



Development
Progress

Case Study Report

Education



IMPROVEMENTS IN THE QUALITY OF BASIC EDUCATION Chile's experience

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Cover image: Students at Colegio Municipal
Marcela Paz, La Florida, Santiago de Chile.
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Schoolboys in Laja, Chile. Photo: © Chile Ayuda a Chile

Acknowledgements

This case study report was authored by Joseph Wales, Ahmed Ali and Susan Nicolai of the Overseas Development Institute (ODI), with Francisca Morales and Daniel Contreras, based in Chile. Oversight was provided by Susan Nicolai.

The authors would like to acknowledge, with gratitude, the detailed comments on drafts from the three external peer reviewers: Nicholas Burnett (Results for Development Institute), Alan Angell (University of Oxford) and Sofia Donoso Knaudt (University of Oxford). Extensive comments were also provided by ODI colleagues: Katy Harris, Amanda Lenhardt, Annalisa Prizzon and Andrew Rogerson. Roo

Griffiths and Angela Hawke provided editing support. The authors would also like to thank the over 20 interviewees and 13 roundtable attendees, hosted by UNESCO, who gave their time and expertise to inform this study.

The case study report was funded by the Bill & Melinda Gates Foundation as part of ‘Development Progress’, a four-year research project that aims to better understand, measure and communicate what has worked in development and why. Its findings and conclusions are those of the authors and do not necessarily reflect the positions or policies of the Bill & Melinda Gates Foundation.

Abbreviations and acronyms

DFID	UK Department for International Development	PEI	<i>Proyecto Educativo Institucional</i> (Institutional Education Projects)
EFA	Education for All	PME	<i>Programa Proyectos de Mejoramiento Educativo</i> (Programme for Projects to Improve Education)
GDP	Gross domestic product	PISA	Programme for International Student Assessment
ICT	Information and Communication Technology	PPP	Purchasing power parity
IT	Information technology	SD	Standard deviation
JUNJI	<i>Junta Nacional de Jardines Infantiles</i> (National Nursery Schools Council Programme)	SEP	<i>Subvención Escolar Preferencial</i> (Preferential School Subsidy)
LLECE	<i>Laboratorio Latinoamericano de Evaluación de la Calidad de la Educación</i> (Latin American Laboratory for the Assessment of Education Quality)	SIMCE	<i>Sistema de Medición de la Calidad de la Educación</i> (Education Quality Measurement System)
MDG	Millennium Development Goal	SNED	<i>Sistema Nacional de Evaluación de Desempeño</i> (National System of Performance Evaluation)
MECE Básica	<i>Programa de Mejoramiento de la Calidad y Equidad de la Educación Básica</i> (Programme for Improving Quality and Equity in Basic Education)	TIMSS	Trends in International Mathematics and Science Study
MINEDUC	Ministry of Education	UMIC	Upper- middle-income country
OECD	Organisation for Economic Co-operation and Development	UN	United Nations
		UNESCO	United Nations Educational, Scientific and Cultural Organization

Abstract

Chile is one of the few countries to have improved the quality of its basic education significantly in recent decades. Following the pro-market reforms of the Pinochet years, concerted efforts to improve the quality of education began in the 1990s. As a result of these efforts, there have been clear improvements in the country's performance in national and international test scores. Chile has moved from the middle of the pack to pole position in education quality, outperforming other countries in the region in all subjects in the 2006, 2009 and 2012 PISA examinations (Programme for International Student Assessment). Improvements in quality have taken place alongside substantial cumulative improvements in access, retention, repetition and completion rates in basic education, as well as significant progress on other socioeconomic factors.

This case study has found that Chile's progress in education quality has been driven by four factors. First, the political prioritisation of improvements in quality, brought about through a combination of popular demand and efforts to build political consensus. Second, a willingness to experiment with a range of quality-focused interventions, such as teaching-learning materials, curriculum reform and longer school days. Third, a strong focus on the professionalisation of teaching and greater investment in the teaching workforce. And finally, a substantial investment in the sector overall, matched by the more precise targeting of resources to disadvantaged students and communities. If Chile is to make further gains, it must now address the twin challenges of the continuing and large disparities in educational outcomes between socioeconomic groups and average learning levels that remain too low.

Despite these challenges, Chile's experience can provide useful lessons for other countries on how to improve learning for primary school children systematically through, for example, the strategic use of national and international assessment tests, a commitment to quality-focused incremental improvements, greater engagement with the private sector and targeted investment over the long term.



School in Santiago, Chile. Photo: © UNESCO/Carolina Jerez

1. Introduction

The quality, rather than the quantity, of education is an increasingly important feature of the development discourse, including the discussions on the post-2015 development agenda that will follow the Millennium Development Goals (MDGs). This is because as many as 250 million children, including those living in countries on target to meet the education MDGs, are not achieving minimum proficiency levels in reading and mathematics (UNESCO, 2014). Although problems relating to access and enrolment remain particularly acute in low-income countries, the quality challenge is a global one, affecting countries at all income levels. Given the significant impact of education quality on broader societal progress, including economic growth, this global learning gap cannot be ignored (Hanushek and Woßmann, 2007).

A better understanding of Chile's experience in improving the quality of basic education is relevant in the context of current progress and of future goals, when a major development focus will almost certainly be on learning outcomes.

‘Strong advances have been made in recent years – there has been a significant increase in coverage along with efforts made to improve results’ – Expert, Education Coalition

While it is difficult to measure progress on education quality, particularly in cross-country comparisons, Chile stands out as a clear leader according to national and international tests, having outperformed its Latin American neighbours in all subject areas in the Programme for International Student Assessment (PISA) tests since 2006 and having achieved consistent improvements since the mid-2000s on other tests. Its education system also stands out as one that has emphasised school choice, with its voucher scheme leading to high levels of private school provision. Chile has also invested in improving quality by, for example, improving teaching and learning materials and reforming the teaching profession. In addition, efforts to improve educational quality were able to build on a long history of progress in basic education, with significant improvements in primary enrolment, repetition and completion rates since the 1970s.

This case study explores Chile's impressive improvements in the quality of basic education since the 1990s and aims to address three key sets of issues:

- the magnitude of improvements in education quality
- the factors driving these gains, including the role of finance
- remaining challenges and potential lessons for other countries.

It finds that the country's systems approach to improving education quality is composed of four mutually enforcing factors: an inclusive political environment which has encouraged compromise and policy consensus; a willingness to experiment and implement incremental reforms; a focus on teacher professionalisation and the teaching workforce; and substantial investment in the sector overall, as well as the targeting of resources to disadvantaged students and communities.

Several challenges still remain, however, including the significant inequity of learning outcomes across the socioeconomic strata. Chile also lags behind other countries in the Organisation for Economic Co-operation and Development (OECD), which it joined in 2010, in terms of educational achievement. It also has lower proficiency in all subjects than the average for OECD countries.

Following a return to democracy in 1990, the country's sustained political consensus and focus on improved education quality can provide insight on how to gain traction in this area, particularly in countries that are going through political transition and state-building processes. Chile's approach to improving education quality may also hold a number of potential lessons for other emerging economies.

1.1 Democracy and economic growth

Chile returned to democracy in 1990 after almost two decades of dictatorship under the military regime led by President Pinochet. His government prioritised macroeconomic stability and scaled back expenditure on social services, including education. Large-scale reforms were, in most sectors, heavily influenced by elite neo-liberal supporters of the free market policies of the 1970s – Chicago-educated economists known as the ‘Chicago boys’. In education, the reforms in the Pinochet era were threefold: decentralisation of public schools and transfer of responsibility to municipalities; introduction of a voucher financing model; and labour deregulation, aiming to promote greater efficiency through competition between public and private schools (Delannoy, 2000).

With the return of democracy and the election of a left-leaning coalition, there was general agreement that social services needed urgent attention after two decades of underinvestment. There was also a desire to make democracy work and seek consensus in policy formulation, avoiding any political confrontation that might trigger a return to dictatorship. The next two decades saw a remarkable period of political continuity that, while leaving the Pinochet-era reforms largely in place, nurtured ongoing experimentation and adjustment underpinned by an emphasis on monitoring and evaluation.

Chile has shown impressive economic performance over the past three decades, outpacing the growth rates of its neighbours (Kalter et al., 2004) while maintaining economic stability. It has been the only Latin American economy to avoid a major contraction in the past 20 years, in sharp contrast to Argentina, which has had repeated economic crises. Its historical performance and stability have also bred considerable confidence, with projected growth rates also higher than those for its neighbours. The extent of Chilean progress can be seen through the country's accession to the OECD in 2010 and its reclassification by the World Bank as a high-income country in 2013.

This emerging democracy and rising wealth has helped to provide greater political space and financial resources for the education sector, while the country's economic transformation has, in turn, spurred demand for a skilled and educated labour force.

1.2 About this case study report

This research project aimed to develop a detailed understanding of the factors that have driven improvements in the quality of basic education in Chile. It is part of a broader set of case studies examining the factors that drive progress across a range of dimensions of well-being.

Chile was selected for study following an analysis of education indicators, including those focused on quality and on other areas, which considered a range of countries in terms of their absolute and relative progress, as well as the extent to which the progress of a country makes it an outlier. The selection was also informed by consultation with a number of experts and a review of key literature on education quality.

Once Chile was selected, a team of experts based in the UK and Chile carried out an extensive literature review, analysed quantitative and qualitative data and held interviews with more than 20 experts in the field. These included former and current policy-makers, academics, operators of public and private schools, parent-teacher associations and international organisations. Following data analysis, key stakeholders were invited to a workshop held in May 2013 in Santiago, with support from the United Nations Educational, Scientific and Cultural Organization (UNESCO), to validate the findings of the research team.

This introduction is followed in Section 2 by an analysis of the nature of Chile's progress in education quality and related areas since the 1990s. Section 3 identifies and examines the key factors driving progress and Section 4 looks at some of the remaining challenges. Section 5 presents conclusions and draws together some of the key lessons from the experience of Chile and its journey to improved education quality.

Box 1: The structure of Chile's education system

The present structure of Chile's education system was established in 1980 with the decentralisation of the education system and the creation of a quasi-voucher financing mechanism. This mechanism, known as the capitation grant, meant that both private and public schools could receive a fixed sum from the state for every student enrolled and attending. This meant that students could move freely between schools and would be followed by funding. The intention was to create a fully functioning market for education, with parental choice creating competition between schools to deliver a quality education. This system has gone through various changes since the 1980s, but its basic logic and its division of schools into three broad types has remained consistent:

- municipal schools, administered by local governments and financed wholly by the state through the voucher system
- private subsidised schools, privately owned and financed either by the voucher system alone or by a combination of the voucher system and tuition fees. This type includes both for-profit and non-profit schools
- private non-subsidised schools, privately owned and financed by tuition fees or endowments, with no funding from the voucher mechanism.

Private subsidised schools have played an important role in Chile's education system since the reforms of the 1980s and accounted for over 48% of students in 2008 – an increase of 33% since the 1980s. The reforms increased parental choice, particularly for the middle classes and urban parents, who overwhelmingly chose to send their children to private subsidised schools, which achieved better results than their public counterparts.

The voucher system and three-tiered school structure is one of the most hotly contested issues in Chilean education policy and has been held up as both an example and a warning by different camps in the global debate on the role of the private sector in education.

There is strong evidence that the Chilean education system is stratified along socioeconomic lines, with students from low-income groups concentrated in municipal schools. However, the empirical evidence is inconclusive on whether the voucher system is to blame for this, whether private subsidised schools merely provide better-quality education to a specific segment of the population or whether they also drive wider improvements in education.



Colegio Municipal Marcela Paz, La Florida, Santiago de Chile. Photo: © UNESCO/Carolina Jerez

2. What progress has been achieved?

This section looks at three inter-related aspects of Chile's progress in improving education quality:

- progress on some of the more measurable elements of education quality, including national and international test scores
- progress on education access and retention, which has underpinned improvements in quality and includes: better primary enrolment, retention and completion rates; lower repetition rates; improved transition rates to secondary education; and more years spent in education
- the country's broader economic and social development context.

2.1 Improvements in quality measures

It is difficult to measure education quality and learning outcomes and there is a widespread recognition that the few data that are collected are not adequate for the task. Proxy measures are often used, including pupil-to-teacher ratios and textbook-to-student ratios, which, while valuable, measure inputs rather than outcomes. Available outcome measures such as literacy rates and national and international assessment test scores may tell us more about the results of such inputs, but they do not tell the full story on quality, with their focus on literacy and numeracy and the constraints of paper-and-pencil tests. Recognising these constraints, this section paints a picture of improved education quality in Chile using the available data for a range of proxy and outcome measures.

Chile has, therefore, demonstrated clear, impressive and sustained improvements in international and national test scores since the mid-2000s, indicating an improvement

in the level of education quality over the past decade. By 2006, for example, Chile's 15-year-olds were out-pacing their peers elsewhere in Latin America in mathematics, science and reading. And by 2009 they were demonstrating larger and more consistent improvements across multiple tests. Chile had not only overtaken its larger Latin American neighbours since 2000, it had become the regional leader in all subject areas, building on high literacy rates, falling pupil-to-teacher ratios, greater access to education and broader socioeconomic progress. In addition, there appears to be a slow but discernible narrowing of the gap in educational achievement between different groups of children – urban and rural, rich and poor.

2.1.1 Long-term and sustained improvements in literacy rates

Chile has a long history of high literacy rates, with over 90% of the population being classified as literate by 1982. Over the past three decades the rate has increased steadily and the country had achieved almost universal literacy among its youth and adult population by 2009.

These rates are comparable over time with those for Argentina, but ahead of most of Chile's Latin American neighbours. Brazil only achieved adult literacy rates over 90% in 2007 and the average for the entire region stood at 91.6% in 2011. Chile's performance against upper- middle-income countries (UMICs) is similarly impressive – with UMIC average literacy rates standing at 90.8% and 93.6% in 2000 and 2011, respectively.

2.1.2 International tests show a regional leader

Chile has participated consistently in three major testing regimes. First, the LLECE (*Laboratorio Latinoamericano de Evaluación de la Calidad de la Educación* – the Latin

Table 1: Selected Chilean literacy rates, 1982-2009

	1982	1992	2002	2009
Literacy rate, youth total (% of people aged 15-24)	96.65	98.43	98.99	98.87
Literacy rate, adult total (% of people aged 15 and above)	91.12	94.29	95.72	98.55

Source: World Development Indicators (retrieved 10 January, 2013).

Box 2: Rapid reduction in pupil-to-teacher ratios

The pupil-to-teacher ratio is often used as a proxy measure for education quality and Chile saw the most rapid reduction in pupil-to-teacher ratio in any region or country income grouping between 1999 and 2010 (UNESCO, 2012: 122). Its primary level pupil-to-teacher ratio fell impressively over that period – from 32 to 23.5 – as a result of a large increase in the number of teachers and a reduction in the size of the student body. Total enrolments in primary education fell by 14% over this period while the total number of primary school teachers employed rose by 17%.ⁱ Although the ratio of pupils to teachers is still above average for the region and for countries at a similar income level,ⁱⁱ it still represents an impressive shift, which will have played a major enabling role in the implementation of Chile's new curriculum and teaching methods.

ⁱ Figures calculated using World Development Indicators data, retrieved 17 January 2014.

ⁱⁱ Chile went from being above the global average in 1999 to just below it in 2010 (shifting from 32 to 23.5, compared with 26 to 24). Its ratio is still above average for Latin America and the Caribbean (22) and for both upper-middle-income and high-income countries (19 and 14, respectively) (UNESCO, 2012: 122).

American Laboratory for the Assessment of Education Quality), a testing organisation run by UNESCO, which applied a standardised test for mathematics, science and literacy to countries in Latin America and the Caribbean in 1997 and 2006. Second, TIMSS (Trends in International Mathematics and Science Study), an evaluation body that has examined mathematics and science knowledge for students in Grades 4 and 8 every four years since 1995, run by the International Association for the Evaluation of Educational Achievement. And third, PISA (the Programme for International Student Assessment), run by the OECD every three years since 2000 to test the knowledge of 15-year-olds in mathematics, science and reading.

Both PISA and TIMSS are regarded as reliable global benchmarks for progress in education quality, as many of their participants are OECD or other high-income countries that set a high standard for educational achievement. While Chile may have only joined the OECD in 2010, it had already seen 'advanced economy' status as its political benchmark for some decades.

Chile's results in international tests in the late 1990s and early 2000s were considered a disappointment. Despite the structural reforms of the 1980s and the large and sustained investment of the 1990s (detailed in Section 3), they were broadly comparable with those of Mexico and Argentina,

and only slightly ahead of those of Brazil. Chile was the leading Latin American nation only for Grade 4 reading in the 1997 LLECE tests, and was outperformed by Mexico and Argentina in every area except science in the 2000 PISA tests. Alarming, Chile actually experienced a decline in its TIMSS results between 1999 and 2003, ranking only just ahead of the Palestinian National Authority and coming 39th out of 45 countries in mathematics and 37th in science for Grade 8.

Major improvements in Chilean student achievement seemed to gain traction only in the mid-2000s, with simultaneous improvements in results across PISA, TIMSS and LLECE. The reasons for this time lag will be discussed further in the following section.

The 2006 PISA results showed significant improvements from 2000 to 2006, with Chile achieving the highest results of any participating Latin American country in all subject areas. These improvements continued between the 2006 and 2009 PISA tests, with Chile demonstrating larger and more consistent improvements across multiple tests than its neighbours. These changes can be seen in Figure 1, overleaf, with Chile moving from being on a par with its larger Latin American neighbours in 2000 to being the leader in all subject areas in 2009.

These gains were also impressive when compared with those of PISA participants worldwide. Chile was one of only three countries¹ to improve by more than 20 points in reading assessments over 2000-2009, with average scores rising from 384 to 421 points (OECD, 2010b: 38). At the same time, Chile demonstrated science improvements over 2006-2009 that were above the OECD average level (OECD, 2010b: 64).

Data from TIMSS and LLECE support these trends. Of the nations that had comparable TIMSS results over 1999 to 2011, Chile was the most improved for Grade 8 mathematics scores, with a rise of over 20 points (IEA, 2012a: 55), and is listed as one of only two countries and two benchmarking participants² that saw an increase in science achievement, with a rise of 41 points (IEA, 2012b: 53).

These test scores do show a gap in results between boys and girls in Chile, but this appears to be very minimal and is decreasing in the case of TIMSS science results (Figure 2, overleaf). LLECE results from 2006 show the scores for reading and mathematics doubling for those classes for which comparative data are available.

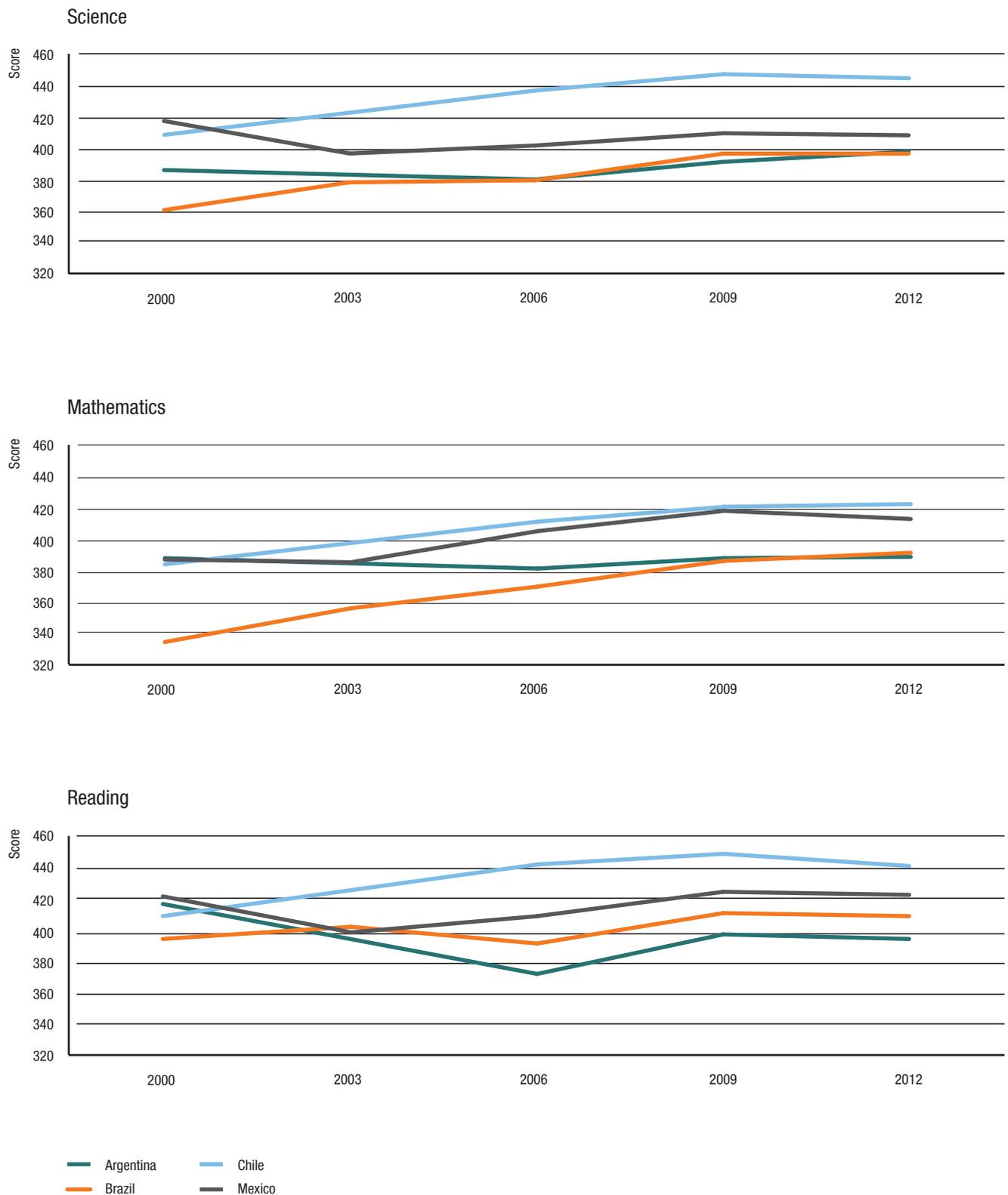
2.1.3 Gradual but steady rises in national test scores

We have evidence of a general upward trend in Chilean education quality as measured by the main national test score: Chile's highly developed SIMCE system (*Sistema de Medición de la Calidad de la Educación* – Education Quality Measurement System). SIMCE has

1 With Israel and Poland.

2 The others being Tunisia and the US states of Massachusetts and North Carolina, which saw improvements of 9, 34 and 24 points, respectively.

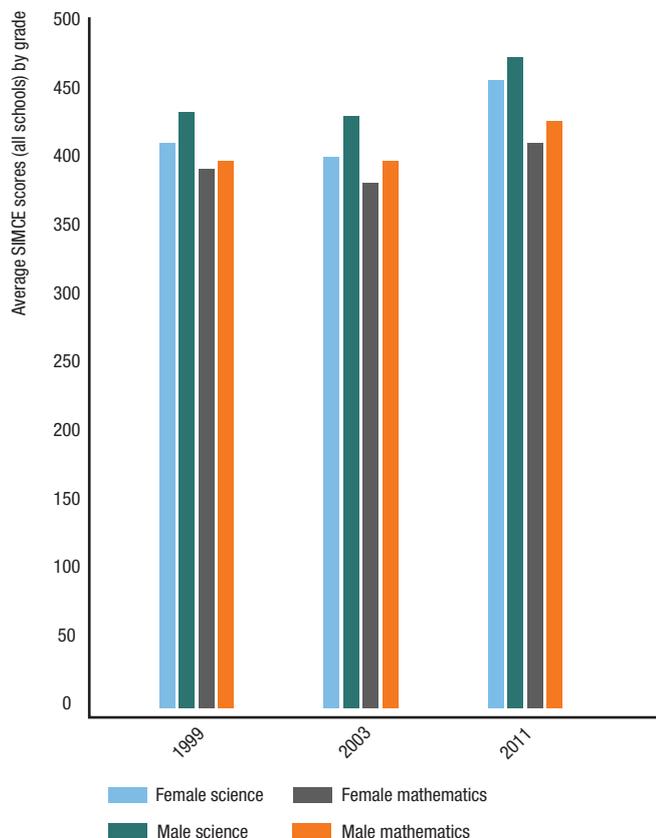
Figure 1: PISA science, mathematics and reading scores, 2000-2009



Source: World Bank EdStats Database (accessed 5 September 2012) and OECD (2013).

Note: PISA scores are scaled relative to the mean scores of OECD countries, set at 500 in PISA 2000, and with a standard deviation of 100. Student performance is divided into levels of proficiency, with seven levels for reading and six for both mathematics and science. Since 2009 Chile's average score has been within level two for all subjects, with level six being the highest as reading has both level 1a and 1b. (OECD 2010a)

Figure 2: TIMSS mean performance on the science and mathematics scale for Grade 8 students

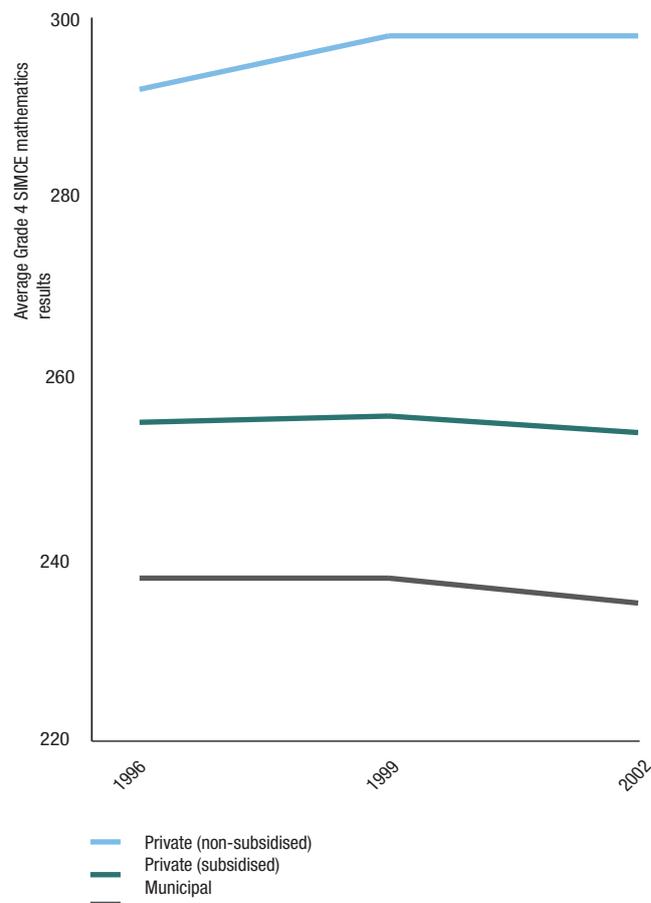


Source: TIMSS.

been in operation throughout the school system since 1988 and has a strong reputation for independence and reliability. A major reorganisation of the system in 1996 has complicated the use of its data when attempting to establish the pattern of progress in Chilean education quality,³ but the analysis of the results has generated consensus on the mixed nature of the progress made in the 1990s. During the period 1988 to 1996 there were consistent, but minor, improvements in Grade 4 and Grade 8 SIMCE scores across all forms of schools, with a slight narrowing of the achievement gap between municipal and private subsidised schools, and between private subsidised and private paid schools (Cox, 2004: 12-15; Delannoy, 2000: 39). This progress then stagnated between 1996 and 2002, with scores remaining largely static and with persistent and substantial performance gaps across the various school types⁴ (see Figure 3).

Substantial and sustained improvements in SIMCE test scores are found only from 2006 onwards for reading and

Figure 3: Grade 4 SIMCE mathematics data by school type, 1996-2002



Source: Cox, 2004.

only from 2008 for mathematics (Figure 4, overleaf). For Grade 4, an increase of 16 points in reading scores (6.4%) and 14 points in mathematics scores (5.7%) can be seen across the decade 2002 to 2012. The trend overall is one of slow but steady improvement, although there were slight declines in reading results after 2010.

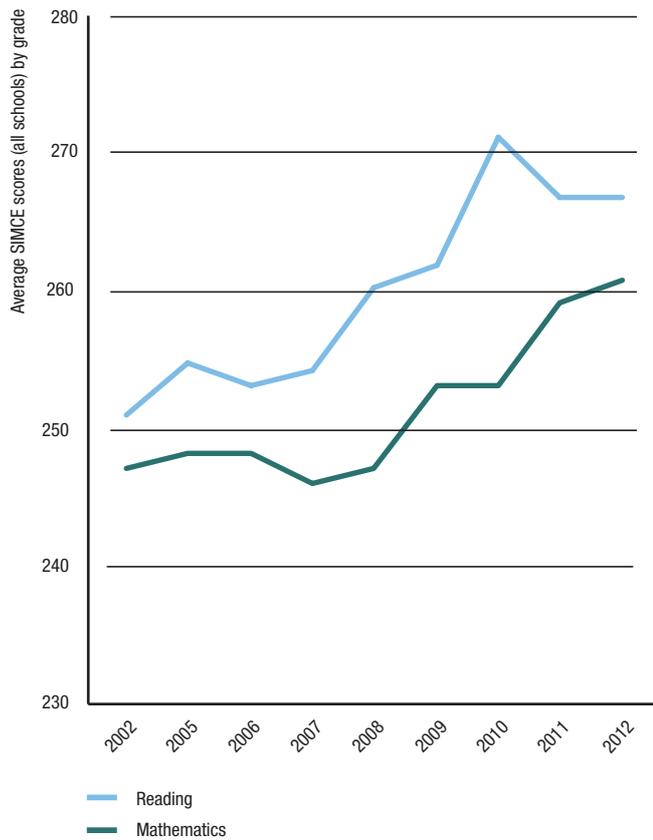
Increases in Grade 8 SIMCE results have been more gradual but clear improvements are visible across 2004-2011, with mathematics scores rising by 5 points (1.9%) and reading scores by 3 points (1.2%).

Looking beyond these averages, however, the gaps between the test scores for different groups do appear to be decreasing. In 2000, rural Grade 4 students scored 18 points lower, on average, than urban students in language. By 2012 that gap had narrowed to 12 points and it was possible to see a narrowing of the gap between the two groups (Figure 5, overleaf), although the gap in rural/

3 SIMCE results from 1996 onwards are not comparable with those of the 1988-1996 era; in addition, it is only possible to carry out detailed year-on-year time series analysis for the later dataset (OECD, 2004: 154).

4 Students in private subsidised schools scored consistently around 20 points (7.5%) higher than students in municipal schools, but were out-performed by students in private non-subsidised schools (a difference of around 40 points or 25%) (Cox, 2004: 12-15).

Figure 4: Grade 4 SIMCE data, 2002-2012



Source: Resultados Nacionales SIMCE – MINEDUC.

urban maths scores does remain. A narrowing of the gap in test results can also be seen between different income groups, with the poorest gradually catching up with other income groups (Figure 6). The gap is also closing – at least marginally – between the SIMCE maths scores for wealth groups, although this trend is far less pronounced.

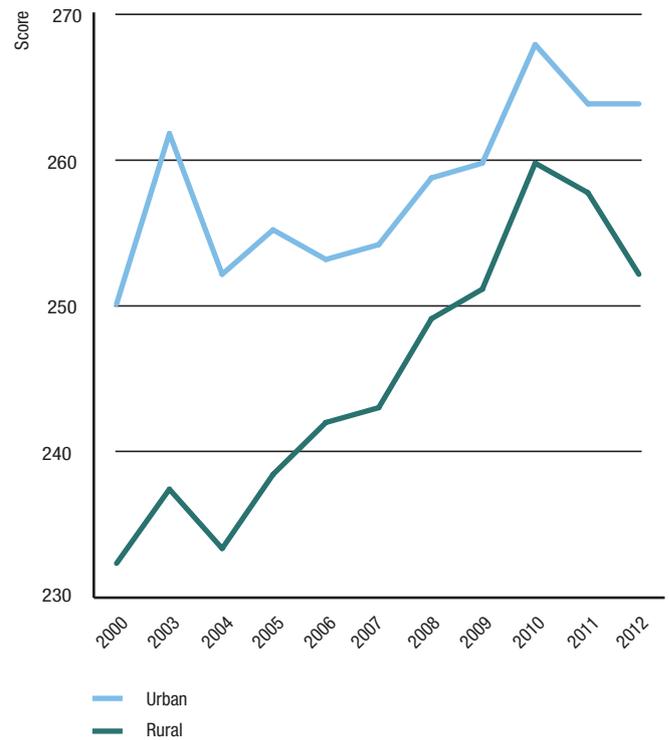
We have evidence of a general upward trend in Chilean education quality as measured by the SIMCE system.

2.2 Steady strengthening of access

Chile has performed strongly in terms of improvements in access to education – a key part of the broader context that underpins meaningful improvements in education quality. The country reached almost universal enrolment rates 20 years ago, and it has maintained these while making improvements across other essential areas, such as the rates of children who repeat school years, who complete basic education and who make the transition to secondary schooling.

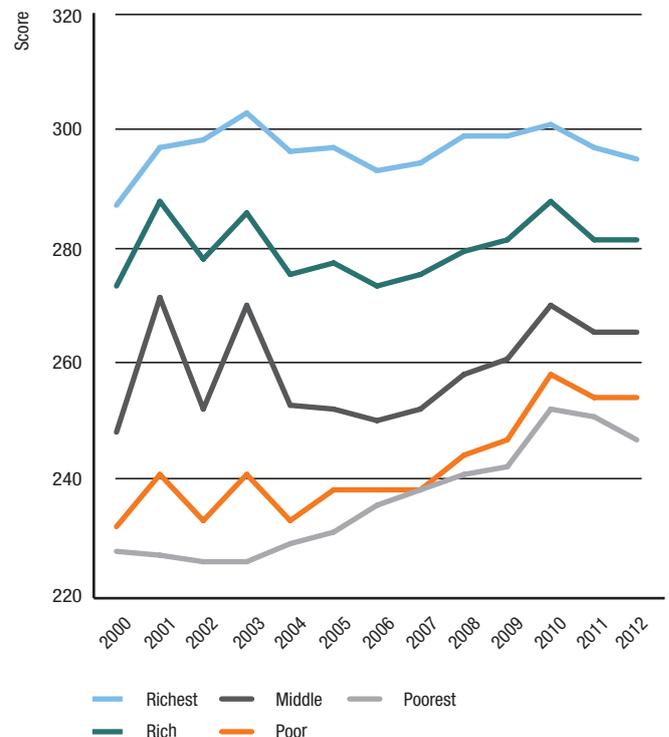
Chile has a long history of high primary enrolment levels. Net figures indicate that universal enrolment was reached in the early 1990s and that current levels are comparable with those in other Latin American countries and in UMICs worldwide. Long-term improvement in enrolment rates began in the early 20th century, standing at 80% in 1960

Figure 5: SIMCE Grade 4 language results, rural and urban compared



Source: SIMCE.

Figure 6: Chile's SIMCE Grade 4 language results by socioeconomic group



Source: SIMCE.

and rising to 93% by 1970. Net and gross enrolment rates then stabilised, with the latter fluctuating between 110% and 120% throughout the 1970s and 1980s. Gross enrolment rates then declined to between 97% and 110% through 1990-2010 as repetition rates fell and net enrolment rates rose.⁵ While there are discrepancies between net enrolment estimates (see, e.g., Cox, 2004; Delannoy, 2000), the latest available World Bank data, covering 2007-2010, show net enrolment fluctuating between 93% and 96%. These figures compare well internationally, whether looking at Latin America and the Caribbean (95% in 2010), other UMICs (96% in 2010) or high-income countries (97% in 2010) (UNESCO, 2012: 58).

Repetition rates⁶ among children in basic education have been declining steadily in Chile over the past 30 years, and compare well, in general, with those of other Latin American countries and UMICs. Repetition rates from 1970 to 1977 fluctuated between 8.9% and 13.7%, then fell to 8.3% in 1983 and declined throughout the late 1980s and the 1990s to reach 2% in 2000. The rates stabilised at just above 2% until 2009, when they fell to 1% before a sudden increase to 4% in 2010, where it has remained.

This spike was probably related to changes in regulations for private schools in the late 2000s, which gave all students the right to repeat their current grade if

they failed to advance, rather than being expelled from the school (OECD, 2011:72). These changes may improve the quality of teaching in the long run as they create greater incentives to ensure all students learn enough during the school year to advance to the next grade.

Completion rates for basic education are impressively high in Chile, and the available data suggest that, historically, its education system has been very good at ensuring that children complete schooling once enrolled. World Bank data show considerable improvements during the 1970s and 1980s in particular, with completion rates rising from 77.5% in 1970 to 90.4% in 1977 and then 97.4% in 1983. These numbers appear less impressive when considering the lower absolute enrolment levels and wealthier socioeconomic student profile of that era, but still show significant progress on these aspects before the 1990s. More recent progress has been modest in comparison. Dropout rates stood at 3%-4% in the early 1990s before falling to 2.6% in 1999 and then 1.3% in 2010 (Cox, 2004: 4-7; UNESCO, 2012: 58).

Current global figures on completion rates also highlight how impressive Chile's long-term achievement in this area has been. Chile's completion rate in 1999 stood at 97.1%, a figure higher than the 2010 Latin American and Caribbean average (89%) and the 2010 average for

Table 2: Key education indicators

	1990	2000	2011
Gross enrolment rate (primary)	105%	100%	101.5%
Net enrolment rate (primary)	91.3% [†]	97% [†]	93.1%
Repetition rate (primary)	3% [†]	2.01%	4.9%
Completion rate (primary)	83.2% (1997)	97.8%	94.8%
Secondary transition rate	84.9% (1983)	97.5% (1997)	90.5% (2010)
School life expectancy (number of years spent in school) – primary to secondary	10.97 years	11.04 years	11.42 years
School life expectancy – primary to tertiary	13.05 years (1991)	12.89 years	15.13 years

Source: UIS and WDI. [†]Figure from Cox (2004).

5 Gross enrolment rates are calculated as the number of children of any age enrolled in primary school as a percentage of the number of children of official primary school age. Net enrolment rates are calculated as the percentage of children of official primary school age who are enrolled in primary school. As a result, gross enrolment rates may exceed 100% where children repeat grades or enter primary school late, while net enrolment rates cannot exceed 100%.

6 The repetition rate represents the percentage of students in primary education who are enrolled in the same grade that they were in during the previous academic year.

upper-middle-income countries (95%). In this area, Chile is comparable to OECD states, with its 2010 completion rates standing at 98.5%, marginally higher than those of the average high-income country (98%) (UNESCO, 2012: 58).

The expansion of school life expectancy in terms of primary and secondary school and from primary school all the way through to tertiary education indicates that the Chilean education system has become increasingly proficient over the past 20 years in ensuring that students complete secondary education once they are enrolled and in securing their transition to tertiary education (Figure 7). The figures are particularly impressive when examined in the context of Chile's declining repetition rates. There has been a consistent increase in primary to secondary school life expectancy, rising from 10.7 years in 1998 to 11.56 years in 2004 and then to a peak of 11.78 years in 2008. This is a considerable achievement, given that the combined duration of primary and secondary education in Chile is 12 years.

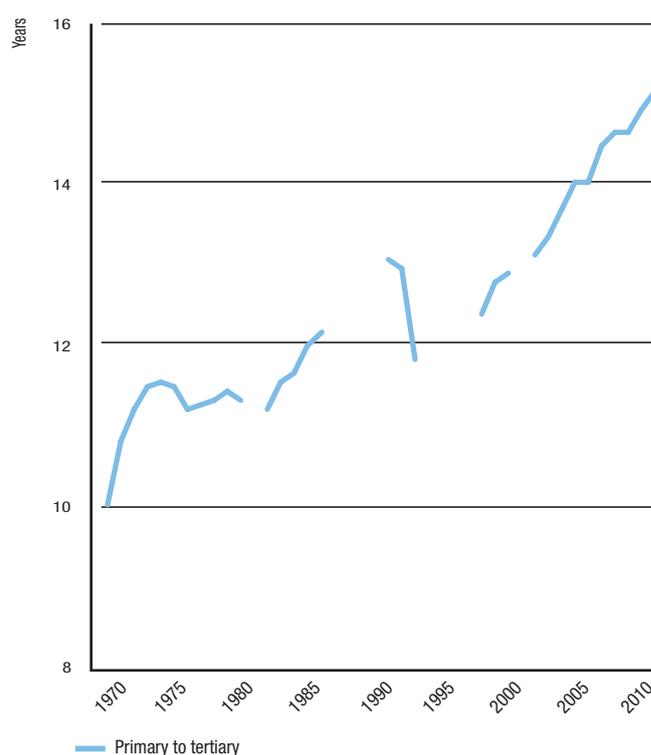
Looking more broadly at the school life expectancy from primary to tertiary education, it is also clear that Chile is succeeding in opening up tertiary education to its population and has achieved rapid progress in the past 15 years. By this measure, school life expectancy rose from 12.44 years in 1998 (only just above secondary completion) to 15.17 years in 2011. These figures are well above the 2010 average for Latin America and the Caribbean (13.4 years) and for UMICs in general (12.8 years) (UNESCO, 2012: 347).

2.3 Broader socioeconomic change

The nature of Chile's socioeconomic progress has shaped the pattern of its education outcomes. Steady domestic growth has provided the revenues needed to finance reforms, while rising household incomes and falling absolute poverty rates mean that more Chileans can invest time and money in the education of their children, and that more children are in a position to gather the fruits of that education. However, the high and persistent rates of income inequality are also reflected in the lack of equity in education outcomes – an issue we return to in Section 4.

Chile has shown impressive economic performance over the past three decades, outpacing its neighbours in terms of growth rates (Kalter et al., 2004) while maintaining economic stability. In the past two decades, in particular, it has been the only Latin American economy to avoid a major economic contraction, in stark contrast to Argentina, which has endured repeated crises. Figure 8 (overleaf) shows faster economic growth in Chile than amongst its neighbours.

Figure 7: School life expectancy in Chile, 1970-2011



Source: UNESCO Institute for Statistics (UIS). Accessed 5 December, 2013.

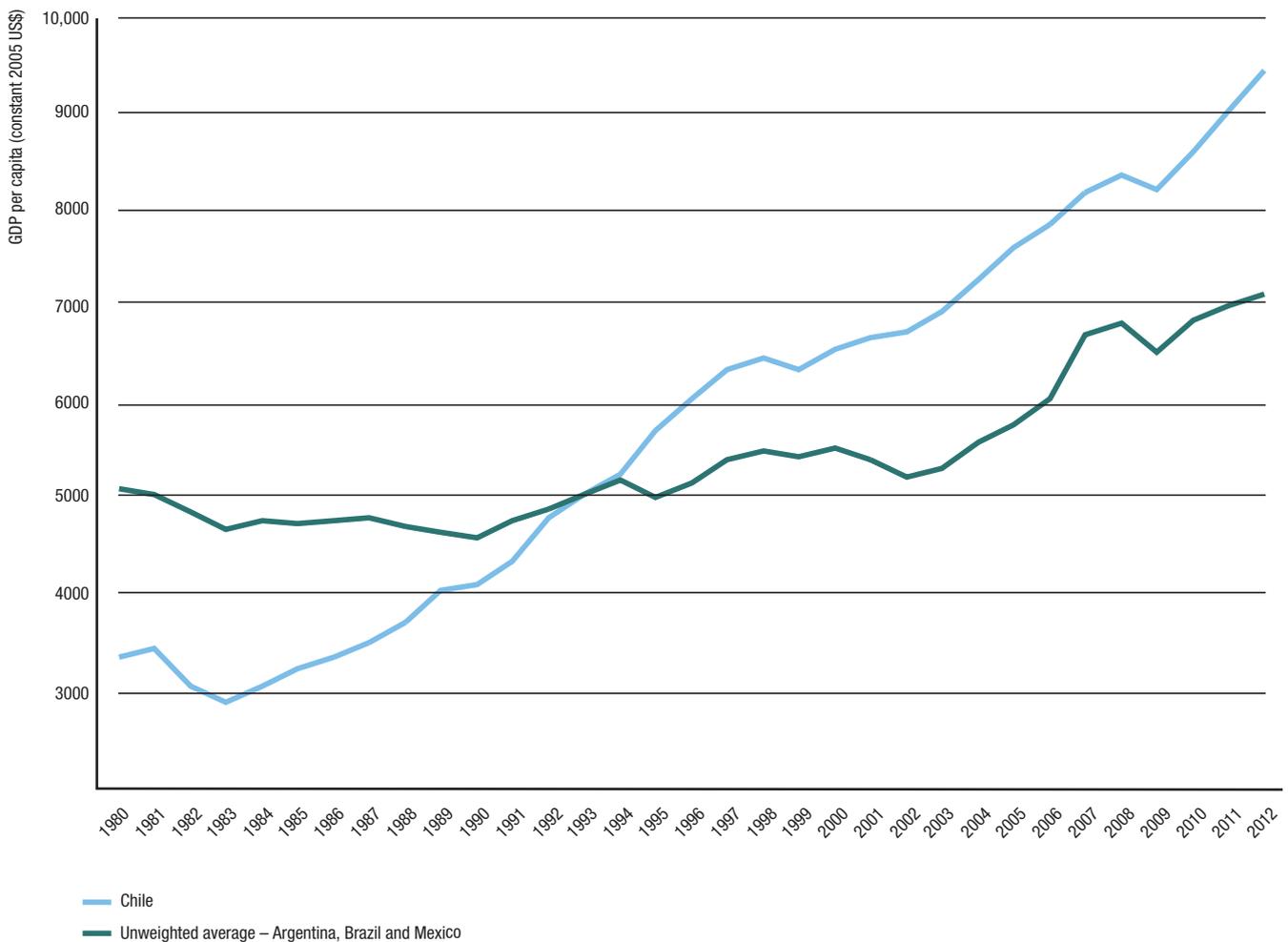
Its historical economic performance and stability have also bred considerable confidence, with projected growth rates also higher than those for its neighbours. The extent of this progress is reflected in the World Bank's reclassification of Chile as a high-income country in 2013, only 20 years after it became one of the world's UMICs. The country's growing wealth has helped provide the financial resources and political space to increase funding to the education sector, while economic transformation has also contributed to the demand for a skilled and educated labour force.

This economic growth has also been translated into rising household incomes. Chile's GDP per capita based on purchasing power parity (PPP) in 1980 was lower than that of other countries in the region, but by 2000 the country was outperforming all of the other major economies in the region. This rise in household wealth has combined with rising levels of adult education and demand for skills to create a significant increase in private investment in education.

Rising prosperity has also contributed to more general improvements in well-being. Average life expectancy in 2011 stood at 79 years, up from 74 years in 1990. Child mortality rates have been almost halved over the past two

'Advances in education have not happened in isolation, but are a part of a general context of progress in the living conditions of the country' – UN official, Santiago

Figure 8: Gross domestic product (GDP) based on GDP per capita (constant 2005 US\$), 1980-2012



Source: World Development Indicators (WDI) (<http://data.worldbank.org/data-catalog/world-development-indicators>) (accessed March 2013).

decades, with deaths per 1,000 live births for under-fives falling from 17.5 per 1,000 live births in 1991 to 9.5 in 2011, and neonatal deaths from 9.4 to 4.7 over the same period. Children are also living in better conditions as well as living longer, with malnutrition rates falling impressively in the late 1980s and then continuing a gradual decline between 1990 and 2010. In 2008, only 0.5% of children under five were malnourished by weight measures and 2% by height measures, compared with 0.8% and 4.2%, respectively, in 1994.

Chile's rising life expectancy and falling child mortality rates can be traced, in part, to the impressive reduction of absolute poverty achieved over the past two decades. Based on the \$2 a day (PPP) poverty line, Chile reduced its poverty headcount ratio from 18.8% to 2.72% between 1987 and 2009, a reduction of more than 86% (Table 3). In terms of regional performance, this puts Chile ahead of Brazil in terms of relative improvements in poverty (with Brazil achieving a 58% reduction over the period) and outperforming Argentina, which has seen its headcount ratio actually rise from 0.16% to 3.44%.

These improvements in absolute living standards, particularly in terms of child malnourishment, are likely to have contributed to the school-readiness of Chilean children, enabling them to take advantage of improvements in education quality.

Despite all of this progress, it should be noted that Chile still has high levels of inequality, which have been extremely persistent. In the period 1987 to 2009 the Gini coefficient (which measures levels of inequality) did fall slightly, but it remains above 0.52 – a level similar to that seen in Brazil but far higher than the level in Argentina. This pattern is repeated if we examine decile shares of national income. Those in the top 10% income bracket in Chile receive 47% of the country's total income, compared with 31% in the US (Sanhueza and Mayer, 2011: 171). Inequalities fuel, and are fuelled by, inequities within the Chilean education system, and are a major source of the tensions that have driven both student protests and system reforms in recent years.

Nevertheless, Chile has made considerable progress on a range of socioeconomic indicators over the past two

decades, with significant increases in GDP per capita and an impressive reduction in absolute levels of poverty as measured by income, and improvements in well-being, signalled by falling mortality and malnutrition rates.

These changes have played an enabling role in many of the reforms and improvements that have contributed to improved education quality.

Table 3: Poverty headcount ratio at \$2 a day (PPP), Argentina, Brazil and Chile, 1987-2009

	1987	1990	1992	1994	1996	1998	2000	2003	2006	2009
Argentina	0.2	2.51*	4	4.3	7.9	8	10.5	17.9	7.4	3.4
Brazil	25.5	30	30.3	29.2*	21.8	20.5	21.3*	20.6	14.4	10.8
Chile	18.8	14	9.3	8.9	6.5	6.2	5.6	4.9	3.2	2.7

*Note: *Indicates where data are from the nearest year.*

Source: World Development Indicators (WDI). Accessed September 2013 at: <http://data.worldbank.org/data-catalog/world-development-indicators>.

Chile

Five key ingredients for progress in education quality



A FOCUS ON TEACHERS

Better work conditions and security for teachers

Creation of the **National Teacher Evaluation Program** in 2003

LEARNING ENVIRONMENT

Teacher:Pupil ratio

1999 **1:32**

2010 **1:23.5**

Number of classrooms increased by... **1/3**

POLICY ENVIRONMENT

- Policy continuity due to political stability
- Consensus building
- Incremental change after Pinochet's dictatorship
- Feedback, monitoring and accountability

EXTENDING THE SCHOOL DAY

Additional teaching hours per year of primary school

Grade	Additional hours
3-6	+232hrs
7-8	+145hrs

1218 additional teaching hours per pupil across primary school

CURRICULUM REFORM

From rote to child-centred learning

Year	Textbooks	Students per computer
1989	2M	78
1997	7.3M	12
2000		78
2009		12



Sources: Brandt, 2010; OECD, 2004 | UNESCO, 2012: 122 | Brunner Report

Infogr8

3. What are the factors driving change?

This section examines four interlinked and mutually reinforcing factors that have contributed to improvements in the quality of education in Chile in the past 20 years:

- a political environment that prioritised education and a strong process of consensus-building that has, in turn, led to policy continuity based on evidence and feedback from the system
- a range of mutually reinforcing education interventions and reforms that have focused on quality, including investment in teaching–learning materials, curriculum reforms and longer school days
- improvements among the teaching workforce, including rebuilding morale through salary increases and improving quality through a combination of performance incentives, in-service training and pre-service training and certification
- strong government investment in education and, in recent years, the targeting of resources towards low-income students, with the use of additional resources underpinned by fiscal prudence and the evaluation of education programmes.

We focus our attention in particular on the policy-making environment and reforms of the 1990s and early 2000s. While policies that were implemented in the late 2000s are likely to have an impact on the future quality of education, we have limited our in-depth analysis to policies that have had a proven impact. For this reason we have focused relatively little on the reforms in early childhood education that occurred in the early 2000s (see Box 5) or on the creation of the comprehensive regulatory structure in 2011.

There is also a notable time lag between the implementation of policies and the appearance of improvements in student outcomes in national and international student assessments. There seem to be three reasons for this, working in combination. First, many of the programmes and policies examined here were implemented in a staggered and incremental manner and so their effects are likely to have emerged gradually. Second, many of the international assessments are conducted on secondary school students and so the impact of improvements at the primary level takes time to emerge, as students must pass

through the improved primary system and lower years of secondary before they take these tests. Third, alterations to systems and professional practices may require a period of adjustment for everyone involved before they become fully operational. Taken together, these factors explain the time lag in improvements in learning outcomes in Chile and why patience may be needed elsewhere when seeking improvements in education quality.

3.1 Emphasis on consensus in politics and policy

Four major features of the Chilean education policy-making environment in the 1990s and early 2000s have played a major role in driving progress in education: the status of education as a political priority; existing foundations of the system from Pinochet’s era; policy continuity and consensus-building; and the inclusion of feedback and accountability in the policy-making process.

3.1.1 Education as a political priority

Chile’s prioritisation of education quality was based initially on a reaction to the poor state of the education system following underinvestment in the 1980s and a new consensus on the importance of education to the future economy. It was maintained by regular and reliable feedback on the performance of the system and a conscious strategy to raise expectations among the public at large. This prioritisation was crucial: allowing an increasing flow of resources into the education sector after the contractions of the Pinochet era; justifying a shift away from the hands-off approach pursued by the Ministry of Education (MINEDUC) in the 1980s and towards a much more active and interventionist role; and creating the political focus needed for sustained reforms.

At the end of the 1980s, the Chilean education system was in a poor state, with growing inequities associated with Pinochet-era policies of decentralisation. The perception that the system was underperforming and that a more interventionist strategy was needed was particularly strong among the parties of the *Concertación* coalition, whose election in 1989 saw education become a major policy focus.

‘Progress in educational quality has not been driven by a single factor but is a combination of a number of things under a systems approach’ – Chile education specialist



University life in Santiago, Chile. Photo: © Francisco Osorio

The priority given to education quality was also a result of the broader discourse in society around globalisation and Chile's role in the global economic system. Interviewees for this case study emphasised the importance of the perception that Chile's future competitiveness in an increasingly globalised economy depended on having a highly educated, skilled and technically adept population. The creation of this labour force was, therefore, a priority for the nation in general and a focus for the education system in particular, driving curriculum reforms and pioneering efforts to integrate information and communications technology (ICT) and Internet usage into classrooms. Previous studies have highlighted the role of Ricardo Lagos, the first Minister of Education of the democratic era, and later President of Chile, in articulating this vision and placing education at the centre of the agenda of the first *Concertación* Government (Delannoy, 2000: 23; OECD, 2004:110).

The maintenance of education quality as a political priority throughout the 1990s and 2000s can be attributed, in part, to the continuous feedback on the system provided by SIMCE (OECD, 2004: 152) and a conscious strategy to raise expectations through participation in international

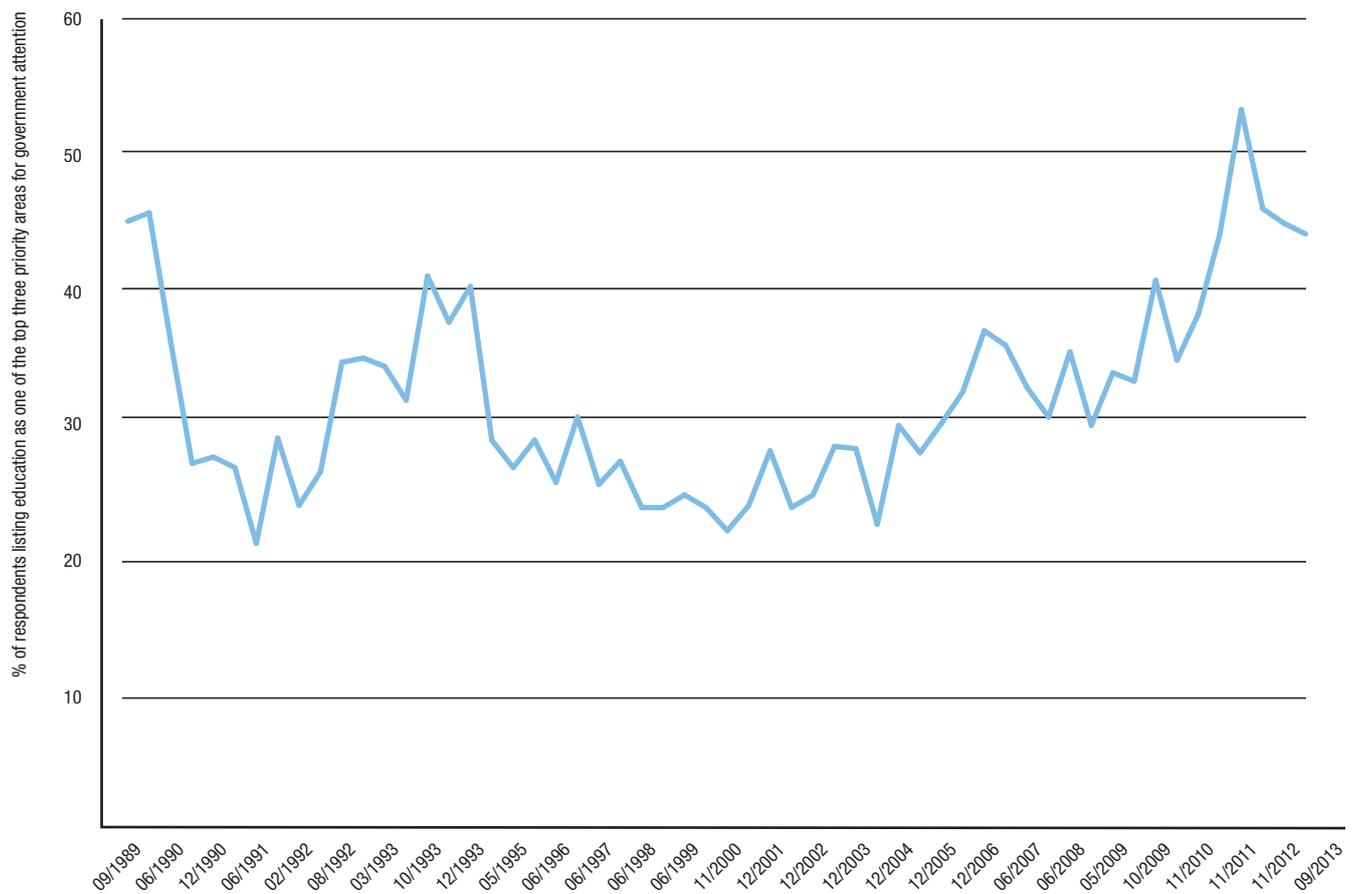
assessment tests (OECD, 2004: 60-61). These assessments provide a regular and widely accepted barometer of the performance of the education system and can be used, therefore, to scrutinise the educational track record of the sitting government, analyse its policies and test its overall commitment to improving education. Those interviewed for this case study saw participation in PISA and TIMSS, in particular, as a way to raise the bar by positioning OECD nations with advanced economies and long-established education systems as the benchmark for success.

Chile's poor results in the 1997 TIMSS and 2000 PISA tests, as well as the stagnation of its SIMCE results, proved a major spur to education reforms in the late 1990s and early 2000s. They also reinforced the earlier priority given to education quality and were used by the *Concertación* coalition and others to raise and maintain pressure on the education system to perform and reform (Arellano, 2001).

Long-term trends in education coverage and changes to the Chilean economy also helped to establish education as a high priority. The average level of education in Chile, as measured by crude years of schooling, has grown considerably over the past 30 years, creating a constituency of parents who are more educated, more familiar with

**'The connection between politics and policy is important to this progress story' –
Education Specialist**

Figure 9: Public perceptions of education as a priority area, 1989-2013



Source: CEP database, retrieved January 2014.

school systems and more likely to value education as a result. This has created political rewards for parties that compete and concentrate on this policy area, although the impact has not always been straightforward, as explored in the following sections.

In 1989, almost 45% of Chileans cited education among their top three priorities for the Government, a figure that has never dropped below 20% since that time (Navia, 2013). In Figure 9 one can see that that proportion has almost doubled over the past decade, from 22.3% in 2000 to 44% in 2013, according to survey results from the Chilean Centro de Estudios Público (CEP). In contrast, Eurobarometer data on the preferences over the same period found that the proportion exceeded 20% in only four European countries: Germany, Luxembourg, the Netherlands and Sweden.

Chileans are also broadly optimistic about the likely effects of reform – some 45.8% of respondents to the 2011 Latinobarómetro survey expressed a belief that the quality of Chilean public education would improve over the next 10 years.

3.1.2 Existing foundations from Pinochet era

Chile is a remarkable case of democratisation in Latin America. There was an elaborate negotiation of the transition to democratic rule and most of the major forces and actors from the military regime remained in place and, to a significant extent, in power well into the late 1990s. The Senate, in particular, was dominated by ‘Senators for Life’ appointed by the Pinochet regime until the introduction of democratic elections for the upper house in 2005. This meant that a significant and largely immovable block of right-wing and former regime supporters remained in the legislature, as well as in the committees responsible for approving alterations to the school curriculum.

The embedding of the market-based education system in constitutional law also presented formidable constitutional barriers to reform. The passing of the Organic Constitutional Law on Education on the last day of the Pinochet regime in 1989 meant that supermajorities would be required to make alterations to the basic structure of the education system. Taken together, these measures placed severe restrictions on the ability of Chile’s first democratic government to enact any significant education reforms

Box 3: The voucher system

One of the major reforms of the Pinochet era that still has impact today is the voucher system. Pinochet's policy-makers believed that the quality of education in state-financed primary schools would improve if education providers competed for students and parents had access to appropriate information to guide decisions on where to send their children to school. One major assumption was that competition would be based on education quality and on parental involvement in children's education and their capacity to evaluate alternative schools (Fischer et al., 2005).

With the administrative transfer of public schools to municipalities in 1980, the Pinochet regime introduced the voucher mechanism – also known as a subsidy/capitation grant. The new financing mechanism was demand driven, with MINEDUC paying schools a direct and fixed per-capita amount for every enrolled student attending class. This meant that the amount of funding each school received depended on the enrolment and attendance of students, the type of school and other factors.

One significant impact was the mushrooming of private education providers. The school-age population for primary and secondary remained unchanged at around 3 million children between 1980 and 2012 but the proportion of private subsidised schools within the education sector increased from 19% in 1980 to roughly 48% by 2011 (UNESCO datasets, accessed 2014). The evolution in enrolment rates has followed a similar pattern, with the number of pupils attending private subsidised schools increasing from 15% in 1981 to over 48% by 2008 (OECD, 2011). This increase occurred at the expense, for the most part, of municipal schools, whose share in enrolment decreased from 78% in 1981 to 43% in 2008.

The impact of the voucher system on Chile's education system is well discussed in the literature; the country is seen as a model case study, as private and public schools compete for both students and public subsidies (Bellei, 2005). There are limited data to support these findings, but there is some agreement that vouchers increased parental choice, as signalled by the rapid increase in private subsidised schools. However, the rapid increase in enrolments in private subsidised schools was driven mainly by students from middle and higher socioeconomic groups, who were more likely to migrate to these schools (McEwan and Carnoy, 2000; Torche, 2005).

There is also evidence that the voucher systems has resulted in 'cream skimming', with private subsidised schools selecting academically gifted students and those from families with middle and high economic status and excluding pupils with learning difficulties or from disadvantaged socioeconomic backgrounds (Bellei, 2009a). As a result the education system has become stratified by socioeconomic status, with low-income students becoming increasingly concentrated in municipal schools (McEwan and Carnoy, 2000).

without causing major political disruption and risking the stability of the state (Navia, 2013).

The importance of preserving political stability was felt particularly keenly in the early 1990s and should not be underestimated, nor its long-term impacts underplayed. The coup against President Allende in 1973 had been preceded by a long period of political instability and deadlock, which had been used to justify his removal. The possibility of a return to authoritarian rule should this instability be repeated in the 1990s was highly credible, given the continued presence of many figures from the former regime in public life. This fear of instability resulted in considerable risk aversion among *Concertación* politicians and had a dampening effect on reform attempts (Navia, 2013).

In addition, the *Concertación* coalition itself was not united on the need for structural reforms to the education system and, in particular, to the voucher mechanism. Several prominent education policy-makers were opposed to changing the underlying nature of the system, while advocating for reforms to improve its function. These divisions mirrored those found among the Chilean people, which made it difficult to translate the prioritisation of education into actual policy. The reforms of the Pinochet era had fragmented the users of the education system and meant that there was no clear consensus that the

Concertación coalition could draw on to strengthen the municipal education system or roll back the voucher mechanism (Pribble, 2013).

This situation made it virtually impossible to make any fundamental changes to the structure of the Chilean education system during the 1990s. The system remained largely untouched while reform efforts focused on areas where it was possible to secure mutual agreement and compromise. Interviewees for this case study noted that reforms were only pursued if and when they commanded widespread support, with any radical reforms to the structure of the system ruled out entirely. The legacy of this failure to enact structural change remains heavily contested and the voucher system, in particular, continues to act as a major political dividing line (see Box 3 and Section 4). However, the side-stepping of this debate on structural change may have created the political space for some reforms that did contribute to the improvement of education quality in Chile.

The immediate effect of this combination of restraints was the caution of the first *Concertación* coalition during the early 1990s. Apart from the restoration of employment rights and central wage bargaining for teachers in municipal schools (an issue examined later in this case study), the period 1990 to 1996 was characterised by

‘Unlike other countries in Latin America, political stability and continuity in Chile enabled curriculum reforms to be implemented fully’ – Chile education specialist

incremental and highly targeted education programmes that aimed to change informal practices rather than impose significant structural changes. Delannoy (2000) noted that the caution within MINEDUC was such that it was extremely unwilling to even use the word ‘reform’ to describe its policy changes. System-wide reforms did not occur until considerable groundwork had been undertaken and widespread support had been garnered.

3.1.3 Policy continuity and consensus-building

Building on the prioritisation of education, policy continuity and the process of building political consensus are two of the dominant features of the Chilean education policy-making environment over the past 20 years. In 2004, an OECD report stated that, ‘A striking feature of educational policy in Chile over the last 13 years is the continuity and consistency of policy that has prevailed over three governments and six ministers for education’ (OECD, 2004: 109).⁷

Policy continuity in Chile is linked to the political continuity provided by the electoral dominance of the *Concertación* coalition, with its two-decade rule from 1990 to 2010. This dominance created anticipation among *Concertación* politicians that they would hold power for some time, so they were willing and able to engage in long-term planning for reforms. It also gave opposition groups an incentive to engage with consensus-building, given their perceived inability to form their own government and affect policy reforms.

However, this political continuity is not enough, on its own, to explain policy continuity and progress in education. First, political continuity was more limited than it appears at first glance. During the rule of the *Concertación* coalition there were shifts in the balance of power between its constituent political parties and changes in which party held the Presidency under the coalition umbrella, moving from the Christian Democrats, with President Aylwin and President Frei, during the 1990s to the PPD with President Lagos in 2000 and the Socialist Party with President Bachelet in 2006. There was also considerable turnover within MINEDUC during the 2010 to 2014 administration of President Piñera, which saw four different Ministers of Education in as many years. Second, political continuity only ensures policy continuity where the dominant political force has a consistent idea of which policies to pursue and can implement these credibly, creating an expectation that they will continue.

It seems that it has been the process of building political consensus, rather than political continuity, which has played the key role in policy continuity in Chile’s education sector.

The consensus-building process around education policy in Chile is rooted in the experience of the Pinochet era and the gradual transition to democracy of the early 1990s, but has also been cultivated by the political strategies and choices of successive governments and education ministers. The process took place in the face of contentious debates around the education system, and there was no joint initial vision. The process also required *Concertación* to accept, however reluctantly, the structure of the system inherited from the Pinochet regime. As mentioned, changes to the fundamental structure of the education system were side-stepped in favour of negotiation and agreement on less contentious areas. Reform efforts in these areas were subject to considerable consultation, negotiation and scrutiny to ensure support from all major actors. This, in turn, contributed to policy continuity and improved long-term planning.

The main mechanisms used to build consensus between parties were large-scale consultation exercises and national education plans that brought together all the major actors and academic authorities of the sector to produce long-term proposals for reform. Two important examples are the National Commission for the Modernisation of Education (1994) and the Presidential Advisory Board on Quality Education (2006).

The National Commission laid the groundwork for the consensus and reforms of the late 1990s, and was set up by President Frei shortly before his election in 1994 (Delannoy, 2000: 24; OECD, 2004: 109). It brought together prominent individuals from across the political spectrum and Chilean intellectuals to produce a diagnosis of the ‘Challenges facing Chilean Education in the XXI Century’, a document dubbed ‘the Brunner Report’ after José Joaquín Brunner, Head of the Commission’s Technical Committee. The final report went through two consultation processes – one within each of Chile’s 13 regions and one that involved 10 key national institutions, including leading universities, the national police, private education providers, the Catholic Church and the Freemasons.

This process of building broad-based support was then channelled into a concrete political agreement. In January 1995, all political parties endorsed the Framework Agreement for the Modernisation of Chilean

7 In the decade since this statement was written, Chile has experienced a series of major student protests from 2006 onwards calling for radical changes to the education system, its first change of ruling political coalition in 2009 and an election in 2013 where the victorious candidate made education reform a tent-pole issue. There was significant continuity between the policy reforms of the pre-2009 *Concertación* Government and those of the Alliance for Chile Government of President Piñera.

Box 4: Reforms and the Teachers' Union

The policy consensus between political parties in Chile following the Pinochet regime was complemented by industrial peace between MINEDUC and the Teachers' Union. This stands in marked contrast to the depth of mistrust in the Pinochet era and can, to a significant extent, be explained by the systematic improvements in teacher salaries and working conditions secured by successive governments. The reinstatement of civil-servant status for teachers in municipal schools in 1991 created goodwill and was accompanied by significant pay increases that were sustained throughout the 1990s and into the 2000s (OECD, 2004: 47-49). Interviewees for this case study also noted that agreements on pay increases coincided with the beginnings of other major shifts in Chilean education policy concerning teachers.

The interviewees also flagged up the importance of personal relationships and historical connections between *Concertación* and the Teachers' Union. This was particularly the case with the passage of the SNED reforms (the National System of Performance Evaluation) in 1995, with the then-Minister of Education Sergio Molina having significant credibility among teachers, as well as with the Ministry of Finance. As a result, he was able to broker a satisfactory deal for both sides. The Teachers' Unions voted in favour of the introduction of performance pay systems, a measure strongly opposed by most unions internationally.

However, despite the lack of strong teacher opposition to reforms, one interviewee reported that the Teachers' Union still had a combative relationship with MINEDUC throughout this period and did not engage with the policy-making or national planning processes. The interviewee argued that the Teachers' Union had been largely passive and that more positive and active engagement would have produced better designed and more effective reforms.

Delannoy (2000) also noted, in the context of the 1997 launch of the Full School Day Programme to extend the length of the school day, that relations with the Teachers' Union had been damaged by MINEDUC's failure to consult adequately with teachers on some major elements of reforms (Delannoy, 2000:30) and Weinstein (2007) documents the often difficult process of negotiation and concession with the Teachers' Unions in the late 1990s and early 2000s.

Note: For further sources on the role of the First Teachers' Statute and the Teachers' Union more generally see Bellei (2001) and Mizala (2007).

Education, which contained most of the Brunner Report's recommendations. Delannoy (2000: 24) noted that this 'marked the peak of national consensus on what had to be done', from which 'some stakeholders, especially in the right-wing opposition, would later dissent'. The OECD (2004: 109) takes a more optimistic view of the work of the Commission, however, characterising it as 'a high-powered technical committee' and noting that, 'By skilful political action, a strong consensus was nurtured, even among the political opposition, to support the emerging strategic policy on education.' The final recommendations of the report and its subsequent agreements charted the pattern of reforms for the late 1990s and early 2000s, while confirming that the structure of the education system would not be fundamentally changed (Burton, 2009).

President Bachelet created the Presidential Advisory Board on Quality Education in 2006 to perform a similar, but broader role: first, to establish a new policy consensus on the challenges facing the Chilean education system; and second, to begin the process of incorporating the new student movement, composed largely of secondary school pupils, into the existing political consensus.

The movement, dubbed the 'March of the Penguins',⁸ came to prominence in 2006 with demonstrations, strikes and general unrest, and demanded radical reforms to the education system. Students focused on the increasing

inequity of the Chilean education system and on ending the market-based model of education. They wanted the revocation of the Organic Constitutional Law on Education, an end to municipal control of education, reforms to the Full School Day Programme and a guarantee of quality education for all. It was the strongest series of student protests for 30 years and posed a major challenge to the government of the day, leading to the creation of the Presidential Advisory Board.

The 2006 Presidential Advisory Board followed a similar model to the 1994 National Commission, bringing together the leaders of the new student movement and education experts from across the political spectrum, as well as parents, teachers, school owners, university rectors and representatives from civil society. The Presidential Advisory Board was less successful than its predecessor: it laid out a series of proposed reforms, including a full regulatory role for the Government, but its final form was watered down before its implementation by the incoming Alliance for Chile Government in 2009. This disappointed leaders of both the student movement and *Concertación*, who had favoured more substantial reforms, and limited the ability of the 2006 Presidential Advisory Board to integrate the student movement into the education consensus. Section 4 explores the growing challenge of maintaining consensus in education policy in more detail.

8 <http://www.theguardian.com/world/2006/jun/07/chile.schoolsworldwide>

3.1.4 Feedback and accountability

The effectiveness of Chile's education policy was greatly enhanced by the feedback provided by a culture of monitoring and evaluation within MINEDUC and the availability of external research and expertise to support policy design and implementation.

One positive legacy of Chile's reforms in the 1980s was the development of monitoring and evaluation requirements that were built into the design of all education programmes from the early 1990s. SIMCE made it possible to undertake broad evaluations of policies, and pilot programmes were used to identify and refine interventions. Therefore, policy-makers had access to significant amounts of information on policies at almost every stage of the process – enabling them to phase out or cancel ineffective policies, or, more commonly, modify them to ensure successful and widespread implementation. It should be noted, however, that the impact of these processes was more limited beyond the municipal school system. Until the establishment of the SEP (*Subvención Escolar Preferencial* – the Preferential School Subsidy) and regulatory frameworks in the late 2000s, MINEDUC lacked institutional mechanisms to control spending decisions within private subsidised schools. The adoption of many schemes and guidelines from MINEDUC by such schools was, in essence, voluntary.

The process of monitoring and evaluation was reinforced and focused by the Ministry of Finance, which examined the value-for-money of programmes implemented by all other departments. Interviewees noted that this relationship was largely non-confrontational and that it was productive for MINEDUC, which was forced to follow strict standards when it might not otherwise have done so. These components of internal learning and discipline created, therefore, a mechanism to ensure effective policy-making and implementation.

Policy-makers also seem to have benefited from access to external expertise and experiences, and demonstrated a willingness to learn from them. Chile has a significant number of well-respected universities and education research organisations, and its consensus-building strategies have helped to pull strong expert opinion into policy design through the emphasis on an objective scientific basis for changes around which different groups could coalesce. The extent to which policy-makers have exploited this resource was a point of some debate among interviewees for this case study, but it is clear that major national plans have had significant external inputs and that there is a tradition of rigorous external scrutiny of education policies. Interviewees also noted openness to international experiences and expertise, with the decision to involve the World Bank in the design and implementation of programmes in the early 1990s

motivated by a desire to learn from the Bank's experience in programme implementation, rather than a need to secure external funding.

3.2 Multiple efforts at quality reforms

A wide range of interventions in the Chilean education system over the past 20 years have focused primarily on improving the quality of education and the learning experience of students and have contributed to the raising of standards. While individual reforms have differed in their absolute impact on education quality, a number of respondents to this case study stressed that the transformation of Chilean education outcomes is seen as less the result of individual reforms than their cumulative effect, which has created an 'ecosystem' of mutually enabling and reinforcing reforms.

Reforms and programmes to improve the teaching and learning experience have spanned several distinct phases and forms. The early 1990s saw a series of programmes that aimed to improve access to basic education materials in schools (*MECE Básica*), which was followed by a major push in the latter half of the 1990s to integrate ICT usage (the *Enlaces* Programme). The late 1990s and early 2000s saw the gradual implementation of – and reforms to – the curriculum and moves towards more child-centred learning techniques. Alongside these reforms there was increasing use of the SIMCE national assessment tests to monitor student progress and allow teachers to adapt their teaching accordingly.

'The progress in education quality is due to long-term systems change' – Chile education specialist

3.2.1 Provision of textbooks

MECE Básica ran from 1992 to 1997 and aimed to ensure a minimum standard of materials and facilities within schools by expanding MINEDUC's role in direct provision.⁹ It specifically targeted basic components such as textbooks, classroom libraries and education materials; as well as more sophisticated and child-centred elements, such as programmes for preschool provision and school health care, and – a very ambitious objective for the era – futuristic programmes for IT training, computer provision and Internet access through the *Enlaces* Programme.

The impact of *MECE Básica* on state textbook provision, in particular, was dramatic. The number of textbooks distributed soared from 2 million in 1989 to 7.3 million in 1997 (Delannoy 2000: 16). By 1997, the programme had reached all students enrolled in Chile's primary schools and

9 Two targeted interventions in the early 1990s, *MECE Rural* and the P-900 schools programme also achieved positive effects by combining the provision of specialised materials with teacher support and training.

Table 4: Timeline of reforms

	Reform/improvement programme	Description
1990	P-900 (1990-post 2000)	School improvement programmes for schools performing poorly. This included support for school management, learning workshops and additional school material and technical assistance for teachers to improve teaching in languages and mathematics.
	<i>MECE Rural</i> (1990-post 2000)	Training opportunities and improvement programmes for rural schools with curricular and educational materials.
1991	First Teachers' Statute	Restored central bargaining and civil-servant status for teachers in municipal schools, improved their working conditions and created minimum salary guarantees – the start of a series of significant increases in teacher salaries.
1992	<i>MECE Básica</i> (1992-1997)	The central provision of certain education materials to all state-funded schools, including basic components, such as textbooks, classroom libraries and education materials.
	Teacher training (1992-2002)	Institutional and curriculum renewal at training institutes, including overseas fellowship opportunities and curricular training.
	<i>Enlaces/Information technology</i> (1992-post 2000)	A programme for IT training, computer provision and improved Internet access.
1993	Top-up fee introduced	All secondary schools and private subsidised primary schools were permitted to charge direct fees to students to top-up the capitation grant. Fees were limited by reducing the capitation grant proportionally once the top-up fee was above a fixed threshold.
1995	SIMCE Reform	Alterations in testing methods to better fit with curriculum reforms and increased availability of data at the school and classroom level.
	Second Teachers' Statute	Increased flexibility of hiring, firing and deployment regulations for municipal schools and introduced a collective performance-related pay scheme – the <i>Sistema Nacional de Evaluación de Desempeño</i> (SNED).
1997	Curriculum reforms (1997-2002)	Phased shift towards child-centred learning methods and a concentration on student competencies and ability to apply knowledge practically. Changes were compulsory for all schools receiving public funding but schools could develop their own content within the national curriculum guidelines. Large-scale central provision of teacher training.
	Full School Day reforms (1997-2006)	An infrastructure improvement programme to move away from two 'shifts' and increase the hours of instruction for students.
2003	National Teacher Evaluation Programme	Multi-faceted assessment system established for all teachers in municipal schools. Teachers to be evaluated at least once every four years. High performing teachers become eligible for a series of performance-related incentives and peer-training schemes. Low performing teachers must retrain and can be made redundant for repeatedly poor performance.
2008	<i>Subvención Escolar Preferencial</i> (SEP)	Additional resources for schools with low-income students. The resources follow the student. It is envisaged that this will improve access for these students.
2011	National System of Quality Assurance	Creation of a comprehensive national regulatory framework to regulate the quality of Chilean education as legislated for under the 2009 General Law on Education. Comprises the <i>Consejo Nacional de Educación</i> (regulates national curriculum and standards proposed by MINEDUC), the <i>Superintendencia de Educación</i> (conducts inspections and ensures school compliance) and the <i>Agencia de Calidad de la Educación</i> (responsible for evaluating student outcomes and the performance of schools and school administrators).

the range of textbooks had expanded to include Spanish language, mathematics, science, English and history, along with school libraries to enhance literacy (OECD, 2004).

The evidence from the literature on resource expansion and the provision of textbooks has revealed that these elements alone generally have little or ambiguous impacts on education quality (Glewwe and Kremer, 2006; Glewwe et al., 2011; Kremer and Holla, 2009). It also suggests, however, that positive and cost-effective results can be

found in systems with a low initial level of resources, and in circumstances where textbooks are well designed with appropriate content, and particularly where provision is combined with pedagogical and methodological training (Banerjee and Duflo, 2011: 94; DFID, 2010; UNESCO, 2005; Freeman and Faure, 2003). These resource increases occurred in Chile at a point where the education system was relatively under-resourced, and were followed by widespread teacher training and considerable reforms to the

curriculum, which suggests that this combination of factors has contributed to improving the quality of education.

3.2.2 Increase in information communication technology

The pace of the introduction and integration of ICT into Chilean education has been nothing short of remarkable. Chile went from being a country with little or no ICT in its schools to being a pioneer in a relatively short period, with levels of computer and Internet access rising from a low base in the early 1990s to just below the OECD average by 2000; easily outstripping those of countries at a comparable income level (Cox, 2004: 8-10). The *Enlaces* ('Linkages') programme was the main mechanism for this transformation.

Enlaces was originally a component of *MECE Básica*, but its implementation continued well into the 2000s after *MECE Básica* was discontinued. The programme installed school computer laboratories with local network connections, educational and productivity software and, in most cases, unlimited Internet access to specially created educational content. It also dedicated 20% of its programming to providing two years of training for teaching teams in basic ICT skills and created a university partnership scheme to give teachers access to technical and pedagogical support (Hinojosa et al., 2003: 2; OECD, 2004: 24-26). This design addressed the need identified in much of the literature for adequate infrastructure and technological literacy in enabling successful use of ICT (see Glewwe and Kremer, 2006; Glewwe et al., 2011; Kremer and Holla, 2009).

Enlaces has achieved an impressive expansion in coverage and teacher computer literacy.¹⁰ Early impact evaluations have also found positive results,¹¹ suggesting that *Enlaces* may have played a contributing role in improving education quality in Chile. However, later studies (see OECD, 2004: 27-28) have noted limitations, such as the continued low level of ICT integration into the curriculum and the underutilisation of ICT in school management and administration.

3.2.3 Curriculum reforms and child-centred learning

Chilean teaching practices in the 1980s and into the 1990s were characterised by traditional knowledge transmission methods and rote learning, with the curriculum similarly concentrated on the facts and information students were required to absorb (Delannoy, 2000: 16).

In the early 1990s, programmes such as P-900 and *MECE Rural* began a piecemeal shift towards child-centred learning, with some success through their teacher training components. Major alterations in teaching practices did come, however, with the implementation of curriculum

reforms over 1997-2002 as part of the Full School Day Programme, discussed more fully below.

The new curriculum focused on improving students' higher order skills and their ability to apply their knowledge practically. In a major break with other education policies in the post-Pinochet period, it also created and enforced compulsory content and learning objectives across all forms of schools within the education system. Both the curriculum and the series of model courses prepared by MINEDUC proved popular with schools, with only 14% of schools (largely private or private subsidised) opting to design their own courses (Delannoy, 2000: 26; OECD, 2004: 28).

Uptake and implementation of the reformed curriculum was enhanced by a range of other policies. The Full School Day Programme introduced in 1996 allowed teachers additional time to plan lessons and so adapt them to the new curriculum, while teacher retraining served a range of supporting functions, such as informing teachers about the new curriculum, improving their ability to implement child-centred teaching methods and augmenting their knowledge of subject content.

However, interviewees for this case study noted that changes in the taught curriculum and teaching techniques were gradual, and that the shift was consolidated only as teacher cohorts with pre-service training in the new teaching methods began to enter the profession. Long-term policies to expand the teaching workforce and improve teacher skills were also enabling factors for curriculum reforms. Better use of scarce resources can also be seen in the gradual implementation of curriculum reforms at the rate of one grade per year. This made it possible to concentrate available resources for teacher retraining and the development of teaching materials on a single grade of teachers at a time, maximising training time and exposure to new methods and materials, and leading to more effective implementation overall.

The combination of Chilean curriculum and pedagogy reforms with the expansion of school resources, extensions to the school day and attempts to expand and improve the teacher workforce that occurred during the 1990s would be anticipated to have had a strong effect on education quality.

3.2.4 Use of national assessment tests

The SIMCE assessment tests have played a role in improving teaching at the municipal, school and classroom level as well as in formulating national policies. Although the system was first implemented in 1988, there were tight restrictions on the disaggregation of data and opposition to greater transparency. This persisted until the mid-1990s, with performance data available only at the municipal

10 By 2005, *Enlaces* covered 88% of students in publically funded Chilean primary schools, and by 2004, some 83% of teachers had been trained in basic ICT use (Hinojosa et al., 2005: 247).

11 See Alvarez et al. (1998) on softer measures such as self-esteem, independent learning and student-teacher relationships and Núñez (1995) on dropout rates and improved achievement among slow learners.

level. In 1995, the system was altered significantly, partly to adapt to changes in the school curriculum, and data became available at the level of schools and classrooms for the first time (Delannoy, 2000: 9; OECD, 2004: 87).

Interviews for this case study indicated that access to this detailed and regular indicator of education quality allowed municipalities and schools to tailor their resource distribution and teaching methods to improve the learning experience of students. However, they noted that the impact of the data depended heavily on the presence of skilled administrators and teachers. Larger municipalities and better-resourced areas were best placed to take advantage of these opportunities, while smaller municipalities and schools were often unable to conduct meaningful analysis.

The nature of the SIMCE test also limits its usefulness for improving teaching practices. Although both formal and informal testing is useful for teachers and schools to adapt teaching methodologies to students' needs (DFID, 2010), systems that can track student progress and provide feedback to students are considered among the most effective (UNESCO, 2005; Kremer and Holla, 2009; OECD, 2012). Although SIMCE can now track progress by cohort and analyse school value-added at this level, it does not publish or provide schools with student-level performance data and so cannot provide individual tracking or feedback.

3.2.5 The Full School Day Programme

The 1996 Full School Day Programme was seen by many interviewed for this case study as a lynchpin through which many other reforms and adjustments have been made more effective. The programme was named for one of its major reform elements – the compulsory lengthening of the school day in all publicly funded primary education facilities. Students would now attend school for a full day, with the previous morning and afternoon shifts combined into one single shift. This meant the extension of the school day from two shifts of six class periods (each lasting 45 minutes) to eight consecutive periods. In terms of additional hours, this, when combined with extensions to the school year, led to an additional 232 hours of schooling every year for students in Grades 3-6 and an extra 145 hours in Grades 7-8, which was then part of primary schooling (OECD, 2004: 30-31).

The reforms benefited in part from the incremental policy changes the Government had made in the early 1990s – particularly P-900,¹² the Rural Programme and *MECE Básica*, which had all trialled, tested and adapted elements that were subsequently incorporated. The Full School Day Programme was introduced gradually, initially

with schools that had the available infrastructure to cope with the de facto increase in the number of pupils in attendance. These were often municipal schools that had seen a significant decline in student populations in the preceding years. The expansion of the programme into other schools required the largest investment in school infrastructure in decades and raised the operational cost of public education by almost 25% (Bellei, 2009b). It was also associated with a 33% increase in funding for primary schools in terms of new infrastructure and teacher salaries (OECD, 2004: 31).

Increased learning time has been closely linked to improvements in student achievement in a range of subject areas in studies that concentrate on both inter- and intra-country variations (UNESCO, 2005; Glewwe et al., 2011). While the extension of school hours was intended to have its primary effect directly on students through additional class time, it also had secondary aims. The extended school day aimed to facilitate implementation of the new curriculum by allowing more time for the development of complex knowledge and skills. The disproportionate expansion of paid teaching hours alongside school hours was also intended to allow more time for the lesson preparation and planning that were necessary under the new curriculum. Secondary effects were supposed to improve the performance and equity of education among students by allowing more extra-curricular activities and access to school facilities for students and teachers outside regular classroom time. This would give students a place to study away from the potential difficulties associated with working at home. Students from poor groups, in particular, were expected to benefit (OECD, 2004: 31).

Empirical impact analyses have, in general, vindicated the expectations of the programme designers, with positive and significant findings in terms of test scores. Bellei (2009b) estimated the impact on student scores in the national SIMCE assessments of shifting to the full school day at an average of 3.5 points for mathematics and 2.45 points for language, representing 0.07 and 0.05 standard deviations, respectively. Contreras and Rau (2012) and Pires and Urzua (2011) also found positive effects of 0.06-0.07 standard deviations and 0.1 standard deviations, respectively. There were also broader social impacts, with Pires and Urzua (2011) finding sound evidence of reduced rates of adolescent motherhood, a lower likelihood of an individual being arrested and decreased dropout rates. The probability of college enrolment also increased, and students who had once been in the afternoon shift, in particular, experienced improved employment prospects and higher wages.¹³ Research has also indicated that

12 The P-900 Schools Programme ran from 1990 to 2000 and initially targeted the worst performing 10% of primary schools (900 of 9,000), as measured by the SIMCE. It provided learning materials as well as support for teacher-learning workshops, school management and technical assistance focusing on language and mathematics.

13 The authors point to psychological and biological studies that suggest teenagers are more effective learners in the morning to explain the improvements experienced by the afternoon shift in particular.

Box 5: Promising growth of early childhood care and education

Early childhood care and education has a long tradition in Chile. Kindergartens became popular in the early 20th century, and the foundation of JUNJI (*Junta Nacional de Jardines Infantiles* – National Nursery Schools Council Programme) in 1970 was intended to begin a system of universal state provision. However, during the Pinochet regime, the focus shifted away from public provision of early childhood education and towards a safety net system for child health and nutrition. Funding cuts led to cuts in professional staffing, resulting in increases in pupil-to-teacher ratios and a reliance on unqualified auxiliary staff. Attempts to reform this system were fairly muted in the early 1990s, with efforts concentrating on improving coordination between agencies, tightening regulations on staff training and skills and some dedicated funding for expansion under *MECE Básica*.

Major reforms came only in the early 2000s, with the creation of a competency-based early childhood curriculum and an accompanying push towards the retraining and professionalisation of staff. There was also an explicit political commitment to the expansion of enrolment, with a particular focus on marginalised groups. This was achieved through the construction of 800 state day-care centres and a targeted expansion of the voucher system to provide free day-care places for children aged 0-3 years from the poorest 40% of households. This was associated with impressive increases in gross pre-primary enrolment rates from 77% in 2002 to 106% in 2010. However, despite these improvements, serious concerns remain about the coverage of early childhood education among children aged 0-3 and the overall quality of the Chilean preschool system.

Early childhood was the Bachelet Government's priority in education before the rise of the secondary school students' movement in 2006. Although the long-term impacts of these policy changes are likely to be positive, the relative lateness of reforms and the need for further improvements mean that there has been limited impact on the wider system to date.

Sources: OECD (2004; 2011); Umayahara (2006).

the impacts were remarkably pro-poor, with the largest improvements in results found for rural and municipal schools, as well as among disadvantaged groups that would not have attended the full school day without the programme. Bellei (2009b) estimated the additional impact on SIMCE results for rural and municipal schools at 7 and 5 points, respectively.

In addition, the phased approach to the introduction of the programme made it possible to spread the cost of these changes without leading to overcrowded classrooms. The coordination of the reforms with the increase in recruiting, associated with improved teacher salaries and conditions in the early 1990s, allowed Chile to keep pupil-to-teacher ratios down. The changes in the curriculum that came with the Full School Day Programme and the creation of teacher incentives to engage in retraining also enabled an up-skilling of the existing teacher workforce, as discussed below; while Chile's effective economic and fiscal management, explored in Section 3.4, enabled sustained financing.

3.3 Teacher professionalisation and conditions

The broad strategy of teaching profession reforms in the 1990s and 2000s focused initially on rebuilding the teacher workforce by improving morale, instilling professionalism and increasing teacher numbers following their collapse under the Pinochet regime. Later reforms concentrated on improving the quality of teachers through a combination of performance incentives, improving the quality of new teachers through pre-service training and certification, and in-service training to improve teacher skills. These initiatives have been a success on their own terms, as well as a major

enabling factor for other reforms, although considerable improvements are still needed, as Section 4 explores.

3.3.1 Rebuilding teacher morale

The morale of the teaching profession in Chile was low at the beginning of the 1990s, as was the status of the profession in wider society (see Avalos and Assael, 2006). The actions of the military regime in the 1980s left the teaching profession traumatised and created an atmosphere of fear and distrust between government and teachers. It also had a negative impact on the number and quality of teachers attracted to the profession.

In 1981, the Pinochet regime transferred responsibilities for education provision to municipalities, at the same time removing teachers' status as protected civil servants, moving against the Teachers' Union and ending central bargaining agreements. Teachers faced a fragmented and uncertain labour market in which municipalities set wages and conditions and controlled hiring and firing (Delannoy, 2000; OECD, 2008). An atmosphere of oppression was also created, with teachers increasingly dismissed for political reasons or other factors unrelated to their performance (Avalos and Assael, 2006). In addition, teacher salaries fell by 20%-40% in real terms between 1981 and 1990 and the minimum entry requirements to become a teacher were downgraded from university to tertiary level. There was also a consistent lack of central programmes or support for professional development, with the assumption being that market forces would lead schools to engage in this work themselves (Delannoy, 2000).

These factors combined to create a crisis of morale, risk aversion in the profession and a general decline in

professional standards, skills and status; over 1980-1994 the number of students training for a career in education fell by roughly 43% (Ormeño, 1996).

The rebuilding of teacher morale was, therefore, a major priority in the early 1990s. The 1991 Teachers' Statute reinstated all teachers employed in municipal schools as public servants and largely reversed the Pinochet reforms for this group. Central bargaining for wages was reinstated, teachers were granted life tenure and protection from unfair dismissals, and strict conditions of service (i.e. number of working days, maximum working hours, vacations, etc.) were put in place (Cox, 2006). Minimum salary guarantees were also implemented and average teacher salaries rose substantially. Real wages for municipal teachers rose by 145%-170% over the 1990s (OECD, 2004), and while these increases slowed in the 2000s they still by far outstripped average real wage growth in the economy (Mizala and Schneider 2014). Comparing teacher salaries to GDP per capita, Chilean teachers became better off than their counterparts in almost all developed and developing countries, with the Chilean ratio at 1.68, compared with the OECD average of 0.97, 0.86 in Argentina and 1.19 in Mexico (OECD, 2004).

It is notable, however, that the pre-Pinochet system has not been wholly reinstated, with hiring decisions remaining with municipal authorities and subsequent labour market reforms introducing greater flexibility for teacher deployment.

Although the 1991 Teachers' Statute was heavily debated at the time, it is generally argued that – together with subsequent increases in teacher pay – it has played a key role in reconciling the teaching profession with state leadership and ensuring teacher cooperation with reforms (Cox, 2006). Rising teacher morale and pay were also associated with an increase in both the quantity and quality of applicants to the profession (Mizala and Romeguera, 2005: 115; OECD, 2004).

Research from TIMSS has shown considerable improvements in the confidence of teachers, with the percentage reporting a lack of confidence in their teaching skills falling from 24% in 1999 to only 11% and 13% for mathematics and science, respectively (IEA, 2012a,b). Teachers in Chile are also more qualified than the average for their international counterparts, with 81% of teachers possessing a university degree and only 10% possessing just a post-secondary education, compared with a world average of 57% and 15%, respectively. These increases in numbers and teacher quality were both key enabling factors for a range of other reforms.

3.3.2 Performance incentives for teachers

Teacher performance incentives were introduced in two waves, the first in 1995 and the second in 2003, with a general consensus from impact evaluations that they have had a positive effect on education quality, as explored below (OECD, 2004).

In 1995, the Second Teachers' Statute implemented the *Sistema Nacional de Evaluación de Desempeño* (SNED), a collective form of bonus system allocated by schools on the basis of school SIMCE scores. Schools opt into the programme and are divided into homogenous groups within regions based on socioeconomic and rural/urban characteristics. They then compete every two years to improve SIMCE scores, with prizes allocated between the most improved schools up to the point where they account for 25% of total group enrolment.¹⁴ This means that groups with large numbers of small schools have the same incentives as groups with small numbers of large schools, rather than limiting the prizes to a set number of schools, which would produce different incentives for each group.

The prizes are substantial, with teachers from winning schools awarded a bonus equivalent to an additional month's salary for each teacher for a two-year period. Although the collective nature of the award means that the link to individual effort is weak, impact evaluations have found the results to be positive and analysis of secondary sources suggests that this may have been one of the most cost-effective initiatives of this period (see Table 7). However, evaluations also suggest that schools that lose repeatedly will stop competing, leaving improvements concentrated among the schools that win.¹⁵

The second wave of teacher performance incentives came with the creation of the National Teacher Evaluation Programme in 2003 and concentrated specifically on teacher skills, rather than creating a direct link between student performance and teacher pay. The programme was developed in 2001, initially on a voluntary basis with teacher self-evaluation. It was then piloted on a mandatory basis in 2003 with teachers from a sample of 6,000 primary students in 31 municipalities, before becoming compulsory for all municipal schools and teachers from 2005 under Law 19933, passed in 2004.

Under Law 19933, every teacher must be evaluated at least every four years in a multifaceted approach that includes self-assessment, peer and supervisor review and examination of a portfolio of teaching materials consisting of lesson planning and evaluation as well as a one-hour video of classroom teaching. Those performing below standard are reassessed the following year, while those who achieve the basic level are assessed again after two years. All teachers falling into these categories are offered

14 This was raised to 35% of enrolment in 2005.

15 Contreras and Rau (2012) produced a conservative estimate of SNED impact as an additional 0.15 standard deviations in mathematics results and 0.05 standard deviations in language results. See also Contreras and Rau (2011), Contreras et al. (2003) and Mizala and Romeguera (2005).

pedagogical training, for which municipalities are given the necessary funding. School principals are also empowered to dismiss any teacher who fails to achieve the basic level for three years in a row. Teachers who are rated ‘competent’ or ‘outstanding’ are able to take further tests in their pedagogical and subject area, which will, if they perform well, enable them to receive the Variable Incentive for Individual Performance – representing an increase in salary of CLP 46,000 per month (\$83.30¹⁶) that lasts between two and four years, depending on the teacher’s test results.

Later innovations include the Pedagogical Excellence Allowance and incentives for peer training. Teachers performing at a high level in this evaluation receive salary bonuses and the opportunity to train other teachers in return for a salary increase as part of the *Maestro de Maestros* programme. These innovations were accompanied by a general increase in the level of teacher bonuses, with greater increments for teachers in schools with higher shares of poor students (OECD, 2011). There are a number of other incentives for teachers to undertake training and certification that, taken together, add up to CLP 110,000 per month (\$199) on top of the basic teacher salary – a substantial sum.¹⁷ It should be noted that despite attempts to link salaries more closely with performance, the main incentive continues to be length of service and seniority.¹⁸ Nevertheless, performance-based pay plays an important role in Chile’s education system, with salary elements related to special efforts and performance amounting to almost 40% of teachers’ pay (Brandt, 2010).

3.3.3 In-service training and teacher up-skilling

Teacher training and professional development has been a key feature of educational reforms in Chile since the 1990s. These reforms have used three strategies to improve teaching skills: learning workshops and collective reflection; short courses at specialised institutes to master the new curriculum introduced in 1997; and indirect support and investment for teacher training centres (OECD, 2004).

Learning workshops and collective reflection activities were piloted in Chile in the early 1990s as part of *MECE Rural* and P-900, both of which targeted marginalised communities or poorly-performing schools. Teachers from neighbouring schools were organised into peer groups to receive training, discuss problems and develop teaching strategies. The success of these programmes was followed by expansion of these strategies to a broader network of schools in the mid-1990s as part of the PME (*Programa Proyectos de Mejoramiento Educativo*) MINEDUC plays an oversight role and provides documentation and supervision support. These peer development and learning

techniques have been well sustained and Cox (2006) argues that they have played an important role in empowering individual educational institutions to improve teacher skills and educational quality through a bottom-up approach.

A more centralised approach to improving teacher skills was introduced in 1997, mainly to complement the Full School Day Programme and the implementation of the new curriculum. This was the single largest programme to improve teacher quality in Chile, aiming to upgrade teacher skills at all levels of primary and secondary education in line with the adoption of the new curriculum. The upgrading process was voluntary and funded by MINEDUC, meaning it was free for both teachers and their schools. It included a 70-hour course in the summer holidays and upgrading activities in the winter months, particularly for teachers in subject areas where the curriculum reforms have been complex (OECD, 2004). Interviewees for this case study noted an ongoing debate over the effectiveness of this training, but it seems to have been an effective way to familiarise teachers with the new curriculum. From 2000 onwards, there was an increasing emphasis on providing more intense, practical and classroom-focused training (Cox, 2006).

These strategies are in line with those found to be most effective internationally, including the importance of school-based in-service training (UNESCO, 2005) and the focus on professional development that contains an emphasis on improved pedagogy and raising teachers’ specific subject knowledge alongside improvements in provision of materials (Abeberese et al., 2011; Angrist and Lavy, 2001; UNESCO, 2005; Glewwe et al., 2011; World Bank, 2012). However, as indicated in interviews with sector specialists, these strategies will take time to produce long-term results.

3.3.4 Pre-service teacher training and certification

Attempts to improve the quality of teaching staff entering the Chilean education system have gone through three distinct phases. The first was the long-term and successful endeavour to improve the attractiveness of the teaching profession. An additional element of this strategy was to attract a higher quality of students into teaching careers using grant schemes for high-performing students entering university. This increased the number of students applying for teaching degrees at university, with applicants to these courses outnumbering applicants to study engineering (previously the most popular course) in 2002. It also raised the quality of applicants.

The second phase began in the late 1990s with attempts to improve the quality of pre-service training at the same time as

16 All currency conversions correct as of 22 May 2014.

17 Other elements of the system include incentives to work in geographically and socially difficult locations (CLP 80,000 per month, or \$145) and to move from the classroom into a management or technical role (CLP 55,000 per month, or approximately \$100).

18 A teacher with 30 years’ service can receive an additional CLP 275,000 a month (approximately \$500).

adapting it to the needs of the new curriculum. MINEDUC set up a competitive process for pre-service training and awarded contracts of \$1.7 million per annum to 17 Chilean universities¹⁹ over 1997-2002 to design pre-service training courses for teaching applicants (Brandt, 2010; OECD, 2004). Although pre-service training is generally recognised as less effective than its in-service equivalents, these changes have at least contributed to the improved implementation of curriculum reforms and the dissemination of more child-centred learning techniques and attitudes.

The third stage came in the mid to late 2000s and represented a policy shift away from broadening the pool of applicants or improving their skills and towards filtering out those below the expected standard. This was done in a gradual manner using a certification scheme that was initially voluntary but later made compulsory. Incentives were originally introduced for students to voluntarily complete accredited teaching courses, offering a salary bonus once they joined the profession. This then shifted to a policy of compulsion, with only those students who had completed accredited courses allowed to become teachers. Plans to expand this quality control process were initiated in 2011 to create a formal teacher training exit exam,²⁰ which, once enacted, will be compulsory for all those graduating and seeking to work in publicly funded schools.

The gradual transition from rewards and voluntarism to compulsion over a number of years gave actors in the system time to adjust to higher standards while generating the incentives for them to do so.²¹ It also enabled the introduction of a significant amount of quality control with relatively little disruption in terms of a sudden reduction in teacher graduation rates.

3.3.5 School and workforce management

Since the reforms of the early 1980s, Chile has had a highly decentralised model of school management, with considerable power being invested at the level of both the municipality and the school principal. However, a number of central programmes have had a material impact on day-to-day school management, through improving management skills, changes in teacher numbers and working conditions, and the compulsory extension of the school day.

Attempts to improve school management skills were first implemented as an element of the P-900 schools programme across 1990-1999. Teachers and principals received training on how to diagnose and solve

administrative problems, as well as assistance in developing peer support networks to enable them to share experiences and solutions. This assistance was voluntary and targeted the bottom-performing 10% of schools as measured by SIMCE.²² Many of these schools were in extremely poor or rural areas that lacked the municipal capacity for effective management, so the upgrading of skills was an important element among the range of mutually reinforcing interventions incorporated in the programme. Impact evaluations of P-900 have, in general, shown positive results on schools while they were actively involved in the programme and a notable narrowing of the performance gap between P-900 schools and the national average. However, impact estimates have varied widely between studies and there is a consensus that improvements were not sustained once support was withdrawn.²³

From the mid-1990s, attempts to improve school management were broadened, with two resources made available to all schools on a voluntary basis to establish school-based education projects: the *Proyecto Educativo Institucional* (PEI) and *Programa Proyectos de Mejoramiento Educativo* (PME). These gave schools funding and technical support to form internal teams to engage in education projects that would improve the quality of education, with the impact being gradual and cumulative rather than dramatic.

There have also been moves to improve the management of the workforce in terms of deployment and discipline. The reversal of the 1980s reforms as part of the First Teachers' Statute in 1991 created a rigid set of regulations on how municipal schools treated and deployed teachers, while private subsidised schools continued to enjoy considerable freedoms. By the mid-1990s it became clear that rules on teacher redundancy and redeployment were too rigid, as the existing statute made it difficult for municipalities to adjust the teaching body as enrolment levels changed, leaving municipalities with a fixed cost structure based on centrally determined salaries and teachers' job tenure but variable incomes based on attendance (Delannoy, 2000).

The Second Teachers' Statute in 1995 introduced greater flexibility for both redundancy and redeployment, making the management of the school workforce much simpler for municipal schools. Greater flexibility has also been introduced with the creation of the National Teacher Evaluation Programme, while incentives for teachers to

19 MINEDUC set the parameters for these courses and the institutions involved were expected to demonstrate strategies to link faculties and research centres across the different disciplines and the school system (OECD, 2004).

20 As with the accredited courses, those with high scores will receive salary bonuses.

21 The following sections provide further details of these reforms.

22 P-900 was aimed initially at the bottom 10% only, but was subsequently expanded to include rural schools and those in disadvantaged areas. The intention was for schools to receive support for several years until they graduated from the programme by achieving SIMCE results above the regional average.

23 Cox (2004) found a particularly strong impact of an additional 10 SIMCE points in language and 12 in mathematics, with similar findings in Delannoy (2000). Chay et al. (2005) found a far more modest impact, roughly equivalent to 2 SIMCE points.

seek deployment in remote and marginalised areas have also been built into the various performance pay schemes noted in the previous section.

3.4 Investment and targeting of financial resources

A country's economic, political and social conditions serve as an important backdrop to its education system, influencing students, schools and education policies (Vegas and Petrow, 2008). Globally, student performance in international test scores – and hence quality – is higher in wealthier countries, but there is a weak link between educational spending as a percentage of GDP and student performance (Hanushek and Luque, 2003; Hanushek and Kimko, 2000; Pritchett and Filmer, 1997). However, the evidence is heavily skewed towards developed countries; the evidence base for developing countries is much weaker because of data and analytical limitations (Hanushek and Wößmann, 2007). However, in countries with open and growing economies – like Chile – globalisation raises the demand for skilled labour (Vegas and Petrow, 2008).

In the context of Chile, resource injections into basic education have been an important driver of improvements in education quality for several reasons. Resources were essential to reverse the impact of two decades of budget cuts and underfunding in the sector. These resources were targeted at reforms with a significant bearing on learning outcomes, including increasing instruction time through the full school day reforms and other quality improvement efforts. And the funds enabled the institutionalisation of policy reforms by addressing the legitimate concerns of important stakeholders, such as teachers.

This section outlines the evolution of economic growth and government revenues, followed by a discussion of public expenditure on education and Chile's unique funding mechanism – the voucher system – and its impact on education quality, before discussing other reforms and their cost effectiveness.

3.4.1 Overall economic growth

Chile's economic performance has been impressive over the past three decades, lifting millions out of poverty and outperforming most countries in the region, as already discussed. In 1973, the autocratic regime led by Pinochet seized power, at a time of significant macroeconomic imbalances, which it attempted to correct through restrictive monetary and fiscal policies. The regime had some success in controlling and reverting major macro disequilibrium but unemployment and inflation remained high in this period (Jadresic and Zahler, 2000). In the second half of the 1970s

and in the 1980s the policies of the military regime went further than macroeconomic stabilisation, introducing major structural reforms and transforming Chile's economy and education system in the process.²⁴

When the political landscape in Chile took another turn in 1990 with the election of a new Government – the *Concertación* coalition – a high priority was placed on overall macroeconomic equilibrium and getting to grips with inflation (Jadresic and Zahler, 2000; Schmidt-Hebbel, 2009; World Bank, 1990). In addition, the new Government maintained and improved the fundamental structural reforms initiated during autocratic rule; trade reforms were extended, education and privatisation reforms were deepened, integration with international financial markets increased and efforts to modernise and improve the efficiency of the judicial system were introduced (Jadresic and Zahler, 2000).

'Within the budget, education was prioritised but fiscal responsibility was also important' – Government Finance Official

Between 1984 and 1997, Chile's economy grew at an annual rate exceeding 7%, outpacing other countries in the region. This rate has slowed, averaging just 3.8% across 1998-2012, although this figure is skewed by crisis years with growth rising to an average of 5.7% in 2010-2012. Annual growth rates for the Latin America and Caribbean region as a whole averaged 3% and 4.3% across these respective periods (World Development Indicators). As in many other OECD economies, services have accounted for around 50% of GDP since 1979, followed by industry – including mining – which contributed 34%-43% to the Chilean economy between 1979 and 2011. The International Monetary Fund projects that Chile will continue to perform better than other countries in the region up to 2017.

In absolute terms, government revenues have increased significantly since the 1990s, with much of the increase occurring in 2003-2007. General government revenue rose from \$7.7 billion in 1990 to \$16.7 billion in 2003, before rising to \$47.2 billion in 2007. Revenues fell in 2009 but were over \$50 billion in 2010, the latest year for which data is available. One of the goals of the *Concertación* coalition that came into power in 1990 was to reduce income inequalities by targeting more resources to the poor and improving service delivery. In contrast to the 1960s, rapidly increasing public revenues enabled the Government

24 The reforms were market driven and included the privatisation of state-owned enterprises, dismantling the protectionist state, trade liberalisation and tax, financial and education reforms (Jadresic and Zahler, 2000; World Bank, 1990). Some of these reforms were ill conceived, leading to crises, as occurred in 1975 and 1982/83; the latter crisis was followed by a financial crisis in the following year. The regime was able to implement a coherent macroeconomic policy only after 1985 (Jadresic and Zahler, 2000).



Lesson at Colegio Municipal Marcela Paz, La Florida, Santiago de Chile. Photo: © UNESCO/Carolina Jerez

Table 5: Government expenditure on education, 1980-2011

Year	1980	1990	1994	1998	2002	2004	2006	2008	2010	2011
% of GDP	4.4	2.4	2.6	3.4	4.0	3.5	3.0	3.8	4.2	4.1
% of total government expenditure	16.1	17.4	16.9	19.6	17.5	17.8	...

Source: UNESCO datasets, accessed 29 July 2013.

to do this while running surpluses in most years between 1990 and 2000²⁵ (Marcel and Tokman, 2002).²⁶

3.4.2 Increased public expenditure for education

Economic development and increasing government revenues enabled more investment in education in Chile. Additional resources for the sector were an important – although not sufficient – factor in improving quality, given recent history of underinvestment and budget cuts in education. Augmenting public resources in education allowed, to some extent, the circumvention of complicated processes of negotiation as this was less subject to the passage of new laws (Cox, 2005; Mizala, 2007). The success of resulting reforms cannot be separated from the consistent and substantial increases in public expenditure on education, in particular the substantial increases in teacher salaries, without which the necessary cooperation between teachers and policy-makers would have been impossible (Cox, 2006).

Public spending on education has gone through a number of phases in Chile, declining most significantly in the 1970s²⁷ and 1980s but increasing from the 1990s. Public spending on education as a percentage of GDP dropped from 3.92% to 2.36% between 1974 and 1990 and spending by MINEDUC declined in real terms by 27% between 1982 and 1990 (Delannoy, 2000).

With increasing government revenues, more resources have since been directed to social sectors, with the real annual growth rate of expenditure on education averaging 10.7% between 1991 and 2000.²⁸ In monetary terms, the education budget increased from \$907 million in 1990 to \$3.07 billion by 2002. Public spending on education per student increased by 151% between 1990 and 2001, and went up as a percentage of both GDP and total public

expenditure, indicating the prioritisation of education in government budgets as shown in Table 5. In addition, there was a resource shift away from tertiary education to primary and secondary education (Fischer et al., 2005).

With increasing public expenditure on education – in a climate of an increasing resource envelope – a number of programmes were launched to improve both quality and equity in the education sector between 1990 and 1996. The Full School Day Programme of 1996 was, as mentioned, the most cost-intensive reform programme and the most significant since the municipalisation of the education system by the Pinochet regime in 1981. Extending the school day required a major programme of infrastructure development costing \$883 million between 1997 and 2003 and the hiring of new teachers (Cox, 2004). This reform raised the operational cost of public education by almost 25% (Bellei, 2009b). To finance incremental expenditure, planned value-added tax reductions were abandoned and maintained at 18% (Delannoy, 2000).

The additional resources for the sector were also used to improve teacher professionalism. Remuneration for teachers declined significantly in the 1970s and 1980s – by between 20% and 40% in real terms according to some estimates. This was reversed between 1990 and 1998, with teacher salaries increasing by 125% in real terms, more than recovering the decline of the past decades²⁹ (Delannoy, 2000). By some estimates, roughly two-thirds of the increase in resources in the schooling system went to improving teacher remuneration in the early 1990s. Initially all teachers received higher salaries, but from the mid-1990s further increases were more closely linked to performance, skills upgrading and placements in difficult environments (Cox, 2004).³⁰

25 The significant macro-imbalances of the 1960s was partly the result of increases in social expenditure.

26 Given the recent history of macroeconomic instability, the coalition was keen to deepen fiscal responsibility and demonstrate the prudent use of government resources.

27 The decline in the 1970s and 1980s was partly the result of efforts to stabilise the economy as a result of significant macroeconomic imbalances in the early 1970s, but also because education was less of a priority for the autocratic regime of Pinochet.

28 The cumulative growth of health and education expenditure was 117% and 141%, respectively, in the 1990s (Marcel and Tokman, 2002).

29 During the same period, salaries for other workers increased by 30%, for public sector personnel by 74% and for other professions by 40%.

30 These include bonuses for upgrading and team working through a number of initiatives.

Box 6: Top-up fees as co-financing

In 1993 as part of a broader tax reform, Chile's private subsidised primary and secondary schools and municipal secondary schools were allowed to charge students fees. The fees were used to top up the subsidy (voucher) that schools received from the central government. However, there was a limit on the fees schools could charge before the state subsidy was reduced proportionally (Cox, 2006). In 1993, roughly 143,000 students were paying fees; by 2004 this had increased to more than 1.4 million. Cox (2004) estimates that co-financing of this sort amounted to more than \$200 million for 1,806 private subsidised schools and 116 municipal schools (secondary only) in 2004. In 2011, roughly 40% of private subsidised schools (primary and secondary) and 10% of municipal schools (again, secondary only) had some sort of co-payment arrangement (Table 6). This cost-sharing scheme did bring additional private resources to the education sector, but seems to have had strong impacts in terms of inequity.

3.4.3 Reforms, targeting and cost-effectiveness

Much of this additional finance invested in the system was targeted at improving the quality of primary education and equity through a number of reforms and improvement programmes. As we have seen, many of these were universal – full day schooling, teacher training and information technology – with an impact on all primary schools. Others were targeted at disadvantaged schools, students and communities, such as P-900, *MECE Rural* and more recently, the SEP. Here we explore their funding mechanisms and cost-effectiveness in terms of improving educational quality.

In terms of the annual cost of these programmes, the full school day reform was, as mentioned above, the largest investment in school infrastructure in decades; it raised the operational cost of public education by a quarter (Bellei, 2009b) and was associated with a 33% increase in funding for primary schools in terms of new infrastructure and teacher salaries (OECD, 2004). The second costliest investment was *MECE Básica*, an improvement programme to ensure a minimum standard for learning materials, targeting basic components such as textbooks and classroom libraries. It was launched in 1992 with financial and – more importantly – technical assistance from the World Bank.³¹ The project concluded in

1997, having cost \$243 million, and all of its actions were absorbed into MINEDUC policies (Cox, 2004).

A significant feature of improvement programmes since the 1990s has been the targeting of resources to disadvantaged students through P-900, *MECE Rural* and, more recently, the SEP. These programmes have aimed to reduce the wide achievement gaps between private subsidised and municipal schools. There is evidence that countries that target more resources at disadvantaged students or communities have greater equity in achievements than systems with standard universal vouchers for all students (OECD, 2012).

The SEP, in particular, is important because it operates through the voucher system to provide additional funding directly to schools that accept low-income students. It is voluntary for all state-funded schools and allocates additional funds for every student in the lowest two quintiles of income, as well as providing a supplemental amount for schools with particularly high concentrations of such students. It also has two layers of targeting – first allocating more to schools that have disadvantaged students, and then concentrating these funds on the first six grades of schooling, with allocations tapering off for higher grades. The sums involved are significant, with schools able to receive a funding increment of up to 70% above the

Table 6: Cost sharing in Chile

Type of administration	No. of schools allowed to charge tuition	No. of schools that actually charge tuition	% of schools charging tuition	Average amount charged (Chilean pesos)
Municipal*	1,021	109	10	2,744
Private subsidised	5,674	2,173	38	16,738
Total	6,695	2,282	34	16,070

Note: *Only secondary schools.

Source: *Libertad y Desarrollo* (2012).

31 The financing story of education quality in Chile is one of domestic resources. One informant stated that the important aspect of the World Bank's role in the *MECE Básica* project was technical skills and know-how.

basic capitation grant, with an average funding increase in the head grant per disadvantaged student of 50%. This presented a particularly dramatic jump in funding for the schools to which it was applied in 2009, as 2008 had already seen the capitation grant raised by 15%.³²

Correa et al. (2013) found that the SEP was associated with an increase in average grades in national SIMCE tests of 2.6 points in mathematics for both participating private and municipal schools, but that it had no significant effect on language outcomes. They also found a much larger impact in private subsidised schools than in municipal schools – a result that they attributed to the deviation of municipal schools from profit-maximising behaviour as a result of their insulation from competition. A number of key education specialists in Chile stated that this intervention has the potential to bridge the achievement gap between municipal and private subsidised schools and to improve the country's performance in international test scores. This seems likely, given that evidence from PISA suggests that countries with small differences in the socioeconomic backgrounds of public and privately managed schools tend to perform better, overall, in international tests.

Between 1990 and 2000, an administrative modernisation initiative to improve efficiency and effectiveness in the allocation and use of resources gained favour in political discourse and with bureaucratic elites in Chile (Laguna, 2011). The first round of performance indicators was implemented in 1994, with programme evaluations following in 1997. These initiatives were transformed into a full-fledged monitoring and evaluation system in 2000 and later extended in 2008, after considering both the costs and the consequences

of alternative interventions. There were direct efforts to link inputs with outcomes, with the country deepening its performance-based budgeting – a move driven mainly by the Budget Office. These initiatives forced the MINEDUC and other line ministries to consider efficiency and effectiveness in the design of projects and the use of public resources.³³ Table 5 shows the average SIMCE test score gain in standard deviation (SD) for some of the reforms and improvement programmes³⁴ discussed earlier and the cost effectiveness per 0.1 SD.³⁵

The most cost-effective policy initiative to improve student performance in SIMCE scores has been SNED – the productivity bonus for teachers – which costs \$1.20 for every 0.1 SD gain per pupil. Schools in the programme – over 90% – compete with other schools with similar external characteristics on the basis of their average performance in SIMCE. Monetary rewards are distributed equally among all teachers in schools that are in the top 25% of performers.³⁶

The second most cost-effective initiative was P-900, which targeted extra support to the worst-performing schools in SIMCE (Chay et al., 2005) between 1990 and 1999. However, the gains made under this programme were not sustainable once support to these schools was withdrawn.

As expected, extra instruction hours enabled by the full day schooling initiative from 1996 to 2006 did result in sustainable improvements in average test scores but, because of the magnitude of the investments involved, this was the least cost-effective measure in terms of improving test scores.

One important observation emerging from this analysis is that targeted programmes – although not necessarily the most cost-effective – have been more effective in raising test scores than universal programmes.

32 Uptake of the SEP has varied significantly between municipal and private subsidised schools. Most municipal schools enrolled immediately, as they were already serving disadvantaged communities and so were in a position to receive significant increases in funding. Private subsidised schools had less of an incentive to participate, given their lower proportion of disadvantaged pupils and the additional oversight from MINEDUC they would have to accept.

33 Between 1997 and 2004, 64% of Chile's budget was subject to some sort of evaluation, with over 52% of programmes significantly redesigned (Laguna, 2011).

34 Data to calculate the cost-effectiveness of *MECE Básica*, ICT and teacher training initiatives were inadequate.

35 There are methodological challenges to estimating the cost-effectiveness of different programmes, which are different in focus – some targeted, others universal. In addition, we draw on secondary literature that uses different methods to measure and attribute gains. However, for the purposes of this paper, the cost-effectiveness data are useful indicators.

36 In the late 1990s, the reward was equivalent to 3.33% of a teacher's salary.

Table 7: Cost-effectiveness of reforms

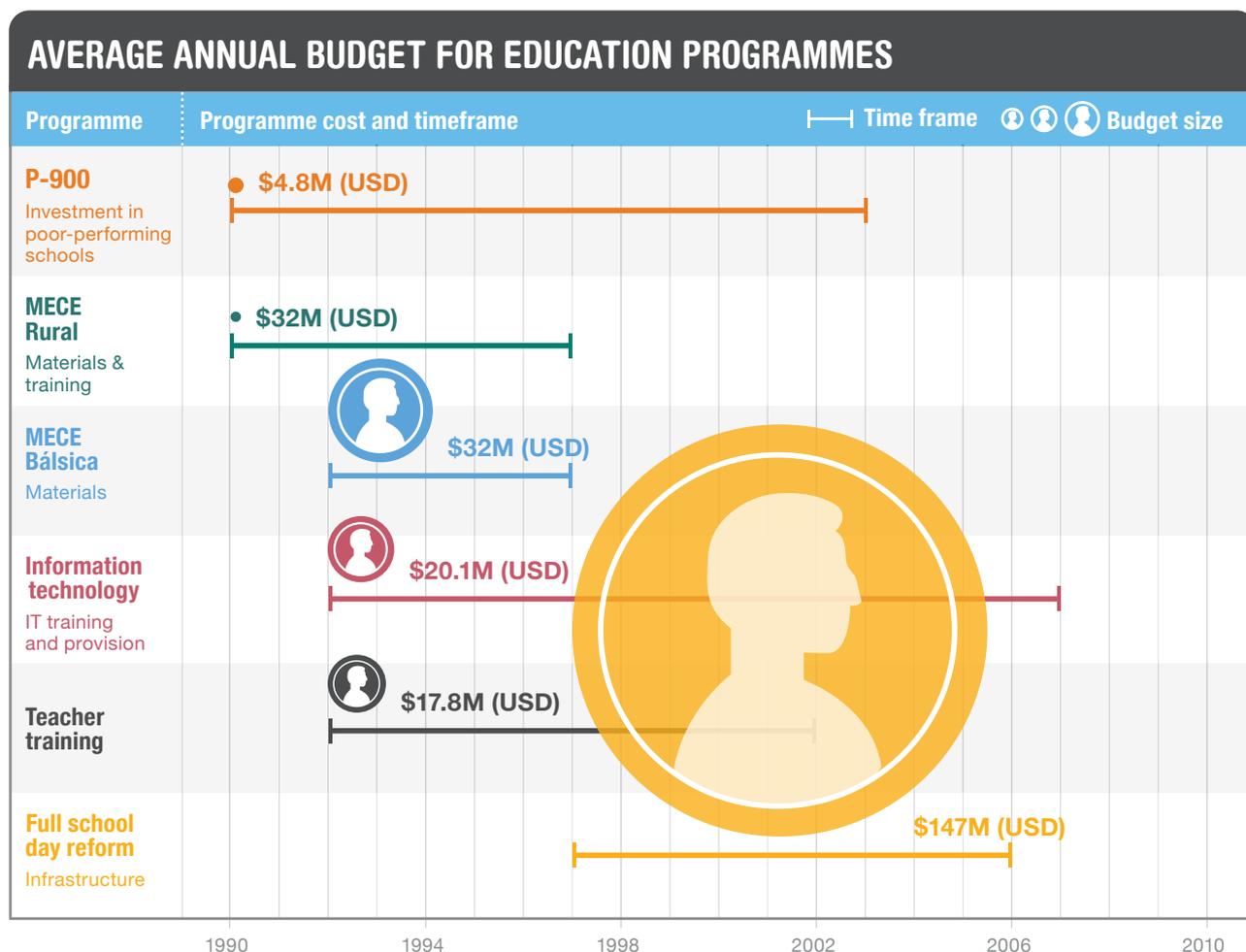
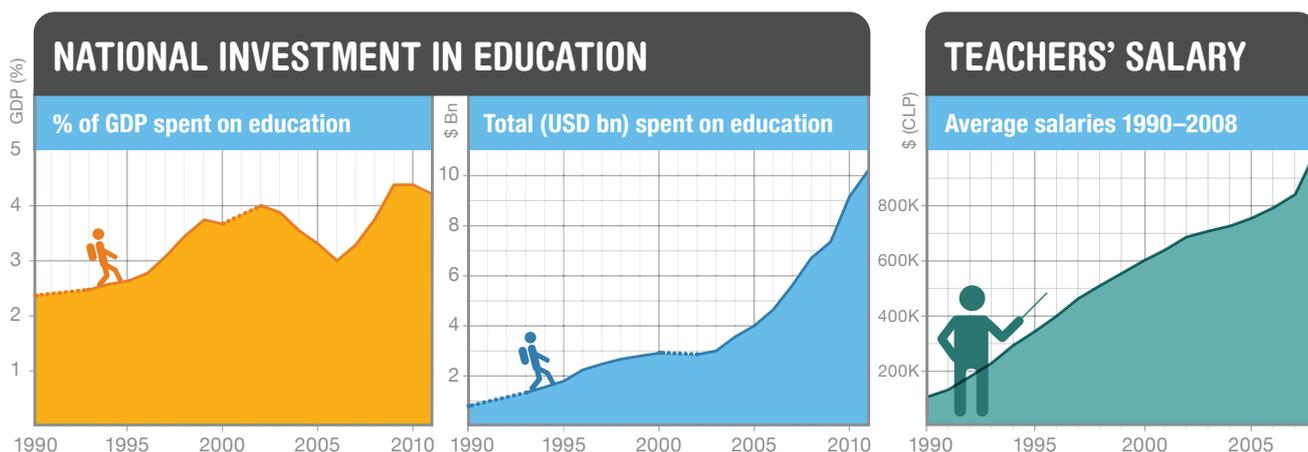
Intervention	Year	Description	Coverage	Cost per pupil (\$)	Average test score gain in SD	Cost-effectiveness ratio: cost per pupil per 0.1 SD gain (\$)
P-900 (Chay et al., 2005)	1990-1999	Targeted support to the worst performing schools, based on national test scores	Targeted	7.54	0.2	3.77
Scholarship (Anand et al., 2008)	1993-	For low-income students in fee-paying private schools	Targeted	23.31	0.2	11.66
Full day schooling (Bellei, 2009b)	1996-2006	One-off investment in infrastructure and facilities and increase in instruction hours	Universal	64.50*	0.07 (maths)	92.14
					0.05 (language)	129.00
SNED (Contreras and Rau, 2011)	1996-	Monetary-based productivity bonus awarded to teachers at the school level, based on students' SIMCE results	Universal**	1.8	0.15	1.20

Note: *As a result of data limitations, the cost per pupil is the one-time investment component of a full day of schooling, while test score gains include the recurrent increased expenditure resulting from the increase in instruction hours. **Teachers in the top 25% of schools in SIMCE scores receive the reward and schools compete with schools of similar characteristics.

Source: Authors' calculations based on secondary literature.

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Sources: World Bank | Mizala and Schneider (2013), Ministry of Education, National Institute of Statistics and Central Bank of Chile | OECD (2004)



4. What are the challenges?

This section outlines the remaining challenges in improving the quality of basic education in Chile:

- addressing persistent low absolute learning levels in comparison with other OECD countries and eliminating disparities in educational achievement
- addressing inequities and segmentation by income in the education system
- improving the quality of pre-service training at education institutes and strengthening evaluation and exit exams to ensure consistency across training institutes
- ensuring continued pragmatism and inclusive policy environment at a time of increased political pressure to secure the right to education and improve its quality.

4.1 Concerns over absolute learning levels

Chile still has some way to go in improving educational outcomes and their equity, despite its progress to date. As shown in Section 2, Chile's performance in international test scores has been impressive in recent years, better than most countries in the region. The country made particular improvements in the 2006 PISA results and is recognised as a fast improver. However, it continues to significantly lag behind the OECD average in terms of student performances in maths, reading and science, as shown in Table 8. Further improvements will depend on the continuing reform of aspects of the education system that are holding back student achievements.

In mathematics, for example, Chile is one of only two OECD country where less than 50% of students attained the baseline level of mathematics proficiency in the 2012 PISA tests (Level 2 and above) with only 48.5% of students achieving this level. The other OECD country was Mexico, with 45.3% of students at Level 2 or above. In the same tests only 1.6% of Chilean students were proficient at the highest levels in mathematics (Levels 5 and 6) – compared with an OECD average of 12.6% (OECD 2013: 66-68).

In addition, there has been a lack of progress in terms of equity in education outcomes, despite improvements on a range of education access indicators that will have had

a positive impact on the prospects of marginalised and lower socioeconomic groups, particularly improvements in enrolment, completion and repetition rates. While disparities between some groups seem to be narrowing over time, progress here is slow and this remains a severe issue for Chile.

An OECD report in 2011 noted of Chile that, 'Equity issues need to be addressed. PISA results decrease sharply by school type in line with the average socioeconomic background of the children [...] In fact, the socioeconomic background explains a large share of the variance of PISA test scores in Chile compared to other OECD countries' (OECD, 2011: 64).

The impact can be seen in Figure 10 (overleaf), with Chile actually having the strongest relationship between socioeconomic background and school performance of any OECD country.

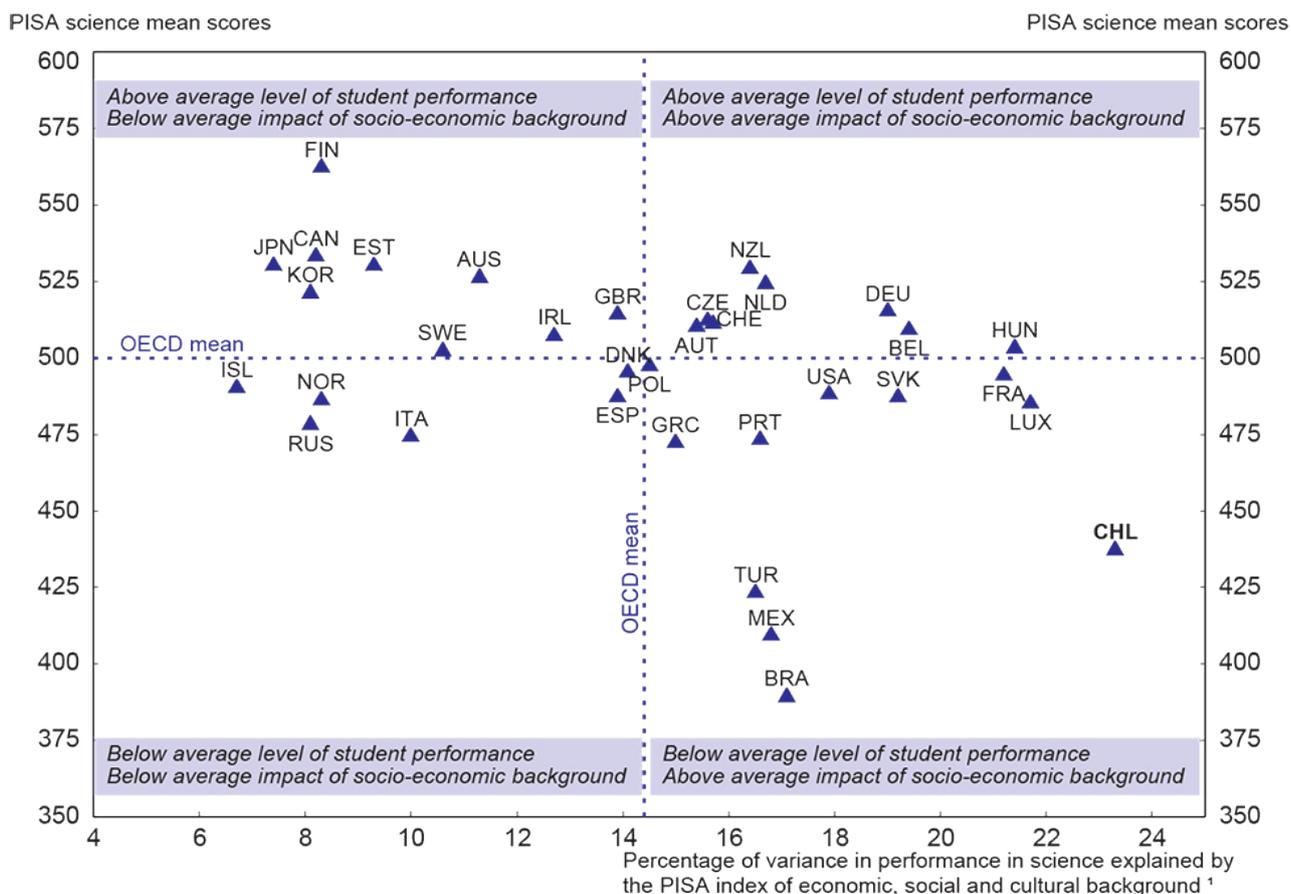
This point is reiterated by UNESCO research, which noted that 'the results of national assessments and Chile's PISA test scores have established low performance and high social inequality as key points for the development of quality education in the country in the context of the OECD member states' (UNESCO, 2010: 2).

It is also important to note, as Figure 11 (page 46) shows, that there is considerable socioeconomic segregation between different types of schools within the Chilean system, and that these schools systematically produce very different outcomes for their students. Targeting more resources at students from low socioeconomic backgrounds and improving access to private subsidised schools is important to address this persistent and long-term problem. Vulnerable students, in particular, benefit from studying in schools alongside students from higher socioeconomic status through improved access to private subsidised schooling.

There is also some evidence of a considerable gender gap in results within Chile, as seen in a detailed OECD analysis of the 2009 PISA results. Chilean boys outperformed girls by an average of over 20 points in mathematics assessments and just under 10 points in science assessments, compared with an OECD average gap of 12 points for mathematics and parity for science. Chilean girls did outperform boys by an average of 22

'We have a very segregated school system by socioeconomic status which we have to overcome. We have to also increase educational opportunities for poor students in order to improve their performance' – Education researcher

Figure 10: The impact of socioeconomic status on achievement



Source: Brandt (2010).

points in reading assessments, however this compares with an OECD average gap of 39 points³⁷ (OECD, 2010a). Taken together these results suggest there are issues of gender equity that have yet to be tackled.

In addition, the evidence on the impact of the voucher system and top-up fees is inconclusive in terms of quality, but it is clear that this system has played a role in increasing social segregation and has benefited mainly students

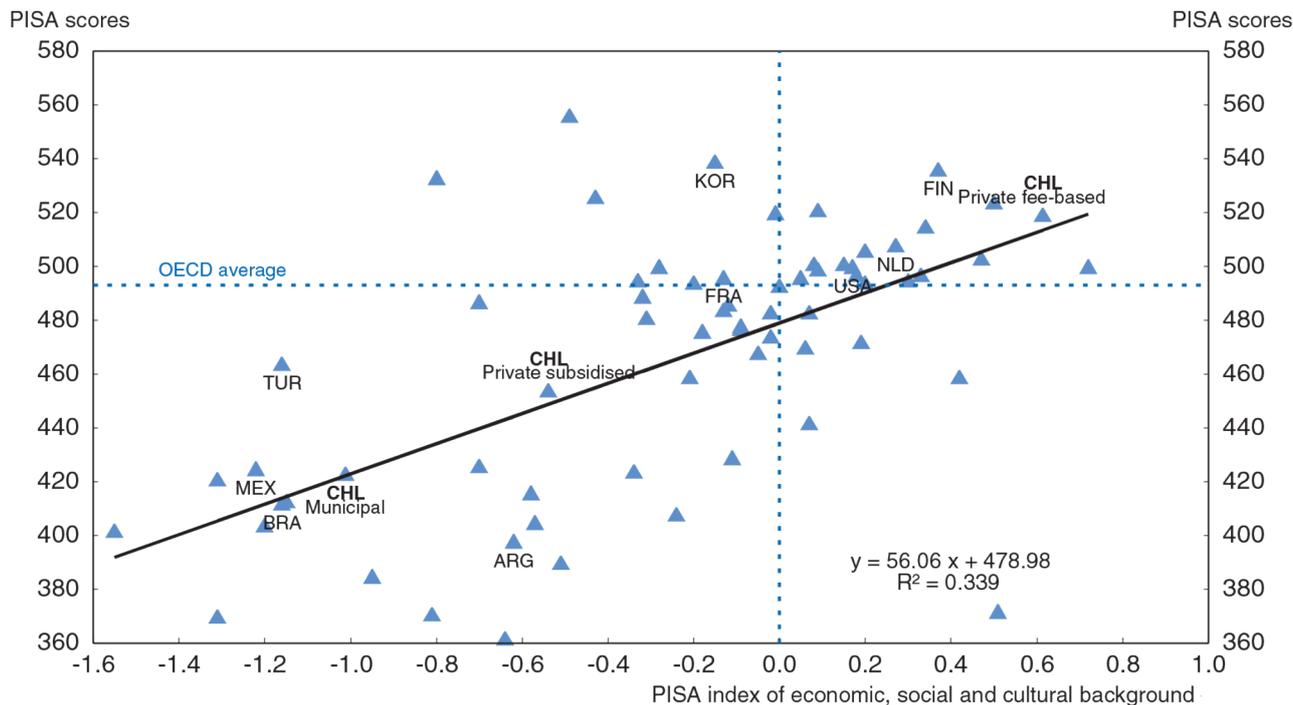
Table 8: Chile's absolute and relative performance in international tests

	PISA (2012)			TIMSS (2011)			
	Mathematics	Reading	Science	Mathematics		Science	
				Grade 4	Grade 8	Grade 4	Grade 8
Chile	423	441	445	462	416	480	461
OECD average/ TIMSS scale centre	494	496	501	500	500	500	500
Difference	-71	-55	-56	-38	-84	-20	-39

Source: OECD (2013, IEA 2012a,b).

37 All differences given here are of statistical significance according to OECD calculations.

Figure 11: Significant differences in educational achievement and socioeconomic characteristics between different types of schools



Source: OECD (2011).

from lower-middle- and middle-income socioeconomic backgrounds in urban areas (Torche, 2005; OECD, 2011).

To address this challenge, the *Concertación* coalition targeted more resources towards disadvantaged students, rural communities and poor-performing schools and communities; and gave teachers incentives to upgrade their skills and accept rural postings. Some of these reforms were instituted through the voucher mechanism and others were standalone programmes, such as P-900. A number of informants for this case study recommended improving access to private subsidised schools for low-income students and targeting more resources towards them through adjustments in the funding structure to reduce income segregation and improve Chile’s performance in international test scores.

4.2 Inequities and segmentation by income

While the voucher system allows for greater school choice and top-up fees bring additional private resources to education, their downside seems to be increased social segmentation on the basis of family resources (OECD 2004: 63). Indeed, as Pribble argues, the introduction of the co-payment scheme ‘provides an example of how the liberal-leaning elite of Chile’s left/center-left *Concertación* parties have tended to prioritize fiscal issues over equity’ (Pribble, 2013: 101).

The main consequence of the school choice system, particularly with the added element of top-up fees, has been the segmentation of students by income. Household data from 2007 show that the fourth and fifth quintiles of the population spend significantly more on education, both in absolute terms and as a percentage of their incomes. For the most part, this leaves low-income students in municipal schooling, as they are unable to pay private subsidised school fees.

Elacqua (2009) analyses a wide range of MINEDUC administrative data across 2000-2006 and finds consistent differences in concentrations of students classed as socio-economically vulnerable across different school types. Across this period around 39%-42% of students in municipal schools were classed as vulnerable. It is important to note that the middle class grew throughout the 1990s and 2000s – from roughly 24% in 1992 to 41% in 2009 – and more students migrated from public schooling into private subsidised schooling (Birdsall, 2012). There is also an urban bias, which has resulted in 81% of schools in rural areas being run by municipalities. In districts where there are fewer than 100-150 students, there is no enrolment into private subsidised schools and this concentrates the benefits of these reforms in urban areas, with a negative impact on equity (3ie, 2010).

It should be noted that available evidence on the effectiveness of private and public schools has evolved over the decades. Some earlier research findings found that private schools tended to score higher than public schools

after controlling for school characteristics, but these studies often used unrepresentative samples. More recent studies, using sophisticated research methods and national data, have also been inconclusive, with some studies indicating a private school advantage (0.05-0.27 SD), others a public school advantage (0.06-0.26 SD) and others no statistically significant difference between the two (Bellei, 2005).

At the individual level, Anand et al. (2008) found that low-income students who moved from municipal to private subsidised schools experienced improved results. Tokman-Ramos (2002) and Mizala et al. (2004) found that the impacts themselves were socially conditioned, with municipal schools producing better results for students from lower socioeconomic backgrounds, while private subsidised schools produced better results for students from higher socioeconomic backgrounds.

There is also some evidence that this relationship depends on prevailing policy, with Bravo et al. (1999) finding that, controlling for socioeconomic status and geographic region, private subsidised schools outperformed municipal schools in 1982-1989 but that this advantage vanished in the 1990s. McEwan and Carnoy (2000) note differences in the effectiveness of subsidised schools, with Catholic schools producing better results for similar students than non-religious private subsidised schools and municipal schools. However, Catholic schools are costlier than municipal schools, in terms of higher levels of inputs, and so are less cost-efficient overall.

4.3 Teacher skills and knowledge

The 1990s and 2000s saw considerable improvements in both teacher working conditions and overall teacher quality, as explored in earlier sections. However, poor teacher skills and a lack of pedagogical and subject content knowledge continue to be major challenges to improving the quality of learning and student outcomes in Chile.

The capacity gap between the average competencies of teachers and the requirements of the new curriculum was a significant constraining factor in Chile's performance in international tests (Cox, 2004) and interviews for this research highlighted a perception that teacher training and skills were the central constraint to further improvements in education quality. This perception is borne out by both international and national evaluations of teachers' skills.

Chilean teachers performed poorly in cross-national evaluations of teacher knowledge conducted by the International Association for the Evaluation of Educational Achievement in 2011, with Chile ranked 16th of 17 countries for both pedagogical and subject content knowledge. Its teachers³⁸ scored well below international benchmark levels in both pedagogical knowledge (425 compared to a benchmark of 516) and subject content

knowledge (413 compared to 544). This research also suggests that this deficit is not confined to the current teacher cohort – testing of qualified future teachers found only 4.9% and 4% scoring above international benchmark levels for pedagogical and subject content knowledge, respectively (IEA, 2012c).

Evaluations of teacher skills organised by MINEDUC have found similarly poor results. The results of *Inicia* evaluations in 2011 found that only 8% of teachers had outstanding knowledge of pedagogy, and that the knowledge of 42% was insufficient. Results for subject content knowledge were similarly poor, with only 2% of teachers rated as having outstanding knowledge, compared with 69% whose knowledge was insufficient (CPEIP, 2012).

It seems clear that, despite improvements in both initial and in-service training in the past decade, further reforms are needed to improve pre-service training, particularly for teachers who end up teaching the upper years of primary. Greater efforts are needed to link teacher education more closely to the curriculum and to improve evaluations of teachers' grasp of theory and practical skills. The significant variation in the quality of teacher training institutes was noted by a number of experts during interviews for this case study as an important factor that limits further improvements in quality.

4.4 Maintenance of political consensus

A key theme of this case study is that the ability of political parties and other actors to cooperate and negotiate a policy consensus has been crucial for the progress made to date on education quality in Chile. One major challenge that Chile now faces is how to maintain this consensus-building process and adapt it to meet new challenges in both education and the social sphere. If handled properly this challenge may also present an opportunity to deal with the underlying tensions around the structure of the education system which, as noted, have been ignored in policy terms for the past 25 years.

The most visible challenge to the consensus-building process emerged from the Chilean student movement – the March of the Penguins – led by secondary school students in the mid-2000s. As outlined in Section 3.1, this movement acted as a major spur for reforms to the education system in the late 2000s but its long-term impact on education policy-making is uncertain.

As mentioned, the attempt to integrate this new force into the existing education consensus through the 2006 Presidential Commission was only partially successful and major student protests re-emerged in both 2008 and 2011, as well as in the run up to the 2013 Presidential election. The demands were similar to those voiced in earlier protests,

38 This figure should be treated with some caution as responses were only received from 60%-75% of Chilean teachers.

Box 7: Transition to employment

There has been slow and limited progress on the transition from education to employment in Chile, and on youth unemployment more generally, over the past three decades. The country is lagging behind averages for both its Latin American neighbours and other OECD countries in this area, with some evidence indicating that the Chilean economy is struggling to absorb and use increasingly skilled and educated young workers.

Trends in Chilean youth unemployment have, in general, tracked those in the total labour force over the past 30 years. However, Chile's youth unemployment rates have been consistently higher than the Latin American average in the past 10 years, and their relative responsiveness to shocks has varied considerably. Chilean youth unemployment fell more slowly than the regional average over 2003-2008 and increased much more sharply during 2008-2009. However, it also fell much more rapidly in the post-financial crisis period, although it remained some 5.3 percentage points higher than the regional average as of 2012 (Menezes-Filho, 2013: 24).

The low employment rate is not an issue in itself, in a period of rising secondary and tertiary enrolment. However, OECD analysis suggests this is only one element of the story: '[in Chile] only 26% of youth (age 15 to 24) were employed in 2009, compared with 40% on average in OECD countries [...] this in part reflects efforts to promote higher levels of education, but for many youth with low skills, access to jobs remains a challenge in Chile' (OECD, 2011: 82).

although these particular protests were led by university students disappointed by the reforms of the late 2000s.

Some see the emergence of this new generation of Chilean activists, most of whom were born after the end of the Pinochet regime, as a major threat to the existing consensual culture in Chilean politics, and to the policy consensus on education in particular. Interviewees for this case study argued that this younger generation are far bolder and do not share their parents' fear of political instability and confrontation. As they become increasingly active and vocal, they are exposing the tensions in the existing policy consensus, where any attempt to alter the fundamentally market-based nature of the education system is still taboo. The effects of the private sector and the voucher system are hotly debated, but it is clear that, if the political and policy consensus on education is to survive, it must incorporate these new actors and transform the system in a way that addresses their grievances.

Serious discussion, and conflict, on fundamental reforms to the structure of the education system can also be seen within the formal political system. The 2013 elections saw education reform emerge as a major issue, with the newly re-elected President Bachelet of the *Concertación* coalition positioning reform of the system as a key election platform after aligning herself with elements of the student movement. The *Concertación* coalition, however, lacks the legislative majority needed to pursue radical education reforms, despite strong public support. The Alliance for Chile candidate, former Minister of Labour Evelyn Matthei, emphasised her opposition to

a more state-dominated education system in the course of the campaign, while student leaders oppose President Bachelet's proposals as insufficient.

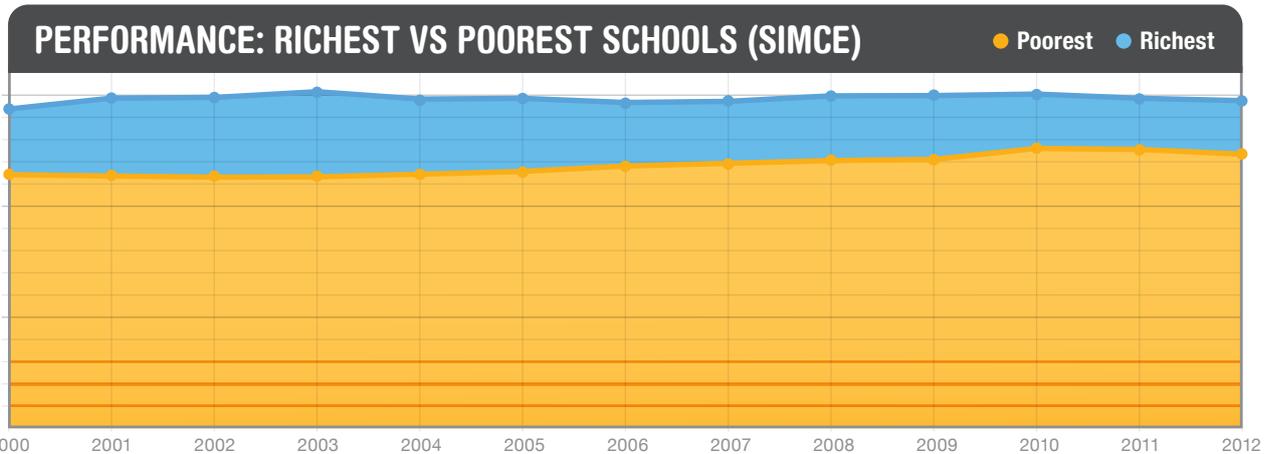
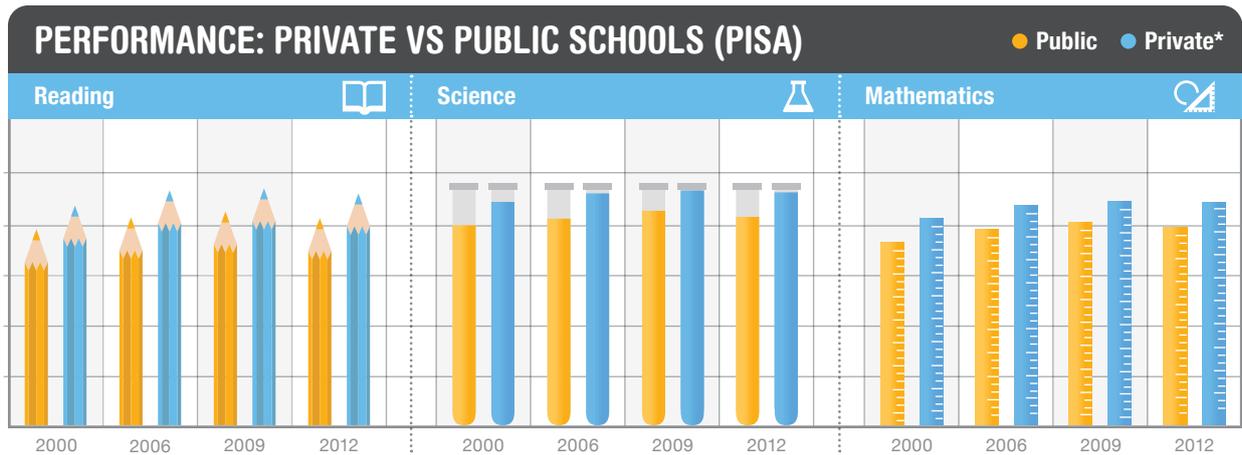
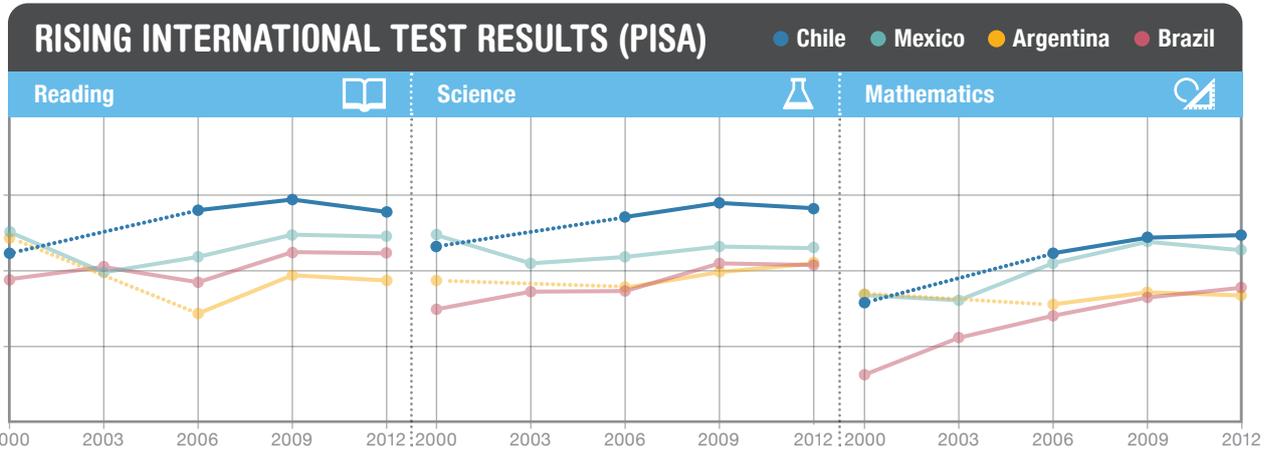
These debates echo the political conflicts that occurred around the creation of the SEP – criticised by the left for its continued acceptance of the market-based structure of education, and by the right for requiring MINEDUC oversight of spending plans and projects that use the subsidy, which was seen as an interventionist attack on school autonomy. These reforms were passed, but only after a long struggle and in a manner that satisfied neither side. More fundamental reforms will be every bit as controversial and require even more shepherding if they are to be not only passed, but also sustained. In the meantime there is also the risk that other, less controversial but necessary reforms, may suffer from the lack of consensus and attention.

Interviewees for this case study also highlighted the potential for the Teachers' Union to disrupt the consensus, as its conciliatory position towards reforms in the 1990s and early 2000s has been challenged by the increasing popularity of more radical figures linked to the Communist Party of Chile. It is unclear how these dynamics will play out, but this adds another layer of complexity to future reforms and consensus-building.

Given these tensions it is unclear whether the current process of consensus-building on education policy, which is already under growing strain, will be maintained, expanded and reformed or collapse entirely.

Chile

Higher student outcomes
– but disparities remain



*Includes private-subsidised and private non-subsidised schools

Sources: World Bank EdStats Database, OECD (2013) | OECD Database – PISA 2012 | SIMCE (2012)



5. What lessons can we learn?

‘There have been advances [in education], but the situation still has room for improvement’ –
Ministry of Education Official

Chile’s efforts to improve the quality of its education system over the past two decades have borne fruit, with rising international and national test scores by the late 2000s. It is one of the world’s most rapidly improving nations in this area, and consistently outperforms its Latin American neighbours. Chile has been noted as one of a handful of countries, alongside Brazil, Mexico and Turkey, that have made impressive gains in performance in international education tests since the late 1990s, starting from a very low level (OECD, 2010a: 4).

- As a part of PISA, Chile was one of only three OECD countries to improve by more than 20 points in reading assessments over 2000-2009. It also demonstrated science improvements over 2006-2009 that were above the average level for the OECD, which Chile only joined in 2010.
- Of the nations that had comparable TIMSS results over 1999-2011, Chile was the most improved for Grade 8 mathematics scores, with a rise of over 20 points, and was one of only two countries and two benchmarking participants that saw an increase in science achievement, with a rise of 41 points.
- LLECE results from 2006 show scores for reading and mathematics doubling for those classes for which comparative data are available.

The country also achieved an increase in adult literacy from just over 90% in 1982 to near universal by 2009. And a proxy indicator for quality, the primary-level pupil-to-teacher ratio, fell from 32 in 1999 to 23.5 in 2010. In addition, having reached almost universal enrolment rates 20 years ago, these gains in quality have been made alongside improvements across other areas such as repetition, completion and transition.

These improvements in education quality have been driven by four interconnected factors: the strong prioritisation of education and a process of political consensus-building; a series of mutually reinforcing interventions that focus on education quality; improvements in teacher professionalism and

the workforce; and the prioritisation of education in the government budget, including the targeting of resources to disadvantaged students and an emphasis on cost-effectiveness.

Chile must, however, address the twin challenges of average learning levels that remain too low and the large disparities in educational outcomes between socioeconomic groups if it is to continue to improve the quality of basic education and perform well in international tests, particularly in comparison with OECD countries. Pre-service teacher training and exit exams for those graduating from teacher training also need to be strengthened.

Policy-making that is politically inclusive needs to remain the norm. Chile’s transition from authoritarian rule in the early 1990s has bequeathed it with a uniquely structured education system, a remarkable degree of macroeconomic stability that has seen the nation attain high-income status in two decades and a highly consensual political system. But the transition has also raised questions about the equity of the current system, and it has left a legacy of entrenched inequalities in income and in life chances that now challenge the system’s sustainability.

A number of key lessons can be drawn from the Chilean experience to improve the quality of basic education – lessons that touch upon key debates just as learning outcomes move up the agenda for national international development.

- **The strategic use of national and international assessment tests can drive political and policy attention toward education quality, particularly if strong feedback loops are in place.** In Chile’s case, national assessment testing provided ongoing monitoring of learning outcomes. In addition, international tests that compared Chile to top OECD performers raised expectations of education providers and set goals for politicians, policy-makers and citizens. Building on this, a strong ethos of monitoring and evaluation of education programmes and an emphasis on cost-effectiveness can help to ensure the prudent use of resources and incentives to improve performance in national and international tests.
- **Improvements in education quality have a ‘long tail’, with improvements likely to entail incremental, iterative and mutually reinforcing reforms.** Education is a subject of great political contestation that can be defined strongly by settlements like those in the post-Pinochet era – Chile is an example of how this change can be negotiated through coalition and agreement.

National commissions followed by consultations and resulting in concrete education plans agreed by all major political forces provide a model, and strategies to raise expectations and link them to national ambitions, such as participation in international assessment regimes, can help to prioritise and sustain support for reforms. In Chile, policy continuity and forward planning have allowed education policies to be implemented in a coherent and incremental manner. Policies have rarely operated against each other and positive effects have been created through the parallel implementation of mutually reinforcing policies and the concentration of scarce financial and institutional resources. The former was particularly the case for the Full School Day Programme, while the latter can be seen in the reform processes for the primary school curriculum and efforts to raise standards for new teachers.

- **Extensive private sector provision increases school choice, offering improved quality to some while leaving others behind, in a way that seems to entrench inequality.** A growing number of stakeholders in both developed and developing countries alike welcome an increased role for the private sector in education. In Chile, that role has grown over the past two decades driven, in part, by the introduction of universal vouchers

to increase parental choice and innovation. While there has been greater choice and more competition, there is also strong evidence that such an approach has encouraged a multi-tier system that favours students from high- and middle-income backgrounds. Experience from other OECD countries shows that targeted vouchers – rather than universal vouchers – may help to improve equity in access to education. Increasing access and quality of schooling is surely a positive outcome, but policy-makers should be wary of embedding socioeconomic inequalities in the education system.

- **Targeted investments seem to support improvements in quality, despite research casting doubt on the relationship between educational spending and student performance.** In Chile's experience, funds enabled the institutionalisation of policy reforms by addressing the legitimate concerns of important stakeholders, including teachers. In Chile, reforms such as the P-900 and *MECE Rural* in the early 1990s or the SEP of the late 2000s have contributed to reducing achievement in disparities. It is clear, therefore, that the targeting of resources to disadvantaged students matters when it comes to improving quality and equity in a context where there are significant socioeconomic disparities in learning outcomes.



School classroom in Malloa, Chile. Photo: © Pame Figueroa

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This publication is based on research funded by the Bill & Melinda Gates Foundation. The findings and conclusions contained within are those of the authors and do not necessarily reflect positions or policies of the Bill & Melinda Gates Foundation.

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