when other MEN statistics show total student numbers rising. In 2010 semester 1, for example, Table 3.5 is based on results for 1 070 000 students whereas Table 3.7 is based on just 180 000, which raises real doubts over whether it is equally representative of all students. While the sample size itself is certainly sufficient for producing statistically significant results, sheer size does not guarantee that a sample is representative unless it has been generated in a strictly random fashion.

The team understands that SPADIES information is derived from two main sources: tertiary institutions, which provide identifying information on those they have enrolled and those who have dropped out, and the questionnaires students are invited by ICFES to fill out when they sit their SABER 11 tests, which cover gender, household income, parental education, home ownership etc. It seems however that students are not obliged to answer all the questions on the questionnaire; and it is possible that students from certain socio-economic backgrounds are less or more likely than average to answer certain questions. To the team's knowledge, no studies have been conducted on whether or not socio-economic data from SPADIES are representative of the full student group: though this is not a matter of concern as far as SABER 11 scores are concerned.

**Table 3.5 Students by gender, by year and semester, 2007-2010**

	2007 S1	2007 S2	2008 S1	2008 S2	2009 S1	2009 S2	2010 S1	2010 S2
<b>Students: total number in this analysis</b>	906 350	927 771	994 193	1 000 026	1 052 521	1 047 078	1 069 486	985 776
<b>Male (%)</b>	47.5	47.4	47.5	47.4	47.6	47.7	48.0	47.9
<b>Female (%)</b>	52.5	52.6	52.5	52.6	52.4	52.3	52.0	52.1

*Source:* SPADIES.

Table 3.5 shows that the percentage of female students in the tertiary system remained stable from 2007-2010, never below 52% or above 53%, always significantly more than the percentage of males.

**Table 3.6 Students by SABER 11 test scores, by year and semester, 2007-2010**

	2007 S1	2007 S2	2008 S1	2008 S2	2009 S1	2009 S2	2010 S1	2010 S2
<b>Students: total number in this analysis</b>	808 119	825 523	882 291	889 659	876 442	845 804	797 618	700 175
<b>Low scores (%)</b>	32.4	32.9	33.6	34.1	34.8	35.2	35.7	36.0
<b>Average scores (%)</b>	41.4	41.6	41.5	41.7	41.6	41.2	41.9	41.8
<b>High scores (%)</b>	26.2	25.5	24.9	24.2	23.5	23.1	22.4	22.2

*Note:* S1 = First semester; S2 = Second semester.

*Source:* SPADIES.

Table 3.6 demonstrates that in every semester from 2007 to 2010 the Colombian tertiary system has taken in more people with low SABER 11 test scores and fewer with high SABER 11 test scores. Full SPADIES information shows that the same is true of every semester back to the year 2000. This indicates that over the last 10 years the tertiary institutions collectively have been progressively widening their intake, becoming more inclusive and more willing to give more students the opportunity to continue in education. It also indicates that the institutions have faced the challenge of training up to graduation standard larger and larger numbers of young people with relatively low prior attainment. The number of students in this analysis peaks in 2008, which is not true of tertiary student numbers generally. This indicates that later data are less complete, rather than that an increasing number of people enrolling in tertiary education have not taken the SABER 11 test – the ICFES website shows growing numbers taking the 11<sup>th</sup> grade test every year from 2005 to 2009.

**Table 3.7 Students by total household income (multiples of minimum salary), by year and semester, 2007-10**

	2007 S1	2007 S2	2008 S1	2008 S2	2009 S1	2009 S2	2010 S1	2010 S2
<b>Students: total number in this analysis</b>	301 164	300 375	270 125	241 831	219 528	198 824	179 888	152 667
<b>Income 0-2 minimum salaries (%)</b>	36.8	38.1	39.7	41.2	42.8	43.9	45.2	45.7
<b>Income 2-3 minimum salaries (%)</b>	26.3	26.4	26.6	26.6	26.8	27.0	27.0	27.2
<b>Income 3-5 minimum salaries (%)</b>	19.4	19.0	18.4	17.9	17.2	16.8	16.4	16.1
<b>Income 5-7 minimum salaries (%)</b>	8.6	8.2	7.8	7.4	6.9	6.6	6.4	6.2
<b>Income 7+ minimum salaries (%)</b>	8.9	8.3	7.6	6.9	6.2	5.6	5.0	4.7

*Note:* S1 = First semester; S2 = Second semester.

*Source:* SPADIES.



Table 3.7 again presents a very consistent picture. In every semester from 2007 to 2010, students from families with income of up to two minimum salaries – the poorer half the population – have taken a larger share of the places. By 2010, over 45% of students came from such families. Similarly, in every semester from 2007 to 2010, students from families with income of 7 or more minimum salaries have taken a smaller share of the places. Here again, the picture is confirmed by the longer run of more detailed results on the SPADIES website. Before 2004 the share of those whose families earned less than one minimum salary was never more than 0.1%; by 2010 S2 it was up to 0.5%. At the other end of the scale, the share of those whose families had income of 15 or more times the minimum salary decreased from 2.3% in 2001 S2 to 0.8% in 2010 S2. These are positive signs of progressively greater inclusiveness and better access to tertiary education for the children of the poorest families, clearly indicating that tertiary education is no longer the preserve of the elite. However, this particular analysis is based on the results of a small proportion of students, suggesting that not all answered the family income question when responding to the ICFES questionnaire they received when sitting the SABER 11 test. If non-response correlates positively or negatively with socio-economic status, the resulting sample is non-random and may produce biased estimates. It should also be borne in mind that 16 year-olds may not have accurate knowledge of their family's income; that even where this is known there is an incentive to under-report it, given that low income helps the chances of securing a student loan; and that measuring income by multiples of the minimum salary is just one of several possible ways of measuring family wealth or poverty in Colombia, a theme returned to below.

The SPADIES analyses of educational level of students' mothers show that since 2004 the percentage of students with university-educated mothers has fallen from 22% to 13%; the percentage with mothers who have had only primary education has risen from 28% to 40%; the percentage of students who were working when they took their SABER 11 test has risen from 7% to 10%; and the percentage whose parents are home-owners has fallen from 78% to 66%. All these figures are consistent with greater inclusion and widening participation in tertiary education. But all the analyses are based on results for a small minority of students (in 2010 S1, 198 000 for property ownership, 212 000 for work status and 285 000 for mother's education).

### Box 3.1 Recent changes to SPADIES data

Since the paragraphs above were written, the MEN has added data on some characteristics of a large number of additional students to the SPADIES website for several past years. No official explanations have appeared on the website, either for the previous exclusion of these students' data or for its addition now, but the review team understands that ICFES has only recently passed to MEN the socio-economic data for students who sat the SABER 11 test between 2006 and 2011.

Table 3.7 (revised) below shows the data that now appears on the SPADIES website on students by household income 2007-10. The student numbers for 2007 Semester 1 are 2.5 times as high as before; the student numbers for 2010 Semester 2 are nearly 6 times as high as before. The percentages of students with relatively low family income (0-2 minimum salaries) have increased by 6-8 percentage points in all semesters while the percentages of students from better-off families have generally decreased, as can be seen from comparing the latest percentages with the previous figures shown in brackets. This confirms the review team's doubts about the representativeness of the data previously published.

Table 3.7 rev. **Students by total household income (multiples of minimum salary), by year and semester, 2007–2010**

	2007 S1	2007 S2	2008 S1	2008 S2	2009 S1	2009 S2	2010 S1	2010 S2
<b>Students: total number</b> in this analysis	756 141	774 339	828 329	828 326	883 297	896 405	931 788	911 697
<b>Income 0-2 minimum salaries (%)</b>	44.6 (36.8)	46.1 (38.1)	47.7 (39.7)	49.0 (41.2)	50.0 (42.8)	50.6 (43.9)	51.0 (45.2)	51.4 (45.7)
<b>Income 2-3 minimum salaries (%)</b>	23.5 (26.3)	22.9 (26.4)	22.9 (26.6)	22.6 (26.6)	22.5 (26.8)	22.5 (27.0)	22.4 (27.0)	22.2 (27.2)
<b>Income 3-5 minimum salaries (%)</b>	18.0 (19.4)	16.9 (19.0)	16.9 (18.4)	16.4 (17.9)	16.0 (17.2)	15.7 (16.8)	15.4 (16.4)	15.1 (16.1)
<b>Income 5-7 minimum salaries (%)</b>	7.9 (8.6)	7.4 (8.2)	7.1 (7.8)	6.8 (7.4)	6.5 (6.9)	6.3 (6.6)	6.1 (6.4)	6.0 (6.2)
<b>Income 7+ minimum salaries (%)</b>	6.1 (8.9)	5.9 (8.3)	5.3 (7.6)	5.2 (6.9)	5.0 (6.2)	5.0 (5.6)	5.0 (5.0)	5.2 (4.7)

Note: S1 = First semester; S2 = Second semester.

Source: SPADIES.

Large numbers of extra students have also been added into certain other analyses. In 2010 S1, for example, the educational level of mothers has become available for nearly 944 000 students (previously 258 000); the data now indicates that 27% of students' mothers have at most primary education, whereas 21% have tertiary education (the previous figures were 40% and 13% respectively). With nearly 933 000 students now covered by the data for students working when SABER 11 test taken (previously 212 000), the percentage of working students is 6.4% in 2010 S1 (the previous figure was 10%). And with nearly 959 000 students now covered by the 2010 S1 data for parental home-ownership (previously 198 000), it seems that 74.6% of tertiary students' parents owned their own homes (previously shown as 66%). The review team notes as curious that including a much higher percentage of students in these three analyses gives a picture of a student body which is on average slightly more advantaged, whereas including a much higher percentage of students in the family income analysis (Table 3.7) gave a picture of lower average family incomes.

By contrast, recent changes to SPADIES data make little difference to the picture reported in Tables 3.5 (students by gender) and 3.6 (students by SABER 11 test scores). Although in both cases some extra students' details have been added – bringing the number analysed by gender up to 1 081 644 and the number analysed by test score up to 1 006 863 in 2010 S1 – this has not changed the percentage distributions significantly. The only point worth mentioning is that in every semester in the period 2007-2010, the percentage of female students is now marginally higher, by 0.1-0.3 percentage points, than shown in Table 3.5 – while remaining between 52% and 53%.

### **The transition from secondary to tertiary education and equity issues arising**

Colombian students are still relatively young when they complete upper secondary education. The “official” age at which Colombian students should graduate from school is 16. When they enter tertiary education, many are indeed 16, a few even younger. However, those who did not enter primary school on time, repeaters and those who went into the labour market first will be at least 17.

The UNESCO Global Education Digest 2011 shows Colombians as leaving school at 17. This is young even by the standards of Latin America. Peruvians and Venezuelans also leave school at 17 but in Argentina, Bolivia, Brazil, Chile, Mexico, Panama, Paraguay and Uruguay students leave school at 18. Colombian school-leavers are even younger by North American and Western European standards. In this group the Global Digest 2011 shows an upper secondary leaving age of over 17-18, 19 or even 20 – for every country except Ireland.

Young Colombians going into tertiary education have also had fewer years of schooling than counterparts in many countries. They will have left upper secondary school after the 11<sup>th</sup> grade, whereas most developed countries have a 12<sup>th</sup> grade and some have a 13<sup>th</sup>. This difference shows up in international comparisons of school life expectancy (primary to tertiary education). UN Social Indicators<sup>2</sup> show school life expectancy in Colombia as 14 years, 13 for men and 14 for women. Within Latin America, this is higher than Panama, Peru and Paraguay but lower than Argentina, Uruguay and Chile. Except for Turkey, all OECD members outside Latin America show longer school life expectancy than Colombia.

Being younger than most international counterparts and having had one less year of primary and secondary education than most, Colombian school-leavers may be expected to find the transition from school to university or other tertiary institution quite demanding, unless their schools have prepared them exceptionally well. How well do Colombian schools prepare young people for the transition? As Chapter 1 records, Colombian secondary schools do not emerge particularly well from international student performance comparisons such as PISA and TIMSS. Though Colombia's results were notably better in PISA 2009 than in PISA 2006 – for which the country deserves credit – they were still not good in 2009, by international standards. Of particular concern for the transition to tertiary education is the large percentage of Colombia's 15-year-olds who scored below PISA level 2 – the baseline level – in one or more subject areas.

The 47% of Colombian 15-year-olds scoring below reading proficiency level 2 are a particularly vulnerable group. As the PISA 2009 report states: “Their limited abilities put their future educational and work-related careers at risk. Longitudinal studies confirm this. In Canada, for example, of the 9% of students who scored below level 2 in reading in PISA 2000, two-thirds of them had not progressed to post-secondary education and only 10% of them had reached university. In contrast, the majority of students proficient at level 2, but no higher, had moved to post-secondary education ... Evidence from Australia, Switzerland and Uruguay shows similar results and emphasises the ... positive relationship between performance in PISA and ... attending and successfully completing more intellectually challenging vocational schools or acquiring tertiary education.” And it is worth stressing again that in all the countries mentioned in this PISA report quotation, students will spend more time in upper secondary school after taking the PISA test and before seeking entry to tertiary education than will students in Colombia. Of the students in Colombia's PISA 2009 sample, 42% were in the 10<sup>th</sup> grade, with just one more full year of secondary education to go; 21% were already in the 11<sup>th</sup> grade, their final year; and the remaining 37% are still struggling in grades 7-9.

During fieldwork the review team discussed with a range of Colombian stakeholders this issue of whether young Colombians are adequately prepared by schools to make the transition to tertiary education. In the consistent view of institutional stakeholders, many students who arrive at tertiary institutions, particularly universities, lack “college-readiness”. There is therefore a big gap between the knowledge and skills they have acquired in school and the knowledge and skills they need to have if they are to learn effectively at tertiary level. The bigger the gap is for an individual student, the bigger the risk that he/or she, if successful in accessing tertiary education, will fail to keep up with the demands of their programme and will drop out. In line with this, data from SPADIES show that the main reasons for dropout from higher education tend to be academic, rather than economic, personal or institutional (MEN, 2009).

Which students, from which backgrounds, are least likely to be college-ready? Self-evidently perhaps, those who have low SABER 11 test scores. Some stakeholders suggested to the team that, in general, public school graduates are less well prepared than private school graduates.

Table 3.8 shows average SABER 11 scores in the “Calendar A” 11<sup>th</sup> grade test in 2009, in the *núcleo común* of eight core subjects which every student must take: language, maths, biology, chemistry, physics, social sciences, philosophy and English (ICFES, 2011).<sup>3</sup> These scores confirm that students from public schools perform less well on average, but suggest other relevant factors, such as whether the school is urban or rural and the socio-economic category of the school. On average, students from private urban schools scored highest, followed by private rural schools, then public urban schools, then public rural schools. The average score in public rural schools is 6.2 points below the average score in private urban schools. However, when schools are compared only with others in the same socio-economic category, the picture is quite different, as can be seen by looking vertically down the “average score” column. In the lowest category 1, public urban schools do best, followed by public rural, private rural and lastly private urban; the difference between highest and lowest is down to 1.8 points. In category 2, public urban and private rural schools do best and equally well; then come public rural and finally private urban; and the difference between highest and lowest is just 1.5 points. There are no public rural schools in category 3; in this category the difference between the highest, private rural, and the lowest, public urban, is 1.7 points. There are no public schools of any kind in category 4, the highest socio-economic category; here private urban schools outdo private rural schools by 2.2 points. It is not clear how many of these differences are statistically significant.

Table 3.8 indicates, therefore, that public school students' test results are no worse on average than those of private school students, once account is taken of each school's socio-economic context. Public schools actually perform better if the comparison is confined to schools in socio-economic category 1. If comparison is confined to socio-economic category 2, public and private school averages are about the same. Most schools in categories 1 and 2 will be public schools, serving (by definition) relatively disadvantaged students. By contrast, schools in the top socio-economic category are found only in the private sector, serving relatively privileged pupils whose background gives them many other advantages.

**Table 3.8 Performance in SABER 11 grade test  
by school type, 2009 (Calendar A)**

School type	Socio-economic category	Average score, <i>núcleo común</i>		Standard deviation
Public, urban	1	44.9		6.0
	2		47.1	6.3
	3		50.2	6.7
	<b>All public urban</b>			<b>46.9</b> 6.5
Public, rural	1	44.0		5.6
	2		45.8	6.3
	<b>All public rural</b>			<b>44.4</b> 5.9
Private, urban	1	43.1		5.4
	2		45.6	6.5
	3		50.9	7.2
	4		56.6	7.6
	<b>All private urban</b>			<b>50.6</b> 7.9
Private, rural	1	43.4		5.6
	2		47.1	5.8
	3		51.2	7.0
	4		54.6	7.5
	<b>All private rural</b>			<b>49.9</b> 8.3

Source: ICFES (2011), "Examen de Estado de la Educación Media: Resultados del Período 2005-2010".

The evidence in Table 3.8 is broadly consistent with evidence from PISA 2009. PISA reports have consistently noted that the socio-economic background of students and schools has a powerful influence on educational performance – though some countries succeed in reducing its impact on

learning outcomes, and in all countries some individuals demonstrate that socio-economic barriers can be overcome. Colombia has a socio-economic profile well below the average OECD country, which explains part (though by no means all) of the difference between Colombian and OECD average performance in PISA 2009. Brazil and Mexico have similar socio-economic profiles to Colombia; students from Peru tend to be somewhat less advantaged, and students from Panama, Uruguay, Chile and Argentina somewhat more advantaged.

Across OECD countries, a student from a more socio-economically advantaged background (among the top one seventh) outperforms a student from an average background by 38 score points, or about one year's worth of education, in reading. But regardless of their own socio-economic background, students attending schools with a socio-economically advantaged intake tend to perform better than those attending schools with more disadvantaged peers. And in PISA 2009, almost all of the variation in reading performance explained by socio-economic difference in Colombia was *between* schools rather than *within* schools. Thus in Colombia it is particularly likely that an individual student's performance will be influenced by the average level of the socio-economic group that predominates in their school and determines their school's socio-economic category – though Colombian schools tend to be relatively homogenous in their socio-economic make-up in any case.

The conclusion is that, though the school attended can make a significant difference to SABER 11 test score and hence college-readiness, the factor with the biggest influence is the school's socio-economic category, not whether a school is private/public or urban/rural – though in the lowest two socio-economic categories, public schools in urban areas seem to have a slight advantage.

One other factor worth examining is whether gender affects SABER 11 test results. Colombia's results in both PISA 2009 and TIMSS 2007 showed girls performing less well relative to boys than in any other participating country. What does the SABER 11 test show? Table 3.9 gives average results for girls and boys in each of the two tests a year run by ICFES from mid-2005 until mid-2010. In every one of the 10 tests shown, boys did better than girls. The differences are not great, but they are astonishingly consistent, corroborating the messages from international comparisons that girls are disadvantaged in the Colombian secondary system, a fact that is all the more evident when maths scores are analysed. This makes girls' higher secondary graduation rate all the more impressive.

Table 3.9 Performance in SABER 11 test by gender, 2005-2010

Test date	Average score in <i>núcleo común</i> , boys	Average score in <i>núcleo común</i> , girls	Difference (boys minus girls)
2005-2	47.9	46.8	1.1
2006-1	48.1	46.7	1.4
2006-2	48.3	46.9	1.4
2007-1	47.5	47.1	0.4
2007-2	47.9	46.8	1.1
2008-1	48.1	47.1	1.0
2008-2	48.1	47.1	1.0
2009-1	48.0	47.0	1.0
2009-2	48.0	47.1	0.9
2010-1	49.9	49.0	0.8

Source: ICES (2011), “Examen de Estado de la Educación Media: Resultados del Período 2005-2010”.

### Admission to tertiary institutions and equity issues arising

As already mentioned, the numbers entering tertiary education have been increasing steadily and are planned to increase further, towards a target of 50% participation by 2014. The government of Colombia is confident of being able to achieve this 50% participation rate, given the numbers of young people qualified to enter tertiary education who are not yet accessing it, and the aim of increasing the T&T proportion of places to 45%, which could be achieved mainly by increasing numbers attending T&T programmes at SENA. The review team is satisfied that 50%, with a T&T proportion of 45%, is a reasonable level of tertiary participation for the country to aim for, and gives due weight to the country’s economy needs.

It is less clear that the pattern of tertiary places planned for 2014 is in line with the existing pattern of student aspiration and demand. Where do students wish to go, and are they succeeding in accessing their institutions of choice? The team is not aware of any recent survey evidence on this, so the question is what can be deduced from application and acceptance patterns. Table 3.4 certainly suggests that university studies have the highest ratio of applicants to enrolments, and this is consistent with evidence from the team’s discussions with students; but some doubts were expressed above about how much reliance can be placed on the figures, especially if students who apply to universities are more likely to apply to more than one institution. SENA, on the other hand, does have very high demand, in part because its programmes are free.



It is very difficult to ascertain application and success rates accurately in Colombia, because every institution decides and applies its own admission criteria and processes. No details are held centrally of the entry arrangements and criteria of each institution. Applications are sent by individual students to one or more tertiary institutions they wish to apply for. There is no common date by which all applications must be submitted, or by which all students will know whether they have been accepted. Students may make multiple applications; probably many do, particularly in urban areas where they have more options. It may well happen that one student is accepted by two or more institutions while another student who applied to the same institutions is rejected because there are no more places to offer.

There is in Colombia no central agency which processes all the applications, and so is in a position to collate and analyse them and eliminate duplicate acceptances for other students' benefit. Such agencies have been set up in a number of other countries for university applications. They make the process of applying to universities and securing a place in one much easier and less stressful for students and they save administration for the higher education institutions. In the United Kingdom, for example, the vast majority of tertiary applications from young people are made through the Universities and Colleges Admissions Service (UCAS), an organisation wholly owned by the higher education sector. UCAS invites all young people to fill in a form naming six higher education institutions they wish to apply to. UCAS then passes applications to the institutions named, receives their offers or refusals of a place, and forwards these to the students. It also ensures that each student chooses one offer<sup>4</sup> and that any places they do not want are made available to other students. The whole process operates on line and is very efficient. A similar clearing-house system operates in Chile, for students who take the entry test for a group of public and private universities, most of which are members of the Council of Rectors of Chilean Universities.

The review team's conversations with stakeholders, especially the groups of students with whom meetings were arranged at every institution visited during fieldwork, suggest that university is still the preferred option for most young people, if their families can afford the fees and other costs or if they expect to get the necessary financial support from ICETEX or the institution itself (see "student support" section below). University has the most prestige and graduates with bachelor's degrees or higher earn significantly more money, on average, than technicians and technologists.

And in Colombia as in many other countries, vocationally-oriented courses have yet to achieve parity of esteem with academic courses, in the minds of many parents and students. This is unfortunate, given the strength of employer demand for professional technicians and technologists and the fact that in some of the most popular subject areas, output of university graduates exceeds the number of good jobs for them (according to employers who spoke to the review team). It is also, arguably, short-sighted given Colombia's commitment to expanding and developing education in "propaedeutic cycles", which allow young people to move up a ladder of increasingly high-level programmes, through professional technician and technologist to professional degrees. As yet, the review team was told, very few students have moved the whole way up this ladder successfully. The transition from technologist to professional degree can still be difficult, not least because it often means moving to a different tertiary institution whose entry standards may not dovetail with the previous institution's exit standards. It will be important to generate more examples of successful ascent of the propaedeutic cycles ladder, to encourage students to choose T&T courses in the confidence that they are not "dead ends".

Young people set on going to university often choose public universities over private universities because the fees tend to be more affordable; a number of students told the team that they would have preferred private universities had it not been for their extra cost. However, the fees charged by public universities vary considerably, depending on the generosity or otherwise of their government funding. Those without the means or, more rarely, the aspiration for university generally wish to go to SENA. This is partly because SENA programmes have a good reputation among young people. SENA's biggest selling point, though, is that its programmes are free. Consequently, SENA places tend to be over-subscribed, entry requirements can be quite demanding and it seems that entry standards are rising. Students whose applications had been unsuccessful told the team that they thought this was because their SABER 11 test scores were not high enough. SENA, however, claims that SABER 11 test scores are not taken into account: when courses are oversubscribed, admission is based on interviews and in some cases SENA also administers its own tests. What is clear is that in 2011, only around 13% of SENA applicants subsequently enrolled in SENA programmes. The team also noted that some SENA establishments visited during fieldwork ran very few programmes at night or in the evenings, only during the day. In the areas served by these SENA centres, SENA programmes will be inaccessible to many less-well-off students who need to work to cover their living costs while studying.

T&T institutions other than SENA are the least popular option among students. The private institutions are unsubsidised, meaning that they need to charge quite high fees. Even the public ones may be subsidised at a low rate, if at all: the team visited one institution whose regional education authority had offered it the choice between becoming fully self-financing or closing down. The reputation of these institutions for quality varies quite widely: at some, the team formed the impression that the students are getting poor value for the fees paid.

Equity issues arise if some groups are less successful than others in competing for places at the institutions of their choice. It is very difficult to say whether and how far these issues arise in Colombia, for the reasons already explained. The policy of leaving admission criteria and processes entirely up to institutions themselves, with no central oversight or collection of detailed data, may be consistent with Colombians' understanding of institutional autonomy, but has some unfortunate results. Many of the students the review team met on visits had applied for university places and been rejected. They seemed to be unclear why they had been rejected, unclear about what the admission criteria were supposed to be and often doubtful about whether the formal admission rules had been followed in any case. Current and recent students seemed to share a conviction that 'you have to be from a rich family to get into university', and also a conviction that the better-off applicants, or those whose families had enough money to pay tuition fees and/or enjoyed local influence, would be allowed in regardless of the criteria.

While there is no clear evidence that these students' views were accurate, they received some support from one public university the team visited. The new rector explained that in the past, local politicians had intervened extensively in decisions on which applicants were admitted, in order to do favours to friends and supporters. The only way to avoid this, the university had decided, was to hand over their whole admission process – from deciding criteria to processing applications to drawing up the list of applicants who should be offered places – to another public university, the Universidad Nacional in Bogota.

It seems to the team that, whatever the underlying truth of these matters, the level of student distrust and suspicion is a problem for Colombia. If students do not have clear, full and accurate information about the admissions criteria of every tertiary institution, they will make poor choices and suffer unnecessary rejections and disappointments. If institutions with ministry approvals and public funding are not making their criteria clear and

public, there is a problem of transparency. If published criteria are not being followed rigorously, or if students who do not meet them are being admitted at the expense of students who do, then serious issues of fairness, equity and accountability arise.

The team also believes that the government of Colombia needs to collect more information on admission arrangements and criteria, on how they are operated, and on the personal characteristics of accepted and rejected applicants, in order to assure itself and Colombia's young people that this aspect of the system is working fairly. Autonomy should always be accompanied by an obligation to explain and justify to stakeholders the autonomous decisions reached.

The review team has considered whether equity would be even better served if all tertiary institutions agreed, or were required, to adopt a common set of admission requirements for each programme level (professional technical, technologist, undergraduate degree etc.). This is done in a number of countries, often relying on a national school-leaving exam (the *Abitur* in Germany, the *Baccalauréat* in France, the Leaving Certificate in Ireland) or a national university entry test (Chile, China) or both (Spain). Colombia already has SABER 11, which is in effect a school-leaving exam and is compulsory for those wishing to enter tertiary education. ICFES told the team that 78% of Colombian tertiary institutions use the SABER 11 test results as an admission criterion, though most of them (72%) combine this information with other elements such as individual interviews, the results of other tests and school marks.

There would be a strong case for recommending universal use of SABER 11 test results as the sole or principal criterion for tertiary admissions, but for one thing. In Chapter 5, Table 5.11, this report presents figures on the reliability of the present SABER 11 subject tests. Average reliabilities are quite low for a summative examination, and in the opinion of the team's assessment expert, too low to rely on in a high stakes situation, such as a decision whether to accept or reject a student whose score is within a few points either side of the minimum score demanded by the institution concerned. Tertiary institutions which supplement SABER 11 subject tests with other criteria may therefore be right to do so, provided that their other criteria add to the overall reliability of the selection process. The review team is not of course saying that reliability levels are so low that SABER 11 should not be used in admissions at all – it could well be that the entry tests used in other countries, and the other tests some Colombian institutions use in parallel, are even less reliable. Indeed, it would be sensible, in the team's view, for all tertiary institutions to make some use of SABER 11 results in admissions, given that they are the only objective test taken by all students.

Moreover, the SABER 11 tests are currently being redesigned by ICFES, in ways that should improve average reliability levels. The question whether to make these tests the basis of a common admissions system should be revisited, when the new tests are in place and their reliability levels known to be high enough for this purpose.

### Access and equity in relation to family income

The government of Colombia is particularly concerned that young people from different socio-economic backgrounds should have equal chances of accessing tertiary education. The young people the team met in Colombia also felt strongly that different income groups should have equal opportunities. Analysis of tertiary participation by socio-economic status is far from straightforward, however. Three different ways of analysing the socio-economic status of students' families are in regular use in educational contexts in Colombia – *estratos*, SISBEN (*Sistema de Identificación de Potenciales Beneficiarios de Programas Sociales*, Selection System of Beneficiaries of Social Programmes) and multiples of minimum wages – and all of them have disadvantages. The Annex at the end of this chapter explains all the technical issues involved in measuring socio-economic status in Colombia, and what these disadvantages are: a brief summary is given below.

*Estratos* (strata) are the categories used in the Colombian socio-economic stratification system which classifies housing according to its physical characteristics and environment, in order to price public services at differentiated rates and to allocate subsidies to the poorest areas. Dwellings are classified into one of six strata, with strata 1 being the poorest. However, studies by both the World Bank and the government of Colombia suggest that this classification system no longer aligns particularly well with income distribution. Some 90% of Colombians are in strata 1-3 and some quite well-off families are classified as in these strata.

Table 3.10 shows how the strata relate to income deciles. The percentages in each column show the percentage of the population in that stratum that falls within each income decile. For example, of those living in stratum 2 accommodation, 13.5% are in income decile 7, 14.1% in decile 8, 13.4% in decile 9 and 8.4% in decile 10 – therefore in total nearly 50% of people in the second-poorest housing category are in the four richest income deciles. This shows that using stratum as a key selection criterion is not always a sound way of targeting potential beneficiaries and improving equity.

Table 3.10 Relationship between strata and income deciles, 2010 (%)

Deciles	Strata					
	1	2	3	4	5	6
1	10.7	4.6	1.8	1.0	1.0	1.2
2	12.8	5.4	1.7	0.4	0.2	0.1
3	13.7	7.6	2.9	0.9	0.6	0.3
4	13.8	9.3	4.5	1.4	0.7	0.5
5	12.7	10.9	6.6	2.1	0.8	0.5
6	11.4	12.8	9.2	3.6	1.9	0.9
7	9.5	13.5	12.1	5.7	2.3	1.4
8	7.4	14.1	16.4	10.5	6.2	3.4
9	5.4	13.4	21.7	20.5	14.5	9.2
10	2.6	8.4	23.1	53.9	71.9	82.5
<b>Total</b>	100.0	100.0	100.0	100.0	100.0	100.0

Source: National Administrative Department of Statistics (DANE), 2010 Household Survey.

When determining applicants' socio-economic status for the purpose of deciding their eligibility for ACCES loan support, ICETEX relies on the *estratos* system. In absolute numbers ICETEX provides the most loans to students from *estrato* 2 followed by *estrato* 1. Loans to students from *estratos* 4, 5 and 6 constitute less than 7% of all loans.<sup>5</sup> But when deciding whether also to subsidise their living expenses and/or write off 25% of the loan principal upon graduation, ICETEX uses the second socio-economic classification system, SISBEN.

SISBEN (*Sistema de Identificación de Potenciales Beneficiarios de Programas Sociales*, Selection System of Beneficiaries of Social Programmes) is a government instrument used to determine eligibility for social programmes based on indicators of socio-economic welfare. Students from families with SISBEN 1 or 2 are considered the least advantaged, while in some cases, level 3 is also eligible for social programmes. The versions of SISBEN used until the end of 2011 have had similar disadvantages to the *estratos*. The latest version, SISBEN III, will come into use in 2012. It should be a considerable improvement over previous versions, but only time and use in practice will tell.

The third classification system is based on total household income in multiples of the Colombian minimum wage – used, as already mentioned, in SPADIES analyses to determine dropout causes. Though this system can distinguish with reasonable efficiency between the bottom 50% of the population (0-2 minimum wages), the next 40% (3-5 minimum wages) and the top 10%, the information requires substantial conversion to make it comparable with the income quintiles or deciles generally used in other

countries. Not only does the minimum wage rise more than inflation from year to year, but also the data do not take into account differences in household size, which can have profound effects on income per capita, a better measure for determining socio-economic status.

The World Bank uses a database called SEDLAC (Socio-Economic Database for Latin America and the Caribbean), which makes income data from all the household surveys in Latin America cleaner and more comparable. Colombia's SEDLAC data come from household surveys that DANE conducts regularly. The SEDLAC data "equivalises" income for household size, taking into account the facts that larger households can benefit from economies of scale and that children under fourteen require less income for a given standard of living.

Tables 3.11, 3.12 and 3.13 present SEDLAC information on net tertiary enrolment by equivalised income quintile, for Colombia and a group of Latin America comparators. Total net tertiary enrolment figures (percentages) are lower in any given year than the total gross tertiary enrolment figures quoted elsewhere in this report, because they are compiled on a different basis. Gross Colombian enrolment (37.1% in 2010) is calculated by dividing the total numbers enrolled in tertiary education, whatever their age, by the tertiary-age population, that is the population in the five-year age group following on from the secondary school leaving age. Net Colombian enrolment for SEDLAC purposes (23.1% in 2010) is calculated by asking all 18-24 year olds in household surveys whether they are currently attending a TEI, and dividing the number saying they are by the total number of 18-24 year-olds surveyed, applying appropriate weights to expand survey data to the entire population.

**Table 3.11 Net tertiary enrolment by equivalised income quintiles, 2001-2010**

Colombia	Equivalised income quintiles (% net enrolment)					Total
	Q1	Q2	Q3	Q4	Q5	
2001	7.9	6.2	7.8	14.4	40.6	<b>16.6</b>
2002	8.5	5.5	8.7	13.3	41.9	<b>16.4</b>
2003	8.6	6.5	9.2	16.2	40.5	<b>17.9</b>
2004	7.1	6.7	9.3	17.3	43.9	<b>18.5</b>
2005	6.6	7.0	10.3	19.1	46.4	<b>18.9</b>
2006	9.6	8.8	12.5	21.6	44.7	<b>19.5</b>
2007	9.5	10.9	14.8	25.1	50.0	<b>22.1</b>
2008	9.0	12.0	16.4	25.8	50.6	<b>23.2</b>
2009	9.7	10.8	17.5	25.5	50.0	<b>22.8</b>
2010	9.5	11.5	16.7	26.5	52.0	<b>23.1</b>

Source: SEDLAC (CEDLAS and the World Bank).



Table 3.11 shows that in Colombia in 2010, 9.5% of 18-24s from the poorest fifth of the population were in tertiary education. This is significantly higher than the 7.9% recorded in 2001, but most of the growth in this quintile's tertiary participation seems to have occurred between 2001 and 2006, since when the percentage has stayed much the same – though there are fluctuations from year to year. However 40.6% of 18-24 year-olds from the richest fifth of the population were in tertiary education in 2001, and by 2010 their participation had increased to 52%. Therefore, participation by the richest fifth has grown by 28% over the period, while participation by the poorest fifth has grown less, by 20%. If account is taken only of the positions of the richest and the poorest, it seems that while the benefits of creating more places in the system have trickled down to the poorest, income-related participation gaps have if anything widened – though this conclusion may not be a safe one to draw, because if (as seems probable) students from rich families are more likely than students from poor families to take degree courses, the affluent students have greater chances of being picked up as tertiary participants by household surveys, just because degree programmes last longer than other tertiary programmes.

There are more positive signs of progress in the column for Q2, the second-poorest quintile. There, participation has nearly doubled, growing from 6.2% to 11.5% over the period. And in Q3 participation has more than doubled, growing from 7.8% to 16.7%. Q4 participation has nearly doubled, growing from 14.4% to 26.5%. So while in 2001 Q5 had nearly three times the tertiary share of Q4, by 2010 Q5's share was just less than twice Q4's. Q5 no longer dominates tertiary participation as it used to do, and middle income Colombians have done the best of all from tertiary expansion.

This analysis is reinforced by Table 3.12, showing each quintile's share of the total tertiary education cake. Table 3.12 makes clear that between 2001 and 2010, Q1's share of enrolment went down from 10.3% to 8.2%, the shares of Q2, Q3 and Q4 grew, while Q5's share fell from 52.8% to 44.7%. And while at the start of the period Q5's share was almost three times higher than Q4's, by 2010 Q5's share was under twice that of Q4.

Table 3.13 shows that in 2009 Colombia's equity performance was around the middle of the Latin American table. Colombia's participation rate for students in Q1, the poorest quintile, was higher than the rates in Brazil, Costa Rica, Peru and Uruguay; but lower than rates in Argentina, Chile, Ecuador and Mexico. Colombia's difference between Q5 and Q1 participation rates was less than in Brazil, Costa Rica, Panama and Uruguay, and the other five countries all had lower rates of Q5 participation than Colombia.



**Table 3.12 Share of net tertiary enrolment in each  
equivalised income quintile (%)**

Year	Q1	Q2	Q3	Q4	Q5	Total
2001	10.3	8.1	10.1	18.7	52.8	100
2002	10.8	7.1	11.1	17.1	53.8	100
2003	10.6	8.1	11.3	20.1	50.0	100
2004	8.4	8.0	11.1	20.5	52.0	100
2005	7.4	7.8	11.5	21.4	51.9	100
2006	9.9	9.0	12.8	22.2	46.0	100
2007	8.6	9.9	13.4	22.8	45.3	100
2008	7.9	10.5	14.4	22.7	44.5	100
2009	8.6	9.5	15.4	22.5	44.0	100
2010	8.2	9.9	14.4	22.8	44.7	100

*Note:* Calculations are based on quintiles equivalent to 20% of the population, which is not necessarily the case for the population 18-24, but this should not significantly alter the results.

*Source:* Authors' calculations based on SEDLAC (CEDLAS and the World Bank).

**Table 3.13 Net tertiary enrolment by equivalised income  
quintiles 2009, international comparisons**

Country	Equivalised income quintiles (% net enrolment)					Total
	Q1	Q2	Q3	Q4	Q5	
Argentina	15.9	21.5	28.1	41.7	52.8	30.0
Brazil	3.3	5.1	9.7	20.4	48.8	16.3
Chile	17.1	21.9	25.7	35.0	59.2	30.6
Colombia	9.7	10.8	17.5	25.5	50.0	22.8
Costa Rica	5.2	7.5	11.7	21.2	47.0	17.8
Ecuador	12.1	15.9	18.3	25.8	47.3	24.6
Mexico	15.6	14.3	16.3	22.5	44.0	22.5
Panama	4.4	8.1	11.4	22.2	41.1	16.8
Peru	8.5	16.1	24.9	36.1	56.0	28.5
Uruguay	3.2	8.0	15.5	28.1	50.9	18.8

*Note:* Data for Mexico are for 2008.

*Source:* SEDLAC (CEDLAS and the World Bank).

Table 3.14, comparing the shares of tertiary enrolment by quintile, again shows Colombia around mid-table. Colombia's richest fifth of the population take up a smaller share of tertiary enrolment than in Brazil, Costa Rica, Panama and Uruguay, and the share of the poorest fifth is higher than in Brazil, Costa Rica, Panama, Peru and Uruguay.

**Table 3.14 Share of net tertiary enrolment in each equivalised income quintile (%) 2009, international comparisons**

Country	Q1	Q2	Q3	Q4	Q5	Total
Argentina	10.0	13.4	17.5	26.1	33.0	100
Brazil	3.8	5.8	11.1	23.4	55.9	100
Chile	10.8	13.8	16.2	22.0	37.2	100
Colombia	8.6	9.5	15.4	22.5	44.0	100
Costa Rica	5.7	8.1	12.6	22.8	50.8	100
Ecuador	10.1	13.3	15.3	21.6	39.6	100
Mexico	13.8	12.7	14.5	20.0	39.1	100
Panama	5.1	9.3	13.1	25.4	47.1	100
Peru	6.0	11.3	17.6	25.5	39.6	100
Uruguay	3.0	7.6	14.7	26.6	48.2	100

*Note:* Data for Mexico are for 2008.

*Source:* SEDLAC (CEDLAS and the World Bank).

Nonetheless, overall the conclusion must be that access to tertiary education remains far from equitable between income quintiles, and Colombia has much work still to do if students from lower-income groups are to have the same tertiary opportunities as students from Q5, or even Q4, enjoy. This is partly a matter of ensuring greater college-readiness among students from poorer families as discussed above, and partly a matter of giving those students access to financial support to see them through their courses.

### **Equity in the student support system**

If tertiary education is to be accessible to lower-income students whose families cannot themselves afford to finance fees and living costs, other sources of student support must be made available. The Colombian government recognised this when it established the Colombia Student Loan

Institute, ICETEX. ICETEX offers student loans for students enrolled in technical, technological, university or postgraduate programmes in national and/or international tertiary education institutions. The Institute also manages national and international scholarships and grants on behalf of various public and private organisations. Colombia was a pioneer in this area – not only in Latin America but internationally – as ICETEX was established in 1950, the first institution of its kind in the world.

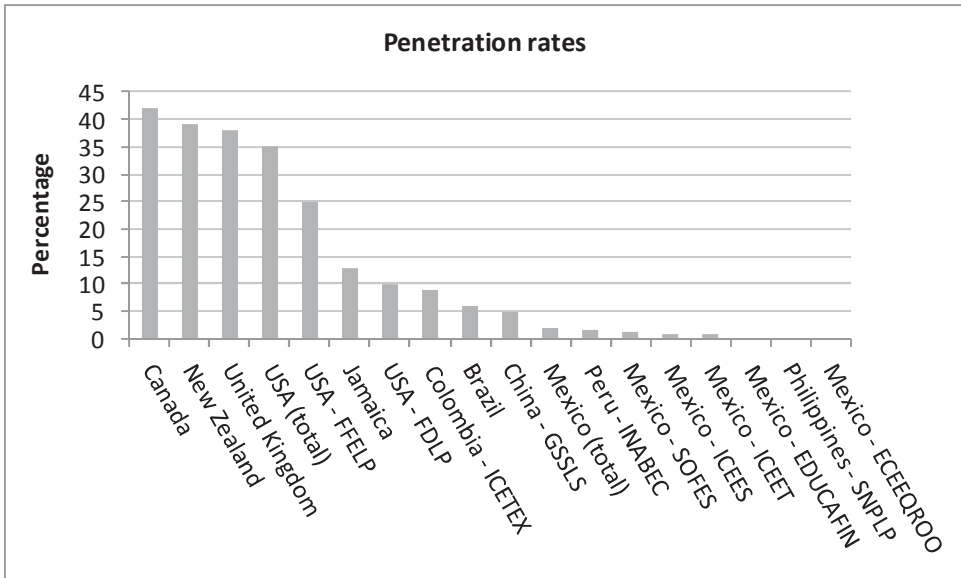
In 2002, when the rate of gross enrolment in tertiary education was 24%, only 9% of the target student population had access to student loans (the target population excludes SENA students, public university students who pay less than one minimum wage and private university students in strata 5 and 6). In that same year the government launched its plan for expanding and improving education, the *Revolución Educativa*, ICETEX was tasked with implementing a revised student support programme called Access to Higher Education with Quality (*Acceso con Calidad a la Educación Superior*), known as ACCES. The ACCES programme’s ambitious goals are to increase equitable access to tertiary education in Colombia, to make the system more efficient, and to help improve its quality and relevance. Between 2002 and 2011, the total number of annual ICETEX student loans (new and renewed) increased from 53 969 to 155 199. As a result, by 2010 the proportion of loan beneficiaries in the target student population had risen to 20%.<sup>6</sup>

Thanks to ICETEX, Colombia has achieved probably the highest share of students benefiting from a loan as a percentage of the total enrolled population in Latin America: Figure 3.1 indicates that the maximum achieved in other countries in the region is around 10%. ACCES provides subsidised loans to students from disadvantaged backgrounds (low income groups, marginal urban and rural population, displaced groups, indigenous, Afro-Colombians, students with disability, etc). The loans are in fact a hybrid of pure loan and grant, the grant proportion depending on beneficiaries’ income level. In addition, ICETEX forgives 100% of the loan for students from what it considers to be the poorest groups who achieve outstanding results in the SABER PRO exam.

A student’s eligibility for ACCES is determined by criteria that take into account the student’s financial circumstances, their chosen tertiary institution (accredited institutions have a higher priority) and, in the case of first-year students, their academic performance as measured by the SABER 11 tests; students in their second or later years must have a minimum grade point average of 3.4/5.0 for the last semester prior to the loan application. As already mentioned, determination of financial circumstances is based on the *estratos* (strata) system. Additionally, up to 2011, loan recipients from households in SISBEN levels 1 and 2 qualified

for a living expenses subsidy and a write-off of 25% of the loan principal on graduation. Starting in 2012, when SISBEN III comes into use, eligibility for this other support will be decided using varying cut-off points determined by geographic location.

**Figure 3.1 Proportion of students benefiting from a loan in selected countries**



*Note:* The penetration rate is the number of students benefiting from student loans in the latest year available as a percentage of the overall student population enrolled in higher education. Data for Colombia is 2006.

*Sources:* Domenec Ruiz Devesa and Andreas Blom (2007). Based on: SOFES (2006); ICEES (2006); ICETEX (2006); INABEC (2006); Suzuki, Blom, and Yammal (2006) for ICEET, ICEEQROO, and Educafin in Mexico; United Kingdom Student Loans Company Limited (2005); Canada Student Loans Program (2004); New Zealand Student Loan Scheme (2006); US Office of Post-Secondary Education Website (2006) for the United States; Kitaev *et al.* (2003) for the Philippines; Shen and Li (2006) for China; World Bank (2002) for Jamaica; and World Bank EdStats Website (2006) for national enrolment in higher education).

Of the 124 531 ACCES loan recipients between 2008 and 2011, 97.1% were from families in strata 1, 2 and 3, with 33% coming from strata 1 and 51.7% from strata 2 (ICETEX/World Bank, 2011). The equivalent figures for the population 17-21 years of age are 93% for strata 1, 2 and 3, 32.1% for strata 1 and 42.3% for strata 2. The type of tertiary institution also affects loan size because ICETEX pays up to 100% of tuition costs at technical and

technological institutes but only up to 75% of tuition costs at universities (subject to a cap which means the loan is less than 75% for the most expensive private university in Colombia, the University of Los Andes, and one or two others). Table 3.15 summarises the various permutations of assistance available.

**Table 3.15 Interest rates for ACCES loans and other loan conditions, May 2011**

Student characteristics		Interest rates		Other ACCES loan conditions		
<i>Stratum</i>	<i>SISBEN 1 or 2</i>	<i>Study and grace period</i>	<i>Repayment period</i>	<i>% of tuition covered</i>	<i>Living expenses subsidy</i>	<i>Write-off of 25% of loan principal on graduation</i>
<b>T&amp;T students</b>						
1,2,3	Yes	4%	8%	100%	Yes	Yes
1,2,3	No	4%	8%	100%	No	No
4,5,6	No	8%	8%	100%	No	No
<b>University students</b>						
1,2,3	Yes	4%	12%	75%	Yes	Yes
1,2,3	No	4%	12%	75%	No	No
4,5,6	No	8%	12%	75%	No	No

*Note:* Introduction of SISBEN III in 2012 will mean changes in the eligibility conditions in the last two columns.

*Source:* ICETEX/World Bank (2011), *ACCES Loans: the Path to Equitable Access to Tertiary Education in Colombia*, ICETEX/World Bank.

Most loans go to undergraduate students in Colombia, but ICETEX also funds graduate students (4 436 loans in 2010) and study abroad (1 758 loans in 2010), amounting to about 14% of the new loans granted in 2010. Table 3.16 shows the distribution of beneficiaries by type of institution and programme. In 2010 nearly 80% of the resources went to funding university undergraduate education and considerably less – 13.4% – to funding T&T education. This is partially due to the comparatively lower cost of this type of study: while less than one-sixth of total resources (13.4%) are lent to T and T students, these students receive close to one-third (about 30%) of all loans.

As well as helping young people who could not otherwise afford tertiary education to access it, ICETEX loans also help to reduce the dropout rates of beneficiaries, as will be shown in the next section.

Table 3.16 **Distribution of beneficiaries by type of institution and programme level (2010)**

Type of institution	Number of beneficiaries	Distribution of beneficiaries (%)	Total loan amounts (USD thousands) <sup>1</sup>	Distribution of resources (%)
University	207 074	72.4%	868.2	79.9%
Technological	44 854	15.7%	127.3	11.7%
Professional technical	14 075	4.9%	18.5	1.7%
Specialisation	11 615	4.1%	38.8	3.6%
Master's Degree	8 224	2.9%	31.9	2.9%
PhD	246	0.1%	1.5	0.1%
Teacher Training	56	0.0%	0.3	0.0%

Note (1): USD exchange rate of 2 April 2012: COP 1 792/USD.

Source: ICETEX, 2011.

The review team thinks highly of the ICETEX system, which has a strong reputation for international leadership in the area of student loans. Its objectives are eminently sound, it has contributed very considerably to access and equity and the scheme is run very efficiently, largely on line – operating costs fell from 12% in 2002 to 5.2% in 2010 (Econometría, 2010).

The review team has just four concerns. The first concern relates to the ICETEX policy of basing means-testing for determining loan eligibility only on *estratos*, a targeting instrument that results in inclusion error. As explained in the Annex to Chapter 3, the *estratos* system has flaws when used as a proxy for income. ICETEX prioritises as financially needy all families in strata 1, 2 and 3, yet, as already mentioned, these three strata cover 90% of the Colombia population. ICETEX provides most of its financial aid to students in stratum 2 (the second-lowest of 6), but, as Table 3.10 showed, nearly half of those classified as stratum 2 are in families with income levels that put them in the four highest income deciles. This means that (i) ICETEX's primary loan targeting mechanism could be improved; (ii) some of the public resources provided to ICETEX for the equity purpose of helping poorer students who could not otherwise access tertiary education may well be being allocated to students whose families may be able to afford to pay;<sup>7</sup> and (iii) as a result (given that only a fraction of those seeking loans received them), these resources would then not be available to some poorer students who need them, so those students would miss out on tertiary education. Another aspect of concern is the fact that students from *estratos* 1, 2 and 3 all receive the same loan conditions, despite the fact that in 2010, 44.8% of *estrato* 3 households belonged to

income deciles 9 and 10, compared to only 8% of *estrato* 1 households. It is recommended that a better targeting system be devised by relevant national institutions such as DNP and ICETEX. As the Annex to Chapter 3 shows, different instruments have different benefits and/or deficiencies as needs assessment tools for tertiary education. It is complicated to determine whether the best system will come from a combination of some existing instruments or the creation of a new, dedicated system for tertiary education needs assessment. What is clear is that a more accurate needs assessment instrument is needed.

A second, related concern is that, although ICETEX has increased its resources, these are still not enough to help all the students who seek its support and are in principle eligible. Figures on the SPADIES website appear to show that the percentage of enrolled students ICETEX supports peaked in the first semester of 2008 and has been declining since (though some enrolments may be missing from the figures recorded from the second semester of 2009 onwards). This suggests that although the resources given to ICETEX have increased, the demand for these resources is increasing at an even faster pace. Moreover, while additional budget increases are expected, in support of the government's plan to move towards 50% participation in tertiary education by 2014, the extra money is very unlikely to enable ICETEX to help all the students who could benefit from tertiary education but cannot afford to enter it without a loan. Given that it cannot meet all students' needs, ICETEX currently rations its support by concentrating it on needy students with the best academic records (as demonstrated by their SABER 11 scores and grades). Since students with better results tend to be those with greater socio-economic advantages, this does not maximise equity. It is therefore desirable to create options for the most financially needy students (among those who meet the basic eligibility criteria but without regard to their relative academic records) in order to improve equity.

The third concern has to do with ICETEX loan repayments and potential default. In recent years, ICETEX has made significant progress in reducing default rates. The proportion of overdue loans was reduced from 21.6% in 2007 to 12.8% in 2009. This reduction is noteworthy given ICETEX's mandate to lend to an inherently risky set of borrowers: needy students without access to loans from other sources (such as private banks) and with few or no assets to guarantee their debt. Nonetheless, for graduates with the lowest income opportunities and/or who are affected adversely by cyclical downturns in the Colombian economy, the loan repayment burden can at times be too high. Recent debates in the Colombian press have highlighted this concern. ICETEX has responded very recently by creating new repayment options for borrowers, as discussed below.

The fourth and last concern is linked to the fact that quality accreditation mechanisms are voluntary and perhaps not as widespread and far-reaching in Colombia as might be expected after almost twenty years of accreditation efforts (see Chapters 4 and 5). Currently, only 62% of ICETEX loan beneficiaries attend institutions with very high quality accreditation. That leaves a significant proportion of beneficiaries studying at institutions whose educational standards may leave something to be desired; in these cases, access and equity aims may not be fully realised and the risk of ICETEX beneficiaries dropping out is increased. ICETEX is aware of this challenge and has made a conscious effort to take the quality of eligible institutions into consideration in the scoring methodology. This makes it all the more urgent for the Ministry to address this issue of the quality of non-accredited tertiary education institutions.

## Dropout

There is understandable concern in Colombia about the high dropout rates from tertiary education in recent years, shown in Table 3.17. Dropout is both an efficiency issue and an equity issue. It is clearly inefficient if significant numbers of young people who start tertiary programmes fail to complete them: money invested in providing and supporting students on programmes not completed is largely wasted and Colombia's economic needs for trained manpower will remain unmet. However the Colombian government seems to be at least equally concerned about the implications of high dropout rates for access and equity, and the fact that so many students' aspirations for a better life on graduation will not be realised. And equity issues clearly arise if some groups in Colombian society regularly suffer more dropout or take longer to complete their programmes than others. It is particularly worrying if the equity gains from expanding tertiary coverage and enrolling more students from less privileged backgrounds are cancelled out by greater dropout among the very groups of students expansion was intended to bring into the system for the first time.

The cohort rates shown in Table 3.17 measure the proportion of students who enter the first year of education but then leave (by the tenth semester for bachelor's degree studies and by the sixth semester for technologist and professional technician studies). The team understands that the annual dropout rate analyses the proportion of students who are two semesters behind: they are classified as dropouts one year later. The annual rates were above 15% in 2004; dropped to 10.7% in 2007; but have risen since. Cohort dropout rates appear to move in the same direction as annual rates but with a lag of a year or so; they moved down until 2008 and have now crept up again. The government hopes to bring the annual rate down to 9% by 2014.



This will be challenging to achieve, but is very important if the tertiary system is to become more equitable. As is clear from the wealth of information on the website of SPADIES (the national information system specifically designed to track dropout and help identify its causes), rates of dropout vary considerably by student characteristics, study level and institution type, and the highest dropout rates are associated with the types of students and programmes which will feature more prominently in the system as the national coverage rate rises towards 50%.

**Table 3.17 Dropout rates by year and cohort, 2002-2011**

Year	Dropout rate by cohort	Dropout rate by year
2002	52.6	N/A
2003	51.6	N/A
2004	48.4	15.8
2005	48.3	13.1
2006	47.8	11.5
2007	46.4	10.7
2008	44.9	12.1
2009	45.3	12.4
2010	45.4	12.9
2011	45.3	11.8
<b>2014 target</b>		<b>9.0</b>

Source: MEN, SPADIES, <http://spadies.mineducacion.gov.co/spadies>.

Specifically, information on the SPADIES website in November 2011 showed that:

- The biggest dropout occurs in the lowest level tertiary programmes. By the end of the 6th semester, when dropout from T&T courses was measured, 59.6% of professional technician students and 54.7% of technologist students had left. By this stage 40% of university students had also left, though their dropout rate had risen to 45.3% by the 10th semester, the point at which university dropout is officially measured.
- The largest dropout occurs in the first semester, with rates tailing off gradually after that. By the end of the first semester, 16.9% of university students, 25.9% of technologist students and 28.8% of professional technician students had already withdrawn.

- Public institutions suffer less dropout than private institutions overall, but the differences are very small.
- Dropout rates tend to rise as students' household incomes fall. For students from the lowest income group, with family earnings of less than one minimum salary, the dropout rates by the end of the first, 6th and 10th semesters were 22%, 45% and 55%. For students from the highest income group with family earnings of more than 15 minimum salaries, the dropout rates at the same points were 15%, 36% and 40%.
- One powerful predictor of likely dropout rates is whether students had high, medium or low SABER 11 test scores. For students with high scores, the dropout rates by the end of the first, 6th and 10th semesters were 14%, 32% and 38%. For students with medium scores, the dropout rates at the same points were 19%, 42% and 49%. For students with low scores, the dropout rates at the same points were 26%, 53% and 60%.
- Female students are significantly less likely to drop out than male students. For women the dropout rates by the end of the first, 6th and 10th semesters were 19%, 40% and 46%. For men the dropout rates at the same points were 23%, 48% and 55%. This is particularly interesting bearing in mind that according to international studies like PISA and TIMSS, girls perform less well aged 15; that their SABER 11 scores seem always to be slightly lower on average; and that a higher percentage of women are enrolled in tertiary education (though this could be partly due to superior staying power).
- There are some variations by subject studied. The highest dropout rates are seen in engineering, architecture and urbanism (dropout rates by the end of the first, 6th and 10th semesters of 23%, 50% and 56%) and the lowest in health sciences (dropout rates at the same points were 15%, 33% and 38%).
- Dropout rates also vary by Colombian department. Of those regions with cohort rates extending over 10 semesters, in 2011 the highest rates were in Norte de Santander and in Valle del Cauca, where dropout was 51.6% and 51.1% respectively by the 10th semester. The lowest were in Huila, where dropout reaches just 36% by the 10th semester. Chocó and San Andrés y Providencia have a shorter history of tertiary provision than this. On the basis of information over 7 semesters, rates in San Andrés y Providencia (a group of

islands in the Caribbean that are part of Colombia) as well as rates in Putumayo looked exceptionally high, though the Ministry of National Education suggests that this may be due to poor data quality.

Reasons for dropout in Colombia are generally distinguished as economic/financial, academic, institutional, or personal. An important aim of ICETEX ACCES loans is to reduce dropout by removing or minimising the economic reasons for it. The loan programme has indeed proved quite effective in reducing dropout levels and improving the chances of completion of at-risk students. The SPADIES data showed that, overall, students with ACCES loans had a drop-out rate per cohort of 35.6%, while those without loans had a drop-out rate of 52.1%.

Table 3.18 shows the dropout rates associated with ACCES loans for different periods. If the student has had the loan for just one semester, dropout rates are somewhat higher than for students with no loan, though it should be borne in mind that the “no loan” students may well be more socio-economically advantaged. Students with loans for two semesters or more, however, have lower dropout rates than “no loan” students throughout their programmes, and the longer they have their loans for, the more pronounced the impact appears to be. Furthermore, students with ACCES loans have better academic results, pass more classes and on average graduate one semester earlier (*Background Report* [MEN, 2011]). These differences may not be wholly due to having a loan, because the ICETEX policy of deciding which students should receive loans partly on academic grounds means that loan recipients are on average less likely to drop out and more likely to achieve good academic results than tertiary students in general: not only are loan recipients initially selected partly on the basis of their SABER 11 scores, they must also maintain a grade point average of 3.4/5.0 in order to continue qualifying for a loan. Despite this, the review team accepts that ICETEX is making an important equity and efficiency contribution, given that significant numbers of those supported are genuinely poor and that dropout rates tend to rise as students’ household incomes fall. Nonetheless, the fact that first semester dropout is so high even for many students with loans suggests to the review team that most first-semester dropout is for academic reasons, or at least not for economic reasons.

Institutions visited by the team also operated other strategies for reducing dropout for economic reasons. Some had their own self-funded scholarship or loan schemes to help less advantaged students who could not get ICETEX loans or for whom the loans were insufficient. One public university charged lower fees to students from lower socio-economic strata, and ran part-time and Saturday-only programmes to help working students.

**Table 3.18 Cohort dropout rates associated with ICETEX loans for different numbers of semesters**

Semester	Cohort dropout rate by end of this semester (%)									
	1	2	3	4	5	6	7	8	9	10
No loan	22	30	36	40	43	45	47	49	50	52
<b>Loan for:</b>										
1 semester	24	35	42	46	49	51	53	55	56	57
2 semesters	13	26	33	38	41	43	45	47	48	50
3 semesters	12	18	25	30	34	37	39	40	42	44
4 or more semesters	9	14	17	20	23	25	28	29	31	34

Source: MEN, SPADIES, <http://spadies.mineducacion.gov.co/spadies>, November 2011 (updated March 2012).

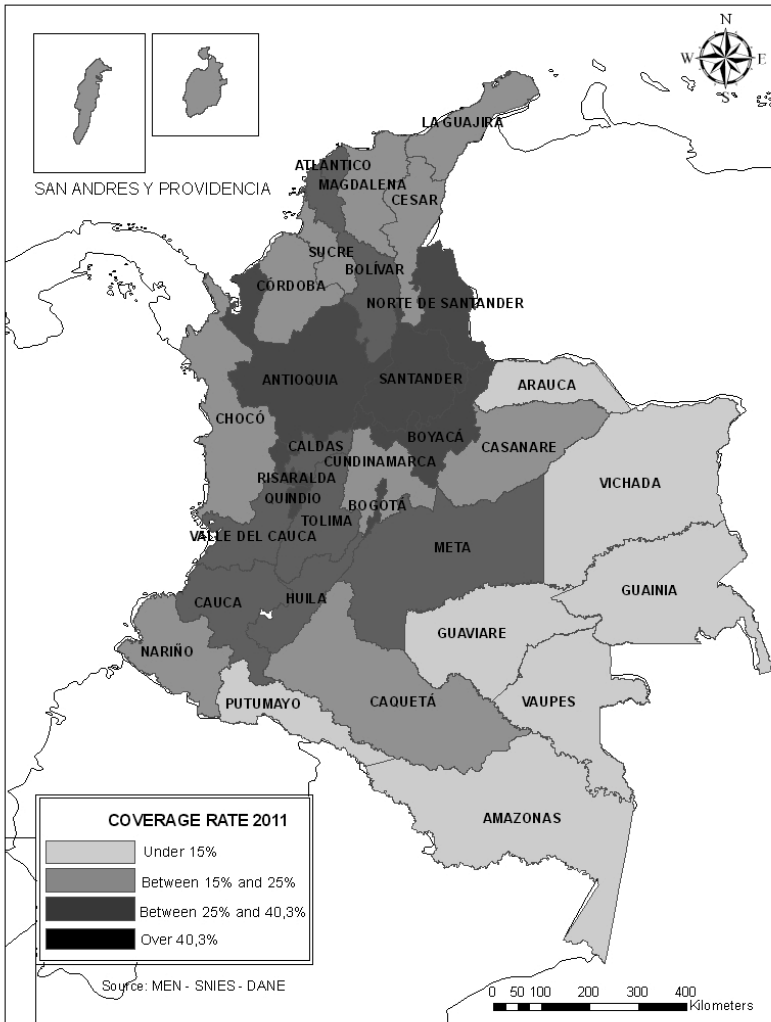
An important aim of the SPADIES system is to enable institutions to identify and monitor their students who are most vulnerable to dropout for academic reasons, so that they can watch for signs of students struggling and intervene in good time. Between 2007 and 2010 the Ministry of National Education contributed COP 6.3 billion to supporting suitable interventions; institutions contributed a further COP 6.8 billion. By the end of 2010 this money had funded training to improve the basic skills and core competences of nearly 6 500 students, which tertiary institutions provided in collaboration with secondary schools. Evaluation showed that the average annual drop-out rate decreased in the first 11 institutions to operate these programmes, while increasing elsewhere. By the first semester of 2010 (the most recent period for which SPADIES records appear to be complete), 5.8% of enrolled students were receiving academic support aimed at preventing dropout. This is more than ever in the past, but far fewer than the number evidently needing help.

A number of the tertiary institutions visited by the review team had made impressive efforts to minimise dropout for academic reasons – though they were not all able to show evaluation evidence of positive results. Examples of programmes the institutions thought were working well included: remedial maths and language classes; making such classes available on line for students to work on as convenient; adding extra weeks at the beginning of semesters for special tuition to help strugglers catch up with their classmates and improve their research and study skills and problem-solving; training teachers to diagnose students' areas of weakness and provide tailored help; making teaching methods more student-centred, less directive and more participative; and setting up a dedicated counseling, mentoring and advice centre for students experiencing problems.

## Regional differences

Table 1.5 in Chapter 1 showed tertiary enrolment in every Colombian department in 2010 as a percentage of the population aged 17-21 in that region, to indicate how the number of places available to aspiring tertiary students varied between departments. Figure 3.2 illustrates the differences in 2011.

Figure 3.2 **Gross tertiary enrolment rate by department, 2011**



Source: MEN, SNIES.

Seven regions have coverage of less than 15%: these are mainly savannah and jungle departments in the west and south of the country. Another ten departments have coverage between 15% and 25%; six of them are coastal and three (Cundinamarca, Casanare and Cesar) are neighbours to high coverage regions. San Andres y Providencia also has coverage between 15% and 25%. At the other end of the scale, the seven departments of Antioquia, Bogota, Boyacá, Norte de Santander, Quindío, Risaralda and Santander have above-average coverage of over 40.3% – Bogota and Quindío already over 50%. Within departments there are still some municipalities without tertiary education provision, but the National Education Plan declares an aim of increasing the percentage of municipalities offering at least some tertiary opportunities from 62% in 2010 to 75% in 2014.

However, it must be borne in mind that young people from one region or municipality may access tertiary opportunities in another. No statistics are available from MEN-SNIES showing tertiary participation rates by department of residence or origin. Students from regions with relatively few tertiary places may go in large numbers to institutions in the big cities, especially if they live near them (young people from southern Cundinamarca studying in Bogota, for example). Young people from affluent backgrounds will generally find it easier to move than others – a potential source of inequity – but ICETEX loans for living costs open up this possibility for less advantaged students too.

In the absence of general statistics on student mobility for tertiary education, Table 3.19 affords some clues. It shows the percentage of students who remain to work in the region where they did their tertiary studies. Regions are numbered (1) to (4), in accordance with their level of enrolment as marked in Figure 3.2, (1) being the highest.

The regions with the highest place coverage – those marked (1), with over 40.3% in 2011– tend also to have high numbers of locally-trained graduates working in them, from 49% in Boyacá to 86% in Antioquia. The regions with the next highest coverage – those marked (2) – show wider variation, from 39% in Tolima to 78% in Valle del Cauca. It would seem that some of these regions retain a higher share of local graduates because they are more isolated, whereas the magnetic pull of nearby big cities causes others, such as Tolima, to lose them. All the regions marked (3), with coverage of 15-25%, retain over 50% of local graduates as workers, except Cundinamarca with 18% which definitely suffers from the Bogota effect. The four regions marked (4) shown in Table 3.11 have the lowest coverage – below 15% – but are retaining as workers within the region between 46% (in Amazonas) and 85% (in Putumayo) of those they train. The review team assumes that either graduates there lack the means and/or the transport to

move out, or these students have been trained in fields that are in demand locally and are finding local jobs without having to move out. Departments which keep a major share of their home-grown graduates as workers benefit not only from the education opportunities afforded to their young people, but also from the economic benefits highly-trained workers can bring.

**Table 3.19 Percentage of 2001-2010 graduates who work in the region (department) where they did their tertiary studies, by region**

<b>Antioquia (1)</b>	85.7	<b>Boyacá (1)</b>	49.1
<b>Atlántico (2)</b>	59.2	<b>Cundinamarca (3)</b>	17.7
<b>Bolívar (2)</b>	66.0	<b>Meta (2)</b>	67.4
<b>Cesar (3)</b>	64.8	<b>Norte de Santander (1)</b>	52.7
<b>Córdoba (3)</b>	65.4	<b>Santander (1)</b>	67.2
<b>Guajira (3)</b>	69.0	<b>Amazonas (4)</b>	45.5
<b>Magdalena (3)</b>	55.4	<b>Arauca (4)</b>	56.1
<b>Sucre (3)</b>	56.9	<b>Casanare (3)</b>	51.3
<b>Bogota DC (1)</b>	74.8	<b>Guaviare (4)</b>	65.7
<b>Caldas (2)</b>	42.3	<b>Putumayo (4)</b>	84.7
<b>Caquetá (3)</b>	57.7	<b>Cauca (2)</b>	65.2
<b>Huila (2)</b>	75.4	<b>Chocó (2)</b>	45.0
<b>Quindío (1)</b>	53.9	<b>Nariño (3)</b>	76.4
<b>Risaralda (1)</b>	66.1	<b>San Andrés y Providencia (3)</b>	84.5
<b>Tolima (2)</b>	39.1	<b>Valle del Cauca (2)</b>	78.4

*Notes:* The percentage calculations exclude those graduates for whom there is no information. Vaupés, Vichada and Guainia are not shown in Table 3.19, due to very small numbers.

*Source:* MEN, Labour Observatory for Education (OLE).

## Findings and conclusions

Colombia has made substantial efforts in recent years to increase the numbers enrolled in tertiary education to the 2010 level of 37.1% of the 17-21 age group. The government's target of achieving 50% coverage by 2014 – mainly through expansion of provision for professional technicians and technologists – seems sound, in terms both of achieving greater equity and meeting the needs of the country's economy. However, if the planned increases in coverage are to achieve their intended benefits for Colombia's young people and for Colombian businesses, it is not enough for students to enrol in larger numbers. The programmes available to them need to be high-quality, relevant to labour market needs, and well-matched to their talents,

prior attainment levels and career prospects. And they need to complete and graduate from their programmes in a far higher proportion of cases than they do today.

### ***Preparation for tertiary education***

The most fundamental problem Colombia faces in arriving at this desirable destination is the lack of college-readiness of so many Colombian school-leavers. They have simply not been schooled enough, or well enough, by the time they enter tertiary education. In international student comparisons involving Colombian students aged 14 and 15, their performance – though clearly improving over time – is still significantly below world averages. They then leave school, having been through fewer grades of schooling than students in most countries with similar or higher income levels, at an age which is young even by Latin American standards. Compared to counterparts in competitor countries, Colombian school-leavers know less. By the time they finish school, they will have had less time to acquire the basic functional skills that nearly half of them still lacked at age 15, according to PISA 2009. They will also be less mature, and as a result, less likely to make optimal decisions on future studies and careers. This all adds up to poor academic preparation that limits students' potential to learn and keep up in tertiary education; requires tertiary institutions to invest considerable time and effort in remedying academic deficiencies that schools (given more time) could address more efficiently and at less cost to fee-paying students; and makes a high level of dropout almost inevitable. Poor student choices of careers and programmes – which could well be related to lack of suitable information and advice – may also be a driving factor behind high dropout rates during the first semester. Less importantly but still worth noting, a typical graduate from a Colombian public school is unlikely to be accepted for direct entry (*i.e.* without further preparation) onto university bachelors' degree courses in many countries – particularly European countries – where schooling lasts longer and university admission depends on presenting equivalent school-leaving qualifications. This limits the scope for outgoing international mobility at undergraduate level. Some elite private schools in Colombia are aware of this and offer their students a 12<sup>th</sup> year, so that they may reach internationally equivalent high-school-leaving standards.

A number of equity issues stem from the fact that this lack of college-readiness is most apparent in the case of school-leavers from poorer families or schools in poor areas. Because the students are poorer, they will almost certainly have attended public schools, but it seems to be the socio-economic status of the student and their classmates that makes the difference, rather than whether the school is public or private. On average,



students from poorer families have lower SABER 11 scores, which – ironically – makes them less likely to be accepted at the institutions charging relatively low fees (such as generously-funded public universities).

As coverage is expanded towards 50%, these problems can only become more acute if this college-readiness issue is not addressed. Past expansion has always been accompanied by increases in the percentages of enrolled students with below-average test scores. This is not, of course, because average SABER 11 test scores are going down, but because increasing numbers of the lower scorers are now able to reach tertiary education. If no action is taken, it seems likely that the additional students (those who at 37% coverage would have remained outside the tertiary system) will face even greater competition for free or low-cost places, particularly at universities for which relatively low growth is planned. They will also be less likely to get into the institutions of their choice and will have a higher dropout rate.

The review team considered various possible ways of radically improving college-readiness in Colombia. The first option is to *improve very considerably the quality and equity of secondary schooling*. The review team's remit did not include secondary education, which could well merit a separate study by international experts. However, Colombian students' results in PISA and TIMSS international comparative studies of student performance suggest a need to address several issues, including: large numbers of students whose attainment levels are below what the PISA study describes as the 'baseline level' which will enable them to function effectively in tertiary education; very low numbers attaining the highest performance levels; particular weakness in mathematics; and under-performance of female students. As was acknowledged in Chapter 1, Colombia's secondary school attainment levels have been improving recently, and a number of other countries (including Chile) offer encouraging examples of boosting standards significantly from a low base. However, all international experience shows that major improvements in school quality and equity do not come quickly or easily: they require determined, co-operative, and sustained effort over a long period.

The second option is to *add a 12<sup>th</sup> grade to universal schooling*. The review team understands that this option has been under consideration in Colombia for some time, but the government is not yet committed to its introduction. It is appreciated that this would be expensive, but the investment could well pay off, and not only in improving tertiary education quality, efficiency, equity and graduation rates. Longer and better schooling would also help the other 50% of young people who do not go into tertiary education, raising their value to employers and therefore their potential wages (the team understands from stakeholders that it is often difficult for a young Colombian with no qualifications beyond their school-leaving

certificate to find a job at or above the minimum wage) and improving the educational level of those who become mothers at an early age. Leaving school later would also resolve an issue that many Colombian high school graduates currently face: that they are too young to work legally. The legal minimum age for working is 18, thus many high-school graduates who are not college-bound must either join the informal labour market or wait until they turn 18 to join the formal one.

Apart from the cost, the other potential downside of adding a 12<sup>th</sup> grade is that it could increase dropout among those who have become disengaged from school by this stage; but dropout could be minimised and re-engagement achieved if the opportunity is taken to develop coherent and relevant technical education at the upper secondary education level and offer it to those young people not intending to go into tertiary education. A successful precedent for this already exists in one region of Colombia, within the framework of the Antioquia Upper Secondary Education project supported by the World Bank. The overall level of cognitive skills of the school-age population can have a dramatic long-term impact on the economic development of countries. International studies have shown that every extra year of educational attainment in the population raises aggregate productivity by at least 5%, with stronger long-term effects through innovation (De la Fuente and Ciccone, 2003), and raises the stock of foreign direct investment by 1.9% on average (Nicoletti *et al*, 2003).

The third option is to *introduce as a formal part of the system an optional bridge year between school and tertiary education*, for those with tertiary aspirations or whose knowledge and skills need improving if they are to compete effectively for tertiary places. This would have fewer economic benefits and help a smaller proportion of young people, but if well-designed could make a very big impact on college-readiness and dropout rates, as well as freeing tertiary institutions from much of the burden of compensating for deficiencies in preparation, and giving disadvantaged young people better chances in the competition for tertiary places. Bridge year programmes could be run either by tertiary institutions (there are models in the foundation and access courses many UK universities run to enable young people with potential to acquire the entry qualifications they lack); or by secondary schools as an extension year; or by specialist 12<sup>th</sup> grade colleges set up for the purpose; or by consortia including both secondary schools and tertiary institutions. In Chile many tertiary education institutions offer a preparatory year for students who do not know what they want to study or for students who need extra preparation. They refer to this year as “*bachillerato*”. In Quebec, Canada, all students must study at General Education Colleges known as CEGEPs before transferring to a university.

A fourth option is to *introduce degrees that the wider ability range now in the tertiary system can more easily attain* – by reducing the length of bachelor's degrees, lowering their exit standards, or introducing Foundation degrees as a stepping-stone to bachelor's degrees. In Colombia, most public universities offer five year bachelor's degrees and fear that shorter degrees would result in a loss of quality – though a good number of private universities and a few public ones have already reduced their bachelor's degrees to four years – and it is common for individuals to take longer than the official duration of the programme to achieve their degrees. However, three or four year bachelor degrees are now the norm among European countries which have signed the Bologna agreement; the United States and many other non-European countries have four year degrees. Shorter degrees have many advantages, including lower cost, which makes them more affordable to a wider range of students and reduces the likelihood that they will drop out, as well as enabling institutions to achieve higher throughput and making public funding go further. However, in the Colombian context this option is not straightforward. If the government considers it important to maintain the international reputation of Colombian degrees by keeping bachelor's degree exit standards at their current level, there is a limit to how far degrees can feasibly be shortened: expecting students from a wider ability range to complete the same programmes as their predecessors in a shorter time means placing on them additional demands which will increase failure and dropout for academic reasons. And it is hard to think of any major country offering internationally-respected three-year – or even four-year – bachelor's degrees with a school-leaving age as low as 16. The United Kingdom combines three-year degrees with a leaving age of 18. The United States combines four-year degrees with a leaving age of 17.

A more promising route for Colombia to explore might be introduction of Foundation degrees. In the United Kingdom, for example, students can take two-year Foundation degrees, and on completing them can either go on to obtain a bachelor's degree with one more year's study in the same or a different tertiary institution, or enter the labour market with a qualification respected by employers. But as this description implies, two conditions must be satisfied if Foundation degrees are to bring the intended benefits. First, the Foundation degree qualification must have genuine labour market currency in its own right; the only way to ensure this is to give employers a lead role in its design. Secondly, this qualification must be genuinely transferable, *i.e.* all institutions offering bachelor's degrees must accept Foundation degrees – whether from their own institution or another – as entitling the holder to enter their bachelor's programmes without repeating years (*e.g.* entitling three-year Foundation degrees holders to enter a four-year programme in the same discipline, at the start of the programme's

fourth year). The review team considers that this universal transferability is extremely unlikely to be achieved without a National Qualifications Framework in place.

A fifth option is to *offer better information and advice to secondary students choosing tertiary options*. Students in Colombia are quite well-served with internet-based factual information on tertiary institutions and their programmes, though there is scope for improving the transparency, user-friendliness and ease of access to information about costs, dropout rates, duration and other relevant factors, as discussed in Chapter 8 on Information and Transparency. On the other hand, relatively few of the students review team members met when visiting institutions seemed to have benefited from objective advice and guidance on which programme, at which institution, would best meet their needs and aspirations and are best suited to their academic strengths. Without independent personal advice and guidance, students are likely to make sub-optimal choices and end up on the wrong courses, disappointed or dropping out. The team recognises, however, that even the best advice may not prevail while big variations remain in the affordability of different tertiary institutions in Colombia, as discussed elsewhere in this chapter. Another barrier to acceptance of advice may well be the belief that university is the only worthwhile, attractive option, among many students who are unprepared or unsuitable for long and academically-demanding university programmes. Better quality assurance of T&T programmes, including assuring their business relevance, as discussed in Chapters 4 and 5, could make these shorter degrees more attractive to individuals.

Chapter 5 will also describe ICFES's current plans to redesign the SABER 11 test so that it assesses competencies necessary for tertiary education more effectively. A redesigned test could make an important contribution to helping students to make suitable choices in the light of their own abilities and potential. In particular, such a redesign would allow students at the lower end of the ability spectrum to have a better idea of their possibilities for success in further study, while secondary schools would be better able to evaluate their success or otherwise in preparing students for various types of tertiary education. But if these desirable aims are to be achieved, it is important that in future *all students in the 11<sup>th</sup> grade take the SABER 11 test*.

To summarise, the review team considers that the first option – *improve the quality and equity of secondary schooling* – is necessary but, being a long-term solution, cannot be the only solution. The fifth option – *offer better choice advice to secondary students* – is worthwhile but by no means sufficient on its own. The fourth option – *introduce degrees that the wider ability range can more easily attain* – is worth exploring in the form of

Foundation degrees, but not straightforward in the Colombian context because other reforms are needed first. The leading options for improving college-readiness in Colombia are therefore the second – *add a 12<sup>th</sup> grade to universal schooling* – or the third – *a bridge year between school and tertiary education*. Introducing either of these options would also improve the prospects of shortening bachelor’s degrees in Colombia.

### ***Tertiary admission arrangements***

In Colombia every institution decides and applies its own admission criteria and processes. This makes for a less than transparent admission system. Significant numbers of the current and recent students the team met seemed to believe that entry to universities depended on money and family influence, not the formal admission rules. Their perceptions may be wrong, but the existence of these perceptions is a problem in itself. It seems to the team that the government of Colombia needs to collect more information on admission arrangements and criteria, on how they are operated, and on the personal characteristics of accepted and rejected applicants, in order to assure itself and Colombia’s young people that admissions operate fairly. It would also be helpful to set up a central clearing-house, which processes all the applications, collates and analyses them and can eliminate duplicate acceptances for other students’ benefit.

The review team considered whether equity would be even better served if all tertiary institutions adopted common admission requirements for each programme level. The obvious choice for a common admission criterion is SABER 11 test results, but the reliability of the tests in their current form is not quite high enough for them to be used on their own for such a high stakes purpose. However ICFES is redesigning the tests, so this question might be worth revisiting in future.

### ***Access via propaedeutic cycles***

The review team considers that propaedeutic cycles can be very helpful to access and equity if they work as intended and enable students starting at professional technician level to climb all the way up the ladder to gain professional degrees. There seem to be concerns, however, that at the point where a technologist graduate seeks entry to a professional degree programme the ladder may sometimes have a rung missing, or the gap between two rungs may be too great. It is important to ensure that all institutions, including universities, recognise technology graduates as having the entry qualifications for professional degrees; and that the institutions which train technologists align their graduation standards with other institutions’ professional degree entry standards.

### ***Affordability of tertiary education to students***

The fees charged by programmes at different institutions vary considerably. Relative costs and affordability, though not the only factor, have a big effect on student choices. In a rational education market, higher fee costs would be associated with better quality, value and/or outcomes. In Colombia, the amounts charged in fees differ mainly because the sources of institutional funding differ (for example, SENA programmes are funded from a levy on employers' payrolls, programmes at public universities are funded by government according to a legal formula determined in 1983). As will be discussed further in Chapter 9 on Financing, the resulting differences in fees charged to students are not easy to explain or justify on any rational basis, and they distort choices, particularly those of students with limited means. Young people with university potential who are not accepted by the best-funded and therefore most affordable public universities may give up thoughts of university education and turn to SENA, just because it is fee-free. Other young people may be unwilling to consider the professional technician or technologist programmes that would be their best option, because lower fees make the local public university much more affordable than the local (non-SENA) T&T institutions. Because public funding for student aid is limited and therefore students cannot be sure of obtaining ICETEX loan support, even if they are from the poorest households and appear to meet all the published eligibility conditions, affordability considerations may drive students towards the cheapest options, regardless of which is best for them educationally.

### ***Access and equity in relation to household income***

The review team analysed tertiary participation rates by equivalised income quintiles, using the SEDLAC (Socio-Economic Database for Latin America and the Caribbean) database devised by the World Bank and CEDLAS (*Universidad Nacional de la Plata*, Argentina). This methodology gives a different, but truer picture than the proxy measures in common use in Colombia such as *estratos*, the second version of SISBEN which is highly correlated with *estratos*, or total household income expressed in multiples of the national minimum wage. The team's analysis shows that between 2001 and 2010 participation by students from every quintile increased by at least 20%, but the share of the richest fifth, Q5, grew while the share of the poorest fifth fell, Q1. However the biggest gainers were students from Q2, Q4 and in particular Q3, the middle income families. Though the richest fifth of students still have the highest participation rates by some margin, their share of total tertiary places is steadily reducing over time. Therefore, real progress has been made, and although the Colombian government still

has a considerable way to go if it wishes to achieve equal access opportunities for all citizens regardless of household income, the country is not doing badly by the standards of Latin American countries.

### *The student support system*

The student support system has a crucial part to play in improving the tertiary participation of students from lower income families. The review team was very impressed by the ICETEX loan system, which is giving many students from poorer backgrounds tertiary opportunities they would never otherwise have had. The main concerns are that ICETEX has too few resources to help all those who want financial help and appear eligible for it on present criteria; that better instruments are needed to assess student financial need and thereby improve targeting (and/or improve the certainty about the accuracy of targeting); and that the loan repayment burden may weigh too heavily on students of limited means. Regarding the last issue, it should be noted that ICETEX has recently made new payment options available to borrowers. These are designed to ease repayment burdens by having payments grow as borrower income grows. ICETEX calls this option the *cuota escalonada* or “graduated payment” system. Students can now elect to start repayment with smaller monthly amounts. Their payments increase on a schedule that should basically conform – on average – to their increased earnings through time. Students still fully amortise their loans, but with a schedule under which payments remain a more constant proportion of their (growing) incomes. Furthermore, from July 2012 there is a new student loan policy in ICETEX for the poorest students (levels 1, 2 and 3 of SISBEN). ICETEX offers a zero real interest rate during the loan period. Also, there are grants of COP 653 499 per academic semester, as well as remission of 25% of the value of the tuition fee when the student graduates, and total debt forgiveness if the student receives outstanding results in the SABER PRO exam.

The team believes that several steps need to be taken to improve ICETEX’s equity contribution. First, ICETEX deserves sustained and increased financial support to enable it to continue and expand its important equity promotion role and help more of the poorest students. The starting point should be a careful re-assessment of ICETEX’s financial requirements if it is to support the government’s expansion plans, on various scenarios ranging from continuing to support the current percentage of enrolled students, to an ideal situation in which all students who want financial help and need it to access tertiary education would be eligible. At the same time, ICETEX should continue to diversify its funding sources – as it has done very effectively in recent years – and improving its financial sustainability through higher repayment rates.



Secondly, to improve targeting on students from the most needy families, ICETEX should move to a better system for assessing socio-economic status or household income in a reliable way. All agencies involved directly and indirectly in targeting subsidies in the education sector – DNP, DANE, MEN and ICETEX – could work together to develop a better methodology.

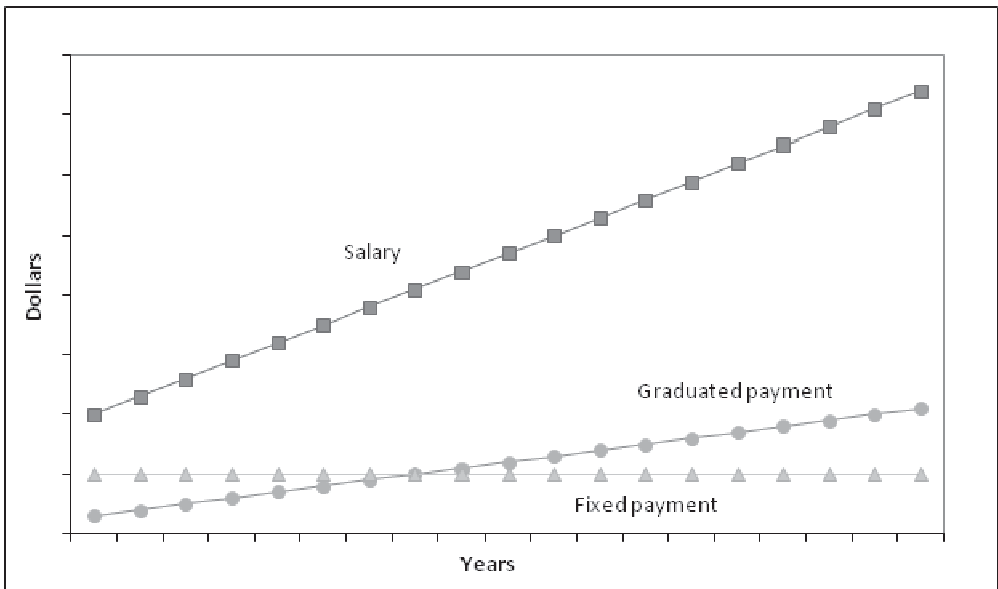
Thirdly, adjustments in loan design and monitoring are desirable in order to better link repayment conditions to actual income of graduates and assess the socio-economic characteristics of loan beneficiaries in ways that facilitate international comparisons. The government of Colombia may want to explore the feasibility of moving to an income-contingent student loan system that could, in principle, be both more efficient and more equitable. Since the mid-90s, several industrial countries including Australia, New Zealand, Sweden and the United Kingdom have adopted income-contingent loan systems, sometimes referred to as graduate tax, in which loan repayments are a fixed proportion of a graduate's annual income (Salmi and Hauptman, 2006). Although experience to date is limited, such systems can achieve a better balance between effective cost recovery and risk to the borrower (Barr, 2004). Administration is generally simpler and cheaper because loan recovery is handled through existing collection mechanisms, such as the income tax administration or the social security system. Income-contingent loans are also more equitable and satisfy more fully the ability-to-pay principle, since graduates' payments are in direct proportion to their income. For example, the student support system in Sweden minimises the risk of student default by limiting repayments to four per cent of income after graduation. In Australia, income-linked loan payments are made through the tax system, at a rate of two, three or four per cent of taxable income, depending on how much a graduate earns.

ICETEX has recently instituted a graduated repayment system that has a repayment schedule more in line with the natural evolution of the salaries of young graduates. Relying on graduated payments instead of fixed payments helps minimise the burden on graduates and improve loan recovery, as illustrated by Figure 3.3. Moving from the original fixed payment system to a graduated payment scheme may significantly improve the viability of ICETEX by reducing the probability of default or delayed payments among the most vulnerable graduates. From the second semester of 2012, ICETEX is moving in this direction by offering beneficiaries the possibility of lower initial repayments, but these must be offset by higher payments later, according to a set timetable which takes some account of average graduate salary progression.



Fourthly, to reduce further the likelihood of vulnerable students dropping out, greater attention should be given to the quality of the institutions and programmes loan beneficiaries enrol in. Ideally the vast majority of ICETEX beneficiaries should be enrolled in accredited programmes and/or institutions; the present figure is 62%.

Figure 3.3 **Effect of repayment type**



Source: Elaborated by the review team.

ICETEX has however distinguished itself among student loan institutions across the world for the careful balance it has always struck between providing benefits and ensuring future viability by maintaining acceptable repayment rates. In implementing the above recommendations, ICETEX should not abandon the need to maintain this balance.

### ***Dropout***

The team rates highly the SPADIES system set up to monitor dropout and its causes, and has noted much good work being done in tertiary institutions to minimise dropout. This work includes a number of programmes to try to remedy poor academic preparation, and some institutional schemes to support students financially.

ICETEX loans are associated with lower dropout rates, and the longer the loan has continued, the less likely the student is to drop out. Although it would be necessary to control for other factors, such as academic performance, to be sure that this lower dropout is a direct effect of the ICETEX loans, the evidence suggests that most dropout for financial reasons could be avoided if there were a major expansion in ICETEX resources and loan coverage, as suggested above. However, the limited impact of an ICETEX loan on dropout in the first semester, and the team's discussions with tertiary institutions, suggest that most of that very substantial early dropout is for academic reasons. The remedy lies in addressing lack of college-readiness, in the ways already proposed.

### *Access by gender*

Boys are less likely to enter tertiary education and more likely to drop out, despite receiving consistently higher results than girls in the common core of SABER 11 tests. Part of the answer to this apparent conundrum seems to be that girls are disadvantaged in the Colombian secondary school system – Colombia's results in both PISA 2009 and TIMSS 2007 showed girls performing less well relative to boys than in any other participating country – so in tests taken at Colombian schools boys appear to be stronger performers, relative to girls, than they would in other countries.

Colombia's young school-leaving age is, in the team's opinion, particularly unhelpful to boys, who tend on average to be less mature than girls at 16. Countries in which school pupils take national exams at 16 commonly find that girls achieve significantly better results overall. Therefore the 12<sup>th</sup> grade or bridge year proposed above should particularly improve boys' chances of accessing and completing tertiary education.

### *Access by region*

There are significant disparities between regions in tertiary enrolment, but a full assessment of their equity impact needs more evidence than the team has – for example on the numbers qualified for tertiary entry in each region, and the extent to which residents of one region enrol in another. The difficulties of achieving equitable coverage in areas of sparsely-populated jungle or poor transport links are also appreciated. The government's aim of extending provision to three-quarters of municipalities by 2014 appears to strike a reasonable balance between equity and feasibility. Distance learning also plays a significant role in achieving greater geographical equity.

## Recommendations

To address the lack of college-readiness of many Colombian school-leavers, particularly boys, the government should consider introducing a 12<sup>th</sup> grade of schooling. If that is ruled out on cost grounds, the government should introduce an optional bridge year between school and tertiary education, for those with tertiary aspirations or whose knowledge and skills need improving if they are to compete effectively for tertiary places. Bridge year programmes could be run by tertiary institutions, by secondary schools, by both in collaboration or by special new 12<sup>th</sup> grade colleges. The introduction of Foundation degrees is an option worth exploring.

Colombia should also intensify efforts to improve the quality and equity of secondary education and seek ways of providing secondary students with independent, personalised advice and guidance on their tertiary choices. To improve the information available on every individual's academic strengths and suitability for different types of tertiary education and training, all year 11 students should be required to take the SABER 11 test.

To improve transparency and student trust in the admission system and to assure itself and Colombia's young people that admissions operate fairly, the government should collect more information on admission arrangements and criteria, on how they are operated, and on the personal characteristics of accepted and rejected applicants. The information should be published and made available to young people and their families. The government should also set up a central clearing-house to process all the applications and eliminate duplicate acceptances, and should take up with the institutions concerned any cases where admissions criteria seem to lack fairness or objectivity. In the longer term, the introduction of national standard admission requirements for each level of tertiary programme could be considered.

The different funding sources for tertiary institutions of different types should be reviewed and rationalised, to avoid student choices being distorted by unwarranted differences in affordability (see Chapter 9).

ICETEX resources should be increased, ideally to the extent necessary to support the government's plans for tertiary expansion with equity, enable all lower-income students who want and need financial help to access tertiary education to be supported, and make significant inroads into dropout for financial reasons.

To improve targeting on students from the most needy families, ICETEX should move to a better system for assessing family income, developed in collaboration with the National Planning Department (DNP).

The best way forward would be a system that combines SISBEN, *estrato* and other socio-economic data, including verifiable income where possible and particularly in the case of individuals not covered by SISBEN.

To ease the loan repayment burden on young graduates and reduce default rates, the government of Colombia should continue offering more options for repayment (as they are currently doing with *cuota escalonada*).

Disparities between regions in tertiary enrolment should be addressed, as the government proposes, by increasing the number of municipalities with their own provision and expanding distance learning.

## Annex to Chapter 3. Measures of socio-economic status in Colombia

In Colombia, at least five different scales are available for assessing the relationship between socio-economic status and access to tertiary education, or for targeting social programmes such as loans and maintenance grants provided by ICETEX. The five are:

- Socio-economic strata or estratos;
- SISBEN;
- minimum wage multiples;
- income quintiles;
- mother's educational attainment.

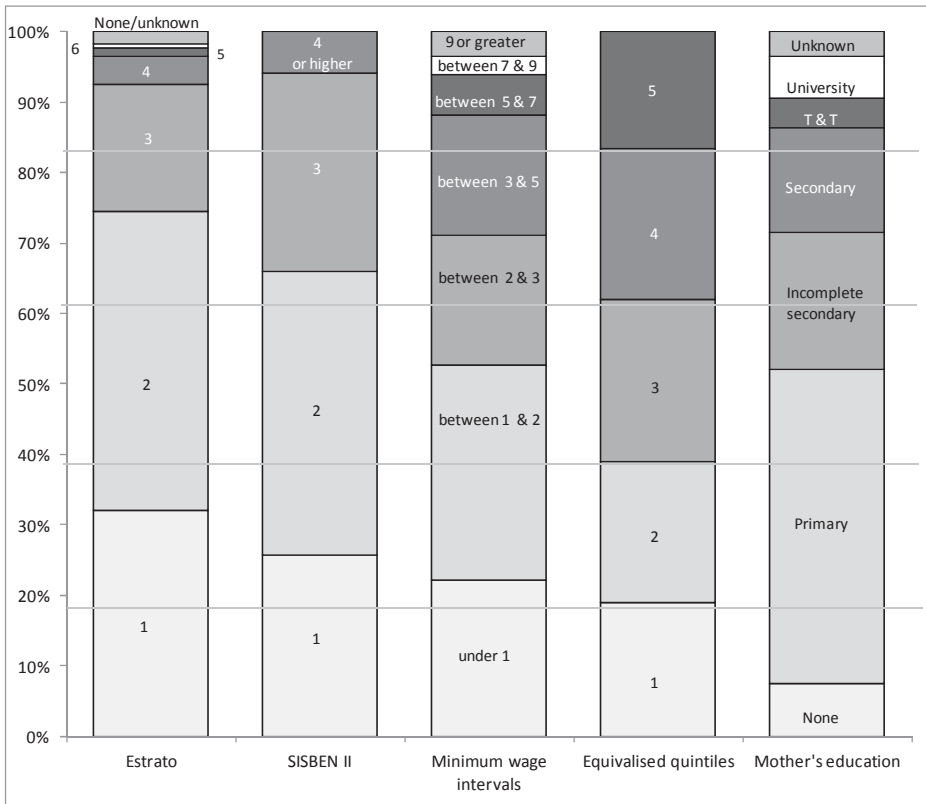
Each has its own advantages and disadvantages. Figure 3.1.1 shows the distribution of the population aged 17 to 21 according to each of the aforementioned categories (note that the SISBEN distribution is based on a simulation; the instrument only covers about 60% of the population), followed by a brief description of each.

### Socio-economic strata or *estratos*

The socio-economic stratification system, or *estratos*, was designed to distinguish who should get access to subsidised public services (utilities, water, etc.). The system classifies dwellings into 6 strata according to their physical characteristics and surroundings (*e.g.* road conditions, presence of pavements and street lighting, etc.). Households in *estratos* 1-3 receive subsidies on their utility bills, those in *estrato* 4 pay the going rate, and those in *estratos* 5 and 6 pay a premium. The system, however, suffers from high inclusion error (Parra, 2008 and World Bank, 2004), with close to 75% of the population living in *estratos* 1 and 2, and over 90% in *estratos* 1, 2 and 3. Because any house in a given area can be classified according to the mean for that neighbourhood, inaccuracies are inherent. Many households in

strata 1-3 – especially those in stratum 3 – thus belong to the upper income deciles. Anecdotal evidence suggests that the measurements have been altered to widen access to subsidies for political purposes. While correlation with income or well-being is clearly imperfect, one advantage of using the *estratos* system to analyse equity is straightforwardness: most Colombians are well aware of their *estrato*, making this information easy to collect. A clear disadvantage is its poor discriminatory power.

**Figure 3.1.1 Comparison of main socio-economic scales using divisions of the population aged 17-21**



*Note:* Shares are calculated for population aged 17 to 21; this explains why equivalised income quintiles are not each equal to 20% of the total population. Note that each measure is independent; therefore, for instance, households in *estrato* 1 are not all in equivalised income quintiles 1 and 2. Although minimum wage intervals and equivalised income quintiles both use income as the underlying variable, note that the former uses total household income and the latter uses income per capita, adjusted for household size and composition.

*Source:* Authors' calculations based on GEIH 2009 (General Integrated Household Survey) and ECV 2008 (DANE Quality of Life Survey).

## SISBEN

SISBEN, or *Sistema de Identificación de Potenciales Beneficiarios de Programas Sociales* (Selection System of Beneficiaries of Social Programmes), is a proxy means-based test tool used to target social programmes in Colombia. SISBEN assigns a score to households based on a series of socio-economic characteristics. SISBEN III, which will come into use in 2012, represents an improvement over previous versions in that it uses a multidimensional approach to poverty, corrects for a previous high correlation with *estratos*, and now makes it possible for social programmes to determine cut-off points different from levels 1, 2 or 3 to determine programme eligibility.

Figure 3.1.1 shows that the distribution of simulated SISBEN II levels was very similar to that of the *estratos*: close to 70% of the population fell in levels 1 and 2, which are considered poor and generally eligible to participate in social programmes. This correlation is expected to change with SISBEN III. Figure 3.1.1 is based on a simulation using the 2008 Quality of Life Survey (ECV, *Encuesta de Calidad de Vida*): a significant proportion of the population has never had a level assigned, as they do not live in areas previously identified as poor, and only about 50% are actually registered as in SISBEN levels 1 and 2. However, any individual can ask to be included.

## Minimum wage multiples

Another measure sometimes used is household income as multiples of the prevailing minimum wage. While this measure does not normalise for differences in household size, it can be useful to understand how much income is available to purchase services such as tertiary education. Figure 3.1.1 shows the distribution of 2009 household income by minimum wage multiples, when the minimum wage amounted to COP 496 900. About 50% of the population aged 17 to 21 lived in households with less than 2 minimum wages (almost COP 993 800) and 90% in households with less than 7 minimum wages (COP 3 478 300).

## Income quintiles

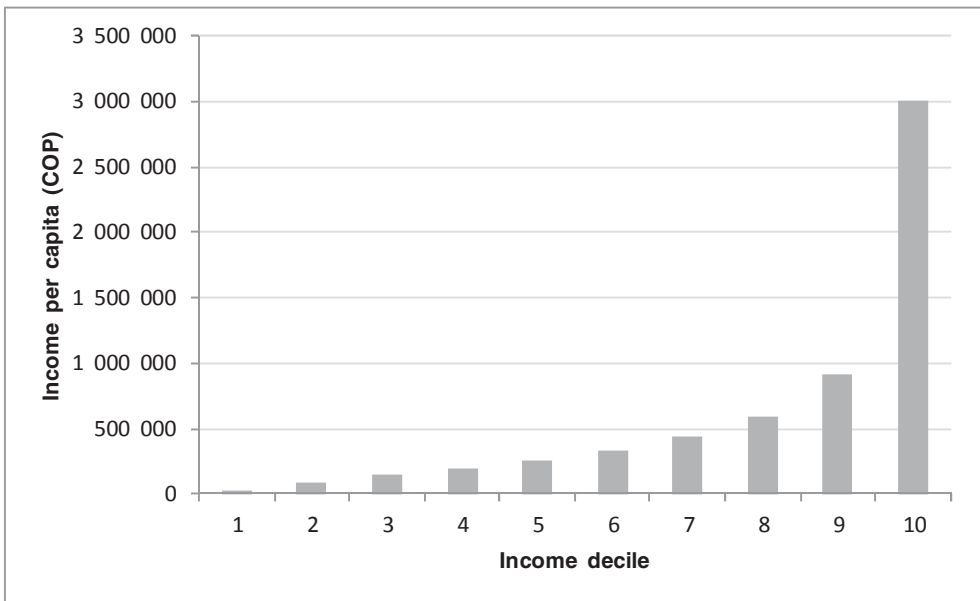
Probably the most internationally-comparable measure of household income is that which divides it into quintiles. Colombia's data comes from surveys conducted by DANE. The equivalised quintiles calculated by the World Bank's SEDLAC system correct for variations in the average number of children per household by quintile and make some additional technical adjustments. The SEDLAC data is comparable for all Latin American countries.

## Mother's education

Mother's education tends to be one of the most stable socio-economic variables. Unlike income, it does not fluctuate due to economic cycles and is less prone to measurement error. Given high historical inequalities in access to education in Colombia, it can be a good predictor of socio-economic level. Moreover, this variable is less prone to measurement error, especially in the case of self-administered surveys. For these reasons, parental education also tends to be used frequently in international educational mobility studies. Figure 3.1.1 shows that the mothers of over 50% of the population 17 to 21 had only had primary education or less, whereas only 4% had attended university and only 6% had had some form of T&T education.

Finally, Figure 3.1.2 shows the average income of the Colombian population by income per capita decile, in order to put income data into perspective. It is worth noting that the total sum of the incomes per capita of deciles 1-9 is roughly equal to the income per capita of decile 10.

Figure 3.1.2 Average monthly income by income per capita deciles, 2010



Source: Fedesarrollo, 2011, based on DANE-ECV 2010 (Quality of Life Survey).



## *Notes*

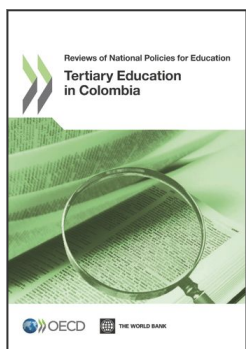
1. Calculations based on 2010 and 2014 projections for 15-19 and 20-24 age groups on [www.dane.gov.co/daneweb\\_V09/index.php?option=com\\_content&view=article&id=75&Itemid=72](http://www.dane.gov.co/daneweb_V09/index.php?option=com_content&view=article&id=75&Itemid=72), searched December 2011.
2. UN Statistics Division Demographic and Social Statistics, last updated June 2011.
3. ICFES runs two 11<sup>th</sup> grade tests a year, the test in the 2nd semester being referred to as Calendar A (taken by the majority of schools which start their school year in February and end in December), the test taken in the 1st semester being referred to as Calendar B (taken by some private schools which start the school year in September and end in June/July). In 2009 78% of tests were taken in Calendar A. The results from the two Calendars should not be aggregated because in each, marks are norm-referenced against the performance of others taking the same test.
4. In the UK system, students who do not know the results of their school-leaving exams when they submit applications can also choose a second “insurance” offer, in case they get lower exam grades than expected.
5. Data from 2010.
6. MEN supplied the data in this paragraph.
7. Affordability is influenced by many factors (institution type, number of family members, etc.). The point is that the weaknesses of the income-measurement tools obscure the accuracy and efficiency of targeting resources to needs. This is a challenge in all countries, including Colombia.

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