MEETING THE CHALLENGE OF THE KNOWLEDGE ECONOMY:
LIFELONG LEARNING IN CHILE

A report for The World Bank

DRAFT 1

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MEETING THE CHALLENGE OF THE KNOWLEDGE ECONOMY: LIFELONG LEARNING IN CHILE

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EXECUTIVE SUMMARY

Chile’s economic performance has been considered remarkable for more than a decade. Macroeconomic and political stability, openness and competition and reasonably effective institutions have supported the country’s economic development and attracted foreign investment. Prospects of continuing economic development are reasonably good, though it seems unlikely that Chile will maintain the growth rates achieved during the 90’s (6.5-7%).

Recently, it has been argued that among other factors, the country’s national innovation system is not equipped to face the challenges posed by the knowledge economy (Bitran, 2001). Particularly important in this respect is the low availability of human capital with the skills and competences needed to work productively in knowledge and information based work environments. This represents a serious obstacle in Chile’s path to become a more developed and equitable country.

This report takes stock of Chile’s human capital and the challenges the country faces to assure its labour force has the skills and competences that are necessary to participate in the knowledge economy, contributing to the country’s economic development.

It is argued across the report that a Lifelong Learning policy has become crucial for Chile. The challenge goes beyond giving the generation still in school the skill foundations to enter the world of work and giving low skilled and qualified adults a “second chance”; it involves an overall upskilling or re-skilling effort of the current active population lacking the new workplace competencies underpinning the knowledge economy.

An evaluation against standard indicators shows an heterogenous picture of Chile’s human capital. Overall education attainment has improved steadily over the past decades reaching almost universal coverage in primary (98%) and secondary education (84%). In this respect Chile compares well with developed economies and is far ahead several other latin american countries. On the other hand, despite the expansion of the enrollment in pre-primary and tertiary education, participation rates are still low in both levels. In addition, access continues to be unevenly distributed across income levels. A similar situation is found in the training system where despite the incentives introduced for employers to invest in their workforce, mostly highly educated workers from large companies (representing less than 10% of the workforce) are being upskilled through training programs. Labour market training and other publicly subsidized programs focused on unemployed, low skilled over 16 years old population and other groups under risk of social exclusion have had a limited remedial impact.

In addition, outcome based evaluations have demonstrated that despite the significant improvements in the learning environment at the school level (infrastructure, level of investment, learning resources, etc.), the quality of learning outcomes is low in both relative and absolute terms. Again, learning achievement is remarkably unequal across different income levels, with students from low socio-economic backgrounds performing significantly lower than those from more favoured backgrounds. Regarding the adult population, an important proportion has not completed its basic education, including younger adult cohorts. Furthermore, most of the labour force lacks the minimum literacy and numeracy skills required by the knowledge economy, as shown by the International Adult Literacy Survey (50% of the population performed at level 1).

1 In a recent report the Interamerican Development Bank has classified Chile within a “high human capital stock” category on the grounds of the level of educational attainment the country exhibits (IADB, 2001, p.123). The indicator has limitations, though, as it does not consider tertiary education and other more direct measures of human capital stock.
As skills and competences for the new economy are not fully available in the country, there are incentives for employers and workers to engage in conducts that trap the economy in a low skills/bad jobs/low wages equilibrium. In this context, the current and expected demand for scarce skills can widen wage differentials in the country, reinforcing the current unequal income distribution and leaving the less skilled adult population at risk of social exclusion. This dynamic can severely erodes social cohesion and threatening the development of social capital in the country.

To make a reality the lifelong learning for all mandate requires diversified learning opportunities provided by a highly differentiated and responsive network of providers. In this respect Chile presents clear advantages in comparison to other developing countries. As a result of deep reforms undergone during the 80s, both the education and training systems have become decentralised, private provision has expanded sharply and innovative demand-driven incentives have permeated both systems redefining the roles that the government and the private sector previously played regarding provision, financing and regulation.

As a result of the institutional reforms above described it was expected that competition would encourage a substantial degree of diversity and innovation in tertiary education and training. This expectation is now deflated making quality and relevance of the education and training sectors a main concern among policy makers and public opinion as well. Despite the awareness regarding quality issues, up to now it has proved to be difficult to establish comprehensive evaluation and accreditation frameworks fostering the development of self-improvement mechanisms in tertiary education and training institutions.

Regarding funding, total investment in education has steadily increased, with public funding concentrated on improving access and quality of basic education and private funding playing and increasing role on tertiary education. In the case of tertiary education private expenditure has increased sharply but mainly in the form of student fees rather than industry funding. While more private investment on fees might provide a financial relief for the government and might constitute an effective set of mechanisms for levying charges, it does not necessarily constitute a move towards the knowledge economy. Education and business partnerships are scarce in the country and as a result tertiary education is frequently described as not contributing substantially to the country’s participation in the knowledge economy. Major investment in new-income generating activities, a declining capacity for basic research and a somehow self-referenced culture have probably reduced the attractiveness of universities as sites for industry investment.

It has been recognised that the State can play an important role introducing appropriate incentives for private funding in sectors of learning with higher private returns while concentrating public funding on sectors in which private investment is less than optimal. This implies that the additional resources needed to finance especially learning and training for work will have to come from new combinations of public and private investment. If the country assumes the lifelong learning for all principle presumably new issues will emerge regarding who has to pay for what. An example is the investment needed to close the serious skill gap detected by the IALS which involves general rather than specific human capital.

Partly as a result of this situation, lifelong learning has beggining to be seen by both the government and industry stakeholders as an important strategy to upskill or re-skill the labour force involving new roles for them. Likewise, there is some consensus regarding the convenience of building up education and business partnerships in order to make education more relevant to the world of work.
To sum up, in terms of a Lifelong Learning agenda, the main bottlenecks are:

- a human capital stock problem, as most of the current labour force does not possess the skills and competences required by the knowledge economy
- a flow problem, as the education reform on progress has slightly impacted on learning outcomes
- pervasive inequalities in terms of learning outcomes distribution at the basic school level
- tertiary education and training systems not centered in the learner, in terms of giving him the opportunity to follow flexible progression paths across the life-cycle
- lack of a clear policy linking secondary and post-secondary vocational education (vertical disintegration)
- a supply driven technical-vocational education and training system. Outdated pedagogical approaches and inexistent quality frameworks
- a job market signalling problem affecting competent workers without qualifications and raising transaction costs involved in companies’ human resource management
- lack of efficient and customer-driven information systems and counselling services for the lifelong learning learner but especially for young people in the transition from education to work

There are also significant opportunities for the country to start developing a lifelong learning system:

- priority given to education and human resource development in the public agenda
- level of awareness regarding the skill gap in the country
- raising demand for learning, especially in tertiary education
- level of awareness of the relevance of ICT skills and political will to implement a strategy to raise levels of ICT literacy
- pilot experiences of competency standards development, assessment and certification developed jointly by the government and leading companies in the business sector
- coordination between different ministeries to put in place a lifelong learning initiative

Finally, it has to be remarked that Chile has not defined an overall strategy for developing its human capital. Up to now has predominated a sectorial approach focused on raising access and quality of the school system. Though the recently approved Lifelong Learning and Training project can contribute to introduce a more systemic view there is still a risk for this initiative to become a traditional educational policy based on formal institutional arrangements for learning. In this sense there is still a work to do for developing a shared vision regarding an overall human capital development strategy for the country beyond initial formal education. Establishing clear targets involving a combination of sectorial and truly systemic and outcomes based performance indicators can help in so doing.
THE REPORT

The purpose of the report is to address some of the most relevant issues Chile faces in order to effectively implement a lifelong learning policy. An important part of the report is dedicated to take stock of where the country stands against the criteria proposed by the OECD for making a reality the lifelong learning for all agenda. The approach taken tries to make justice to the systemic view underpinning the lifelong learning approach. Key indicators are used to picture the country's situation and the main challenges for the next decade are described. Attention is also given to new initiatives fitting the lifelong learning agenda, particularly the recently approved Lifelong Learning and Training Project. Quality, equity and financing are included as cross-cutting themes. The analysis emphasizes long term trends and international comparisons as well.

The report is structured in five chapters.

**Chapter 1** attempts to measure the existing stock of human capital in Chile. In so doing, standard indicators of educational attainment and direct measures of cognitive and other skills through standardised tests are used.

**Chapter 2** analyses the evidence regarding access, participation and quality of learning outcomes in the main sectors in which lifelong learning occurs. Bottlenecks and opportunities for a lifelong learning policy are identified at each level.

**Chapter 3** describes the institutional arrangements already in place or that should be developed in order to facilitate a friendly, learner centered, effective and demand driven lifelong learning system. Emerging requirements for the policy making process are also described.

**Chapter 4** depicts a general picture of the current investment on education and training, with emphasis on the existing incentives and the additional resources needed to fund the implementation of a lifelong learning policy. Special emphasis is given to the roles that both private and public sectors have played up to now and should play in the future is the country is to progress towards making a reality the lifelong learning agenda.

**Chapter 5** summarizes the main findings and proposes policy recommendations in the main issues identified across the report. The role that the Lifelong Learning and Training Project recently approved will play in the years to come is also taking into account.
1. CHILE’S HUMAN CAPITAL STOCK

1.1 INTRODUCTION
A first step in order to implement sound lifelong learning policies to address the challenges of the knowledge society is to examine the existing stock of human capital. Human capital is a critical determinant of economic progress. A skilled and productive workforce increases the output of the economy and helps to facilitate the incorporation of advanced technology from developed countries. This chapter pictures where the existing Chilean labour force stands against the demands of the knowledge economy.

A common method of estimating the existing stock of human capital is educational attainment, using the level of education completed by the adult population as a proxy. However important as it is, it has been suggested that the level of schooling has a number of limitations as an indicator of human capital (Barro and Lee, 2000). First, the measure of educational attainment does not take account of the skills and competences gained by individuals after their formal education. Second, it is not the best proxy of the actual skills and competences achieved as in many countries, Chile included, progression of individuals within the school system is not subjected to external assessments. In addition, Hanushek and Kimko (2000) and Barro (2001) have found that using direct measures of skills, like international comparative tests of cognitive ability, provides a more powerful explanation of economic growth than simply years of schooling. In sum it has been recommended that both educational attainment and output based measures have to be complemented to take stock of a country’s human capital.

In this chapter, we will examine the stock of human capital in Chile using two sets of indicators. First, estimations of educational attainment produced by Barro and Lee (see Barro and Lee 2000). Second, adult population literacy, as measured by the IALS (OECD, 2000a; Bravo and Contreras, 2001a). Finally, reference is made to the new competences demanded by the knowledge economy, especially those concerned with information and communication technologies (ICT).

1.2 EDUCATIONAL ATTAINMENT
Barro and Lee have produced a complete data set on educational attainment for a broad number of countries between 1950-2000 (Barro and Lee, 2000). The data shows the average years of schooling and the distribution of educational attainment of the adult population for the 25-65 and 15-65 cohorts at seven levels of schooling. According to this source, the average years of schooling of the population over age 25 in Chile is 7.9. Chile stands well compared to the average years of schooling of Latin American countries (5.73). However, when compared to the average years of schooling of advanced countries (9.8) it presents a lower educational attainment.

The evolution of educational attainment at the secondary and tertiary level shows an important improvement as the Table 1.1 shows. For the year 2000, 15.1 percent of the population over 25 years old had completed secondary education and 10.7 percent had completed tertiary education. Again compared to Latin American countries’ average (8.4 and 7.7, respectively) Chile stands well, but it exhibits a lower rate of educational attainment than developed countries (18.4 and 16.8, respectively). Besides, the average number of years at school has increased at a slower pace in Chile (2.9 between 1960 and 2000) in comparison to countries like Holland (3.97 for the same period), Finland (4.77), Mexico (4.32) or Korea (7.23). It can then be said that accumulation of human capital has been slower in Chile in comparison with other countries (Brunner, 2001).
Table 1.1: Educational Attainment of the Total Population Aged 25 and Over  
(Percentage of the population aged 25 and over)

<table>
<thead>
<tr>
<th>Year</th>
<th>Secondary Education</th>
<th>Tertiary Education</th>
<th>Average years of school</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Full</td>
<td>Total</td>
</tr>
<tr>
<td>1950</td>
<td>19,1</td>
<td>7,6</td>
<td>2,4</td>
</tr>
<tr>
<td>1960</td>
<td>22,4</td>
<td>11,0</td>
<td>2,1</td>
</tr>
<tr>
<td>1965</td>
<td>21,1</td>
<td>9,8</td>
<td>2,4</td>
</tr>
<tr>
<td>1970</td>
<td>26,6</td>
<td>12,0</td>
<td>3,8</td>
</tr>
<tr>
<td>1975</td>
<td>25,5</td>
<td>11,2</td>
<td>4,8</td>
</tr>
<tr>
<td>1980</td>
<td>26,9</td>
<td>11,6</td>
<td>7,2</td>
</tr>
<tr>
<td>1985</td>
<td>27,3</td>
<td>11,6</td>
<td>8,3</td>
</tr>
<tr>
<td>1990</td>
<td>33,9</td>
<td>14,2</td>
<td>12,3</td>
</tr>
<tr>
<td>1995</td>
<td>35,4</td>
<td>14,8</td>
<td>13,7</td>
</tr>
<tr>
<td>2000</td>
<td>36,0</td>
<td>15,1</td>
<td>15,8</td>
</tr>
</tbody>
</table>

Source: adapted from Barro and Lee, 2000

1.3 ADULT LITERACY

It has been suggested that educational attainment needs to be complemented with a more direct measure of the actual knowledge, skills, competencies and attributes embodied in individuals to get a more precise picture of a country’s human capital. The International Adult Literacy Survey (IALS) is probably the most reliable measure available of adult’s basic skills, even considering it does not cover key competences like working with others, etc. For countries like Chile, which have already achieved high rates of participation in schooling is then particularly suggestive to participate in international comparative tests. In this sense, the decision taken by the chilean government of involving the country in the second round of the International Adult Literacy Survey (IALS) can be considered a crucial startingpoint for developing lifelong learning policy for the country. The IALS outcomes were broadly diffused, triggering a debate in the public arena that raised the awareness

2 OECD has also compiled data on educational attainment of the population in the 90s. This data set presents the percentages of the population aged 25-64 for whom the highest completed level of education falls into four categories: below upper-secondary education, upper-secondary education, non-university tertiary education, and university-level education. OECD’s estimations correspond reasonably well to Barro and Lee’s. Nonetheless, there are significant differences for some countries. For several countries, for instance, OECD’s estimation shows higher attainment at upper-secondary and above than Barros and Lee’s estimates.
among policy makers regarding the importance of setting up a strategy to upskill the labour force\textsuperscript{3}. The IALS outcomes are extensively used across this report, as the best measure available of the chilean’s labour force skill gaps.

**BOX 1.1: IALS IN CHILE**

In 1997 Chile accepted an invitation from the OECD to participate in the second round of the IALS. The Ministry of Economic Development appointed the Department of Economy, Universidad de Chile to carry on the exercise, following strictly the OECD methodological indications. The sample was composed by 3502 respondents. The outcomes are described in Bravo and Contreras, 2001a. The IALS defines literacy as the ability to “understand and utilize printed information in daily activities in the home, in the community and at work” (OECD, 2000a) The study provides a measurement of skill levels of adults aged 16-65 along three domains: literacy prose, document and quantitative literacy. The survey was designed such that people can be placed in one of five literacy levels, corresponding to different bands of scores ranging from 0 to 500. Level 1 of literacy is the lowest level, which denotes barely functional literacy the person may know the alphabet and know how to read words, but cannot go beyond the processing of the most basic of written instructions. At this level an individual may, for example, be unable to determine the correct amount of medicine to give a child from information printed on the package. Level 3 corresponds to the minimal acceptable level of competency on the three domains. Level 4 and 5 describe respondents who demonstrated command of higher order information processing skills (see OECD 2000a).

Evidence from IALS paints a grim picture regarding the skill gap of the Chilean labor force, even for highly educated workers (Bravo and Contreras, 2001a; OECD, 2000a, Eyzaguirre et al, 2001). The following table shows the performance of a group of selected countries on each scale and domain of literacy measured by the IALS. As can be seen the average score across countries on each of the three scales shows considerable variation, with Sweden having the highest average on all three scales and Chile the lowest.

**Table 1.2: Per cent of Population Aged 16 - 65 at each Prose, Document and Quantitative Literacy, 1994 - 1998 (selected countries)**

<table>
<thead>
<tr>
<th>Category / Country</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4/5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PROSE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>14,5%</td>
<td>34,2%</td>
<td>38,0%</td>
<td>13,4%</td>
</tr>
<tr>
<td>Sweden</td>
<td>7,5%</td>
<td>20,3%</td>
<td>39,7%</td>
<td>32,4%</td>
</tr>
<tr>
<td>United States</td>
<td>20,7%</td>
<td>25,9%</td>
<td>32,4%</td>
<td>21,1%</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>21,8%</td>
<td>30,3%</td>
<td>31,3%</td>
<td>16,6%</td>
</tr>
<tr>
<td>Chile</td>
<td>50,1%</td>
<td>35,0%</td>
<td>13,3%</td>
<td>1,6%</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>15,7%</td>
<td>38,1%</td>
<td>37,8%</td>
<td>8,4%</td>
</tr>
<tr>
<td>Hungary</td>
<td>33,8%</td>
<td>42,7%</td>
<td>20,8%</td>
<td>2,6%</td>
</tr>
<tr>
<td>Portugal</td>
<td>48,0%</td>
<td>29,0%</td>
<td>18,5%</td>
<td>4,4%</td>
</tr>
<tr>
<td><strong>DOCUMENT</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>9,0%</td>
<td>32,7%</td>
<td>39,5%</td>
<td>18,9%</td>
</tr>
<tr>
<td>Sweden</td>
<td>6,2%</td>
<td>18,9%</td>
<td>39,4%</td>
<td>35,5%</td>
</tr>
<tr>
<td>United States</td>
<td>23,7%</td>
<td>25,9%</td>
<td>31,4%</td>
<td>19,0%</td>
</tr>
</tbody>
</table>

\textsuperscript{3} It is important to remark that despite its relevance, IALS only measures foundation competences and does not examine some of the (new) skills the knowledge economy demands, such as ICT skills and generic “workplace competences” (team-work, communication skills and problem-solving skills).
In terms of the different levels of performance defined in the study, around 50 percent of the Chilean population aged 16-65 was found to be at level 1 in the three domains of literacy measured by the IALS (prose: 50.1%; document: 51.5% and quantitative: 56.4%). This outcome means that half of the adult population lacks the more basic skills. Likewise, more than 80% of the population aged 16-65 has a performance on literacy tasks below the minimum level of competence needed to cope adequately with the demands of everyday life (level 3 according to the OECD). That means that 4 out of 5 Chileans are not equipped with the minimal skills to cope with everyday life problems, such as to understand a bicycle’s handbook.

This result is surprising if one considers that 10.7% of Chileans aged 25 and over have completed higher education. Low skills are found not only among marginalised segments of the Chilean social structure but among a significant proportion of the adult population taken as a whole.

Furthermore, and confirming other empirical evidence available, the IALS shows significant differences in literacy skills within the Chilean population when compared across socio-economic backgrounds. Table 1.3 gives an indication of the gaps found among different income quintiles, with the population from less favoured backgrounds performing poorly in comparison to higher income groups (Bravo and Contreras, 2001a).

<table>
<thead>
<tr>
<th>Income Quintiles</th>
<th>Prose</th>
<th>Document</th>
<th>Quantitative</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (lowest)</td>
<td>185</td>
<td>183</td>
<td>161</td>
</tr>
<tr>
<td>2</td>
<td>205</td>
<td>203</td>
<td>187</td>
</tr>
<tr>
<td>3</td>
<td>210</td>
<td>208</td>
<td>196</td>
</tr>
<tr>
<td>4</td>
<td>226</td>
<td>225</td>
<td>218</td>
</tr>
<tr>
<td>5</td>
<td>254</td>
<td>251</td>
<td>256</td>
</tr>
</tbody>
</table>

Source: Adapted from Bravo and Contreras (2001a).

An overall analysis of the described results shows that Chile’s labour force just cannot perform well in an economic environment demanding more sophisticated applications of knowledge to the production of products and services. In addition, while focused on the ability to understand and use texts and illustrated documents, the IALS reveals that more
is at stake. The penetration of electronic tools into the workplace makes writing and reading the most important skills anyone should possess. In this sense for chilean workers who use information and communication technologies (ICT) in the workplace to read and write properly have become more than ever an essential skill.

It is important to note that the current labour force will be working during the next 25 years, as indicated by demographic analysis (CELADE, 2001). This means that Chile faces a serious problem of human capital stock that has to be addressed in the current generation, with special policies targeting the adult population and the young people facing the transition from education to work. Up to now human resource development policies had been concentrated on basic education, with substantial public investment fostering improvement on both equity of access and quality of learning outcomes for those at school age. This turn calls for a more systemic approach that takes in account the needs of learners of all ages.

1.4 COMPETENCES FOR THE KNOWLEDGE ECONOMY

It has been said that the knowledge economy demands a set of new competences to those in the workplace. ICT skills are probably the only truly new, as the other mentioned (working with others, solving-problems, communication, etc.) have been always part of the generic competencies workers have to deploy in the workplace. What is new is the increasing importance of these generic competencies for every worker, not only those in managerial positions.

There is no systematic evidence regarding the extent to which ICT skills and the “new” workplace competencies are demanded in the country. They have not been assessed in a large scale neither, making difficult to estimate the current skill gaps in the same way the IALS does regarding literacy. Despite this limitation, there is some indication regarding what skills are seen as more relevant for employers. As Figure 1.1 shows, for example, the main training programs purchased in 2000 by chilean employers under the training tax rebate scheme. This information can be used as a proxy of the skills in demand and/or of the existing skill gaps, as perceived by employers.

As the Figure 1.1 clearly indicates, programs on ICT and administration/management were the most demanded training fields by employers. Inside the Management category, the most demanded specific training programs were those concerning leadership, motivation and team building in the workplace. In the case of ICT demand was concentrated on the use of standard software for the workplace (office packages including word processing, spread sheets, etc.).
However incomplete this data might be it reflects a pervasive trend in the workplace: the importance given to ICT skills and to a new set of non occupational-specific skills but to more generic ones involving working with others, communication, etc. Unfortunately there is no evidence regarding the extent to which chilean workers exhibit these generic competences.\(^4\)

As a vital part of the foundations for lifelong learning and lifelong employability, what has been called “digital literacy” (OECD, 2000c) has become to be seen as increasingly relevant in the country. Unfortunately there is very little information regarding the stock of these new skills and competences in the Chilean adult population. As a consequence, it is difficult to estimate the extent of the digital divide in the country.

This section attempts to draw a general picture using information on computer use collected by the IALS. Chile included a special item on computer use in the IALS survey applied in the country. The evidence from this item indicates that 19.8% of the population aged 16-65 uses computer on the job and that 10.1% of this population has a computer at home. This figures are very low compared with advanced economies. For example, the percentage of workers 18 years old and over using computer at job in the United States was 46% in 1993 and 50% 1997. In the UK in 1999, 60% of workers used computers in

\(^4\) In this respect, it would have been highly relevant for the country to participate in the Adult Literacy Survey and Life Skills Survey (ALL).
their jobs, up from an estimated 24% in 1992 (see OECD, 2001b). The table below shows the extent of computer use across different levels of educational attainment.

### Table 1.4 Computer use by level of educational attainment

<table>
<thead>
<tr>
<th>Level of educational attainment</th>
<th>Use computer at work</th>
<th>Access to computer from home</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uncompleted Primary</td>
<td>1.5%</td>
<td>1.1%</td>
</tr>
<tr>
<td>Completed primary</td>
<td>4.2%</td>
<td>1.9%</td>
</tr>
<tr>
<td>Uncompleted secondary</td>
<td>9.9%</td>
<td>5.1%</td>
</tr>
<tr>
<td>Completed secondary</td>
<td>26.7%</td>
<td>8%</td>
</tr>
<tr>
<td>Tertiary</td>
<td>50.4%</td>
<td>32.5%</td>
</tr>
</tbody>
</table>

Source: Bravo and Contreras, 2001a.

As the table indicates, there is a strong link between educational attainment and computer use. This can be considered a signal of the digital divide in the country and a matter for concern since a majority of the adult population does not have even the possibility of interacting with ICT, worsening the current skill gap. It is important to note that as the workplace incorporates more technology, ICT skills will not be seen or considered as technical or specialised skills. On the contrary, ICT skills are in the process of being considered as basic skills that job applicants already have to have developed if they want to be appointed even in middle complexity positions.

An additional implication is that the lack of ICT skills will imply that many young and adults will not be able to take advantage of the benefits of new technologies for learning purposes, limiting their possibilities to be upskilled across the life-span.

The following figure shows the results of regression analysis for the possibility to use ICT in the workplace.

### Figure 1.2 Variables that increase probability of using ICTs in the workplace

Source: Bravo and Contreras, 2001
Each year of additional schooling improves the probability of using computers at work as it was also shown by Figure 1.2. Besides, workers in the financial services industry and those working in large companies are in better conditions as they have the opportunity of using and upskilling their ICT skills. A closer look shows that only 9.7% of adults working in small companies (meaning with less than 10 people) make use of ICT in the workplace while almost 40% of large companies (500 or more employees) do have access on a daily basis to computers and other information technologies (op. cit.).

To sum up, from the indirect evidence available it can be said that chilean workforce exhibits important skill gaps to fully participate in the emergent new labour environment. The low ICT usage is relevant not only because computers permeate the modern workplace but also because those who lack basic ICT skills will not be able to take advantage of the new learning technologies.

1.5 SUMMARY

The evidence presented in this chapter shows clearly that Chile faces a large skill gap in its adult population and labor force in terms of basic competencies and new skills. It is important to note that however significant the efforts being made at the school system level, it is crucial for the country to address the skill gap of its current labour force. Among the many policy implications that can be drawn from the this State of things, it seems to be important to make a distinction between a stock and a flow problem. A significant part of the current workforce will be working for the next twenty years so the country cannot afford to wait for the next cohorts to compensate today’s gaps. Without disregarding the important effort done to improve quality and equity in the education system, it is compulsory to address the deficit detected in the population already in the workplace. This effort cannot be limited to a second chance for adults without primary/secondary certificate but has to include the enormous population that even having completed secondary school performed at very low levels in the IALS.

The challenge thus is threefold:

- how to ensure that younger cohorts are better skilled to participate in the knowledge economy and society;
- how to ensure that adults with different levels of educational attainment are enable to participate in it;
- and how to ensure that everyone is able to continue to update skills and understanding, as the technologies and the social and economic enviroments change.

The effort to be done has to combine then improvements in the learning outcomes at the school level incorporating the new skills demanded into the schooling experience; second chance opportunities for adults that have not completed secondary education and new learning opportunities in both formal and informal settings, inside and outside the workplace.
2. PARTICIPATION IN LEARNING ACROSS THE LIFE-CYCLE

2.1 INTRODUCTION

Realisation of a modern lifelong learning concept is a long-term policy task. In Chile it has to be achieved balancing two perspectives. First, for the generation still in school, the foundations must be laid before they leave formal education and they must emerge as lifelong learners with the skills needed to enter the labour force and to direct their own learning for the rest of their lives. Secondly, adults must have the opportunity and the means to access whatever learning they requires throughout their lives. This is especially relevant under the light of the outcomes from the IALS above described.

A first step towards solid foundations for lifelong learning is expanding access and participation in the entire spectrum of learning: from the pre-school years, through primary and secondary schooling and tertiary education to adult learning. In this respect, Chile has made a significant progress in both primary and secondary levels of education. Today’s participation rates are nearly universal for primary school and almost 90 percent for secondary school. Despite the improvement made at the level of pre-primary and tertiary education, there is still a long way for raising enrollment in these two levels.

Equity remains a relevant issue at every level, as figure 2.1 indicates. Coverage is especially unequal in tertiary education, with students from the lowest income quintiles facing severe restrictions to enter higher education institutions.

![Figure 2.1 Educational attainment by income quintiles](image)

<table>
<thead>
<tr>
<th>Income quintile</th>
<th>Pre-Primary</th>
<th>Primary</th>
<th>Secondary</th>
<th>Tertiary</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>II</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>III</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IV</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Ministry of Planning, (Mideplan), National Socioeconomic Survey (CASEN) 2000.

Despite the significant progress made in access to basic education in the country, the quality of learning outcomes remains being a challenge, as shown by recent measures...
have shown (see next section on quality). Improvement in the quality of learning outcomes is then persistently emphasised by local researchers, policy makers and, more broadly, by the public opinion, as a major problem to be solved in the following years.

In what follows the State of things at each level of the educational system is analysed, taking stock of where Chile stands with respect to two broad lifelong learning goals: a) participation and coverage in foundation and continuing learning and b) quality of learning outcomes. To do so, indicators of Chile’s performance on access and participation and on quality of learning in the main sectors in which lifelong learning occurs are presented and discussed. In all sections there is a special focus on the issue of equity in terms of how widely has improvement in educational attainment been shared among different groups.

2.2 EARLY CHILDHOOD EDUCATION

There is growing evidence regarding the importance of early childhood education and care for building a strong foundation for lifelong learning and for ensuring equitable access to learning opportunities later in school and life. Thus, equitable access to quality early childhood education and care can strengthen the foundations of lifelong learning for all children and support the broad educational and social needs of families (OECD, 2001b).

BOX 2.1 The Chilean School System: Structure and Administrative Categories

The PRE-SCHOOL education system serves children up to the age of 5 through a variety of institutions, both public and private. It is noncompulsory, and enrollment consists for the most part of children ages 4 and 5. Coverage in 2000 was 32.4 percent. Chile’s school system is organized into PRIMARY and SECONDARY levels. Eight years of education are compulsory at the primary level for pupils ages 6 to 13 years. Four years of education are not compulsory at the secondary level for pupils between the ages of 14 and 18. The last two years of secondary level comprises two tracks. One follows a general academic curriculum in the humanities and sciences and is intended mainly as leading to studies at the higher education level; the other track is technical vocational in orientation, and it is intended to prepare pupils for the labor force and/or for post-secondary technical vocational studies.

Total enrollment in the primary and secondary levels of the school system stood at 3,23 million pupils in 2000: 2,35 million in the primary level, representing 97 percent coverage for the 6-to-12 age group, and 822,946 pupils at the secondary level, representing 84 percent coverage for the 14-to-18 age group. There are 144,377 teachers in the system, working in 10,605 schools.

In terms of administrative and funding relationships, the institutional categories (created by the 1981 reform) are the following:

- **Municipal schools** (53.7% of total enrolment) are administrated by the more than 300 local authorities (ie municipalities) of the country. They are publicly funding through a per pupil attendance-based subsidy (or subvention).
- **Private-subsidized schools** (35.8% of total enrolment) are financed through the same voucher system than Municipal School.
- **Private-paid schools** (8.9% of total enrolment) have no government subsidies, operating entirely on parental contributions.
- **Corporation schools** (1.6% of total enrolment) correspond to a sub-group of the technical-vocational secondary schools administered by business corporations with fiscal funding especially established for this purpose (which is not a per-pupil subsidy).

Sources: Adapted from Cox and Lemaitre (1998), updated with information from Ministry of Education (MINEDUC), *Compendio de Información Estadística, 2000*.

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In this context, improving access to, and the quality of early childhood education has beginning to be a policy priority in Chile (see Mineduc 2001b). This section presents some indicators regarding access and quality.

In terms of access Chile has improved its performance, although still faces a major challenge. The enrollment rate for pre-primary education has increased sharply between 1990 and 2000, growing from 20.9% to 32.4% for children under 6 years old. If we consider children at age of 4 and 5 it is noteworthy that in 1990, 59.9% of children at this age did not attend school, while in the year 2000 this percentage descended to 43.9% (Mideplan 2001). However, the evidence suggests that the capacity to attend children below the age of 6 would need to increase substantially if participation rates are to reach the levels found in more developed countries (see OECD, 2001b, e).

Table 2.1: Participation in pre-primary education for children under 6 years old. 1990 and 2000 (%)

<table>
<thead>
<tr>
<th>Year</th>
<th>Net enrolment rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>20.9</td>
</tr>
<tr>
<td>2000</td>
<td>32.4</td>
</tr>
</tbody>
</table>

Sources: Ministry of Planning, (Mideplan), National Socioeconomic Survey (CASEN) 1990 and 2000.

Further evidence indicates that access to pre-primary education is highly stratified in terms of socio-economic backgrounds. Although the coverage has increased sharply between 1990 and 2000 in each of income quintile, the access is still very unequal. In 2000 while pre-primary education coverage was 25.5% for the lowest income quintile, 50.2% of the children from more favoured backgrounds participated in this level of schooling.

Table 2.2: Coverage in pre-primary education by Income Quintile 1990 and 2000 (%)

<table>
<thead>
<tr>
<th>Per capita family income quintile</th>
<th>1990</th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>I (lowest)</td>
<td>16.9%</td>
<td>25.5%</td>
</tr>
<tr>
<td>II</td>
<td>17.5%</td>
<td>29.6%</td>
</tr>
<tr>
<td>III</td>
<td>20.4%</td>
<td>32.7%</td>
</tr>
<tr>
<td>IV</td>
<td>27.2%</td>
<td>37.6%</td>
</tr>
<tr>
<td>V</td>
<td>32.4%</td>
<td>50.2%</td>
</tr>
</tbody>
</table>

Source: Ministry of Planning (Mideplan), National Socioeconomic Survey (CASEN) 1990 and 2000.

Coverage is also very unequal according to urban/rural divide, as can be seen in table 1.3.
Table 2.3: Participation in pre-primary education by rural/urban areas

<table>
<thead>
<tr>
<th></th>
<th>Coverage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban</td>
<td>34.8</td>
</tr>
<tr>
<td>Rural</td>
<td>17.2</td>
</tr>
</tbody>
</table>

Source: Ministry of Planning (Mideplan), National Socioeconomic Survey (CASEN) 1990 and 2000

To expand access to pre-primary education is only a first step in establishing a solid foundation for lifelong learning. This expansion needs to be complemented by raising the quality of provision, which has been described as very poor especially for children from low socio-economic family backgrounds (CEDEP, 1997; Eyzaguirre and Le Foulon, 2001). It has even said that for children belonging to the low income quintiles attending to preschool does not make a difference in their cognitive development and future school performance, because of the poor quality of their learning experience (op.cit).

Thus, as the evidence suggests, unless the expansion of access is complemented with an enrichment of the learning environment it will not ensure children entering primary education with the foundation skills needed at this level. Unless more and better pre-primary education is made available for children, the school system will have to play a remedial role for which is not particularly designed.

It is noteworthy in this context the awareness on this issue at the highest political level in the country. President Ricardo Lagos in his State of the nation address (21 May 2000) mentioned the importance of expanding access to pre-primary education, and considered this initiative as one of the most important measures for improving the opportunities of Chileans from low socio-economic level. In fact, in the national budget for the year 2001 an important increase of resources for pre-primary education was stipulated. In addition, in October 2001 a new curriculum for pre-primary education incorporating recent developments in the field was introduced (Mineduc, 2001b). Despite these good signals, early childhood education remains being one of the biggest unfinished items on the agenda for implementing lifelong learning in the country.

2.3 PRIMARY AND SECONDARY EDUCATION: AN UNFINISHED AGENDA

The Educational Reform in Chile has significantly improved access to and participation in primary and secondary education, reducing, at the same time, the repetition and drop-out rates⁶. Nevertheless, the improvement in the expansion of access and in the internal efficiency between 1990-2000 have not been followed by similar improvements in the quality of learning outcomes, becoming the main challenge for the years to come. This section presents first the main indicators on access, participation, progression and completion at these educational levels. Secondly, it presents quality indicators of the learning outcomes, taken information from different standardised cognitive skills test used in the country to measure school achievement.

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⁶ It is beyond the scope of this report to describe the very important educational reforms undergone by Chile in the last twenty years. Among the more recent accounts are Cox, 2001; González, 2001; Delannoy, 2000; Arellano, 2000b and 2001b.
**Participation in the School System**

As table 2.4 shows, Chile has improved the coverage rates for primary and secondary education reaching almost universal participation in both levels of the educational system. At the same time, the different policies implemented during the 1990s had a positive impact on the internal efficiency indicators of the school system. The repetition rate for primary education decreased from 8 to 3 percent between 1990 and 2000 and the dropout rate decreased from 2.3 to 1.3. In the case of secondary education, the repetition rate decreased from 12 to 7 percent, and the dropout rate decreased from 7.4 to 4.

**Table 2.4. School system coverage by educational level and efficiency indicators for education 1990-2000**

<table>
<thead>
<tr>
<th></th>
<th>1990 (%)</th>
<th>2000 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PRIMARY EDUCATION</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participation rate</td>
<td>94</td>
<td>97</td>
</tr>
<tr>
<td>Repetition rate</td>
<td>7.8</td>
<td>2.9</td>
</tr>
<tr>
<td>Dropout rate</td>
<td>2.3</td>
<td>1.3</td>
</tr>
<tr>
<td><strong>SECONDARY EDUCATION</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participation rate</td>
<td>77</td>
<td>84</td>
</tr>
<tr>
<td>Repetition rate</td>
<td>12.4</td>
<td>6.5</td>
</tr>
<tr>
<td>Dropout rate</td>
<td>7.4</td>
<td>4</td>
</tr>
</tbody>
</table>


Even though there is still space for further reduction of drop-out rates, what has been achieved up to now has contributed to avoid early marginalisation of those pupils from the less favoured socio-economic backgrounds. Especially important is the progress made in the lower income quintiles, as the table below indicates. Differences still exist, however, depending on the socio-economic background. In 2000 secondary education coverage was 82.3% for the lowest income quintile and 98.5% for the highest, making evident that there is still some space to achieve a more balance distribution.

**Table 2.5: Coverage in secondary education by Income Quintile 1990 and 2000 (%)**

<table>
<thead>
<tr>
<th>Per capita family income quintile</th>
<th>1990</th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>I (lower)</td>
<td>73.3%</td>
<td>82.3%</td>
</tr>
</tbody>
</table>

7. At the same time, important differences also exist based on rural/urban areas. Coverage in urban areas was 92% and in rural areas was 76.8 (Mideplan, 2001).
Adults with low educational attainment

Despite the fact that graduation from secondary school does not guarantee that an education system has adequately equipped its graduates with the competences demanded by the knowledge economy, it has also been remarked that completion of upper secondary education increasingly marks the minimum threshold for successful entry into the labor market and training opportunities (see Bravo and Contreras, 2001). In this sense two indicators show that Chile’s graduation rates are still very low in comparison with the average OECD countries.

First, OECD estimations indicate that Chile’s graduation rate is 56%, which compares badly with the 79% exhibited by the OECD countries (OECD, 2001c). Second, according with the last census that took place in the country 70% of adults over 15 years old have not completed secondary school (Mineduc, 2001b). Disregarding the limitations of each of these indicators the tendency indicates that a significant proportion of the chilean adult population is at risk of being trapped in a low skill/bad jobs/low wages equilibrium becoming then marginalised from the knowledge economy. Career prospects are worse for the older cohorts.

Adults wanting to finish their primary and/or secondary school usually attend in a part-time basis to schools offering special schemes like completing two years of secondary in one calendar year. Evidence signals the low efficiency of the current adult education provision in the country as drop-outs reached 25.8% in 1999. Likewise, repetition rates were 9.7% for primary education and 10.6% for secondary education for the same year. Finally, enrolment (165,257 students in 2000) is dramatically low when the potential demand (almost 4 million people) is taken into account (Mineduc, 2001b). A closer analysis reveals that provision is not adequate and flexible enough for adults who participate in formal education. Timetable arrangements, prescribed curriculum, pedagogic practices and learning materials generally discourage adults from attending formal education. This makes evident that provision is not centered in the learners needs but very much in reproducing the traditional school system model and practices. A recent survey indicates in general learners perceive the services provided as not relevant enough for them.

Source: Ministry of Planning (Mideplan), National Socioeconomic Survey (CASEN) 1990 and 2000.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>II</td>
<td>76.3%</td>
<td>88%</td>
</tr>
<tr>
<td>III</td>
<td>80.5</td>
<td>92.4%</td>
</tr>
<tr>
<td>IV</td>
<td>87.2%</td>
<td>96.1%</td>
</tr>
<tr>
<td>V</td>
<td>94.3%</td>
<td>98.5%</td>
</tr>
</tbody>
</table>

8 OECD’s estimations of secondary graduation rates are based on the number of people, regardless of their age, who graduate for the first time from secondary programmes per 100 people at the age at which students typically graduate from upper secondary education. These rates thus take into account students graduating from upper secondary education at the modal or typical graduation ages, as well as graduation by older students (e.g., those in second chance programmes)
Secondary technical vocational education: an increasing social demand

An interesting feature of the secondary education system in the country is the increased participation rate in the technical vocational education track. While in 1981, 29.2% (161,809 students) of the students enrolled in secondary education chose the technical vocational track, by 2000 this proportion had reached almost 45% (366,700 students), mostly from the first, second and third income quintiles (Mineduc, 2000; Herder and Experton, 2001).

Figure 2.2: Evolution of the enrollment rates in secondary education by track (humanistic-scientific/technical-vocational)


It has been argued that the increase in the proportion of students choosing the technical vocational track has worsened inequity in the country (Berner and Experton, 2001). This argument assumes that by choosing this track pupils from lower income families would reduce their opportunities to continue technical studies at a higher level and get a productive job. Evidence, however, is not straightforward. Though in fact secondary technical vocational education can be seen as a dead end -actually there is no a clear progression pathway to post-secondary technical vocational education- it is also true that it does represent a better option than the humanistic-scientific track for those students from low income quintiles that must enter directly the world of work (Mineduc, 1999). Average salaries earned by graduates from the technical vocational track are higher than those earned by scientific-humanistic graduates, as Berner and Experton (2001) show using information from the 1998 National Socioeconomic Survey (Mideplan, 1998). In addition, ethnographic studies suggest that graduates from technical vocational school seem to be better equipped to find their way in the labour market. Earlier contact with the world of work and in general the emphasis put in practical problem-solving and other employability skills would help graduates from technical vocational school when seeking their first job (CIDE, 2001). To sum up, choosing the technical vocational education is perceived as a
more securing strategy by those students from lower quintiles. These perceived advantages can explain the reasons for parents and students choosing the technical vocational track9. What is at stake for this group is then a successful transition to working life, securing a salary and reducing the risk of unemployment.

Interestingly, this trend seems to be contradictory with the falling rates of participation in upper secondary vocational education that the OECD finds in other countries (OECD, 2000b). According to the OECD, young people would prefer to delay specific preparation for working life as the labour market seems to give more value to generic workplace skills. As technical vocational education would not have a direct link to tertiary studies it would be perceived as a less promising, dead-end and a more risky pathway to follow. For chilean young people from low income families, getting access to higher education is perceived as too difficult both because they lack the financial resources needed and the opportunities to gain a scholarship are very low. Technical vocational education seems to offer better prospects at least in the short term.

- **Quality of learning outcomes**

*TIMMS results.* One of the best indicators to take a direct measure of the knowledge and skills obtained at school and therefore of quality of the education system, are scores on internationally comparable tests of educational achievement. Chile’s performance in the Third International Mathematics and Science Study (TIMSS) was very poor, particularly compared to more developed countries and considering the high demands in skills from the knowledge economy. The TIMSS’s results for 8th grade students put Chile among the countries with the lowest scores in both science and mathematics (35 out of 38 countries).

![Figure 2.3 TIMMS results in Maths (each dot represents a country)](image)


---

9 Studies have shown that the probability of choosing the technical vocational track is higher for students whose parents earn low salaries (Mineduc, 1999; Cáceres and Bobenrieth, 1994).
The average score attained by Chilean students on the science test was 420 points, and 392 for math, well below the average for the 38 countries participating in the test (488 for science and 487 for math). Countries with the same level of educational attainment and similar or lower GDP per capita than Chile’s scored higher (see Martin, 2000a and 2000b; Mineduc, 1999; Arellano 2001a). For example, in mathematics, Korea scored 587; Hungary, 532; Czech Republic, 520; Malaysia, 519; Romania, 472; and Thailand, 467. Chilean students are behind the student in OECD high-income countries, East Asia, and transition economies.

A closer look at the results gives light on some of the variables explaining Chile’s performance. Arellano (2001a) States that two variables, from the many intervening, can explain Chile’s low performance:

10 Arellano argues that the differences between Chile and other countries cannot be explained by fewer resources per student. Likewise, chilean students devote more time to maths than students in most of the other countries do; school attendance is among the best; access to calculators or computers is similar or higher than the international average; the number of students per class (thirty-four in eighth grade) is similar to the international average (thirty-one) and lower than that of the countries that performed higher: Korea (forty-two), Taiwan (thirty-nine), and Japan (thirty-six). From a different standpoint, Bellei (2001) States that huge differences can be found between students from different socio-economic backgrounds with the less favoured performing lower than the ones from higher income families.
• lack of confidence of chilean teachers in their capacity to teach their specific subject matter (40% of the teachers reported low levels of confidence in their own capacity to teach scientific subjects, while only 16% of their international peers reported having the same problem. This is also the case with 24% of Chilean math teachers, against to only 5% of teachers from other countries.

• outdated mathematics and science curriculum of Chilean schools. In eighth grade, Chilean students were taught less algebra, geometry, chemistry, and physics than students in the rest of the world. The cohort that participated in the TIMMS had not been exposed to the new maths and science curriculum already in place in the country.

Teacher’s self-assessed skills gap is consistent with recent analysis on the reasons explaining the slightly changes on learning outcomes after ten years of heavy investment in the education system. Cox (2001) has remarked that according to the TIMMS, Chile’s education system offers a similar or even a better learning environment than many countries do but that teacher practices have not change becoming then a priority in the years to come.

IALS results. The proportion of secondary education completers whose performance on literacy tasks is at Level 1 is lower than the country mean but it is still very high (30.2% prose; 35.1% document and 40.1% quantitative) in comparison to other countries performance (Bravo and Contreras, 2001). Adult literacy scores of the 20-25 years old cohort can also be used to estimate the performance of those who have completed secondary education in the last decade. This population perform slightly better than the population aged 16-65 (except in quantitative literacy) but scores are still below level 3 and compare badly with other countries performance for the same cohort, as the following table shows.

<table>
<thead>
<tr>
<th>Category / Country</th>
<th>With less than upper secondary education</th>
<th>Completed upper secondary education</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PROSE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>269,5</td>
<td>298,8</td>
</tr>
<tr>
<td>Sweden</td>
<td>282,9</td>
<td>311,3</td>
</tr>
<tr>
<td>United States</td>
<td>227,7</td>
<td>270,2</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>261,0</td>
<td>290,6</td>
</tr>
<tr>
<td>Chile</td>
<td>206,4</td>
<td>248,6</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>267,5</td>
<td>294,2</td>
</tr>
<tr>
<td>Hungary</td>
<td>216,4</td>
<td>265,6</td>
</tr>
<tr>
<td>Portugal</td>
<td>237,9</td>
<td>302,0</td>
</tr>
<tr>
<td><strong>DOCUMENT</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>277,3</td>
<td>311,3</td>
</tr>
<tr>
<td>Sweden</td>
<td>292,7</td>
<td>314,4</td>
</tr>
<tr>
<td>United States</td>
<td>228,0</td>
<td>271,5</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>261,3</td>
<td>294,6</td>
</tr>
<tr>
<td>Chile</td>
<td>207,1</td>
<td>241,0</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>275,8</td>
<td>311,6</td>
</tr>
<tr>
<td>Hungary</td>
<td>212,0</td>
<td>276,5</td>
</tr>
<tr>
<td>Portugal</td>
<td>237,7</td>
<td>288,7</td>
</tr>
</tbody>
</table>
**QUANTITATIVE**

<table>
<thead>
<tr>
<th>Country</th>
<th>Reading</th>
<th>Math</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td>282.4</td>
<td>313.2</td>
</tr>
<tr>
<td>Sweden</td>
<td>288.8</td>
<td>309.3</td>
</tr>
<tr>
<td>United States</td>
<td>221.9</td>
<td>270.1</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>251.4</td>
<td>285.8</td>
</tr>
<tr>
<td>Chile</td>
<td>189.9</td>
<td>235.1</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>289.2</td>
<td>320.2</td>
</tr>
<tr>
<td>Hungary</td>
<td>222.0</td>
<td>291.3</td>
</tr>
<tr>
<td>Portugal</td>
<td>244.2</td>
<td>294.5</td>
</tr>
</tbody>
</table>

Source: International Adult Literacy Survey, 1994 – 1998 (OECD, 200b)

National System for the Assessment of the Quality of Education (SIMCE). In addition to comparative international tests, Chile has implemented since the end of the 1980s a national standardised test to measure learning achievements in language, mathematics, social sciences and natural sciences for primary (fourth and eighth grades) and secondary education (tenth grade). While a detailed analysis demonstrates that educational achievement has improve in relative terms since the reform started in 1990 (see Box), a recent measurement in terms of levels of performance indicates that learning outcomes are well below what was expected and are not equally distributed across socio-economic backgrounds (Figures 2.5 and 2.6).

**Figure 2.5 Levels of Performance (%) in Reading and Mathematics by School Administration Regime, fourth grade (1999)**

![Reading and Mathematics Levels](chart.png)
Figure 2.6 suggests a strong influence of the school administration regime on learning outcomes. Several studies developed have shown, however, that the differences are explained mainly for pupils' socio-economic backgrounds (González, 2001). In relation to secondary education, the evidences indicates that the impacts of the reforms on learning outcomes, measured by census scale standardized tests, is slight in language and significant in mathematics. The national evaluation of learning outcomes in language and mathematics, carried out in 10th grade students (second year of secondary) in the entire country in 1998, and whose results were compared to the same test applied in 1994 (after an equating study in which both instruments were applied to the same student sample), showed a progress of 3.3 percentage points in mathematics and stability in the results of the language tests. At the same time, 69.4% of all facilities experienced some level of increases in their mathematics scores, and 53.7% in language scores. (Cox, 2000). Nevertheless strong differences remain in student achievement based on their socio-economic origin, indicating inequity inside the education system. In 1998, the average score for 10th grade students, in language as well as mathematics, was 35% higher in institutions for students in the highest socio-economic quintile than those in the lowest (see Berner & Experton, 2001).

It has been said that the chilean educational system has succeed in terms of reducing social exclusion and giving more learners a better and enriched learning environment (Bellei, 2001; Cox, 2001; Delannoy, 2001). Material and institutional conditions (infrastructure, enrollment, coverage, per pupil spending, classes size), learning resources

11 It must be said that the levels of performance are relative to the population. Most pupils attending private schools are from middle and high income backgrounds. A more balanced distribution is found in private subsidised schools. Finally, most pupils attending schools in the municipal regime come from lower income families. Econometric studies have shown that differences between the two school regimes receiving public funding disappear when socio-economic status is considered.
and total time for learning (overall annual teaching hours and attendance average) are equal or better than those existing in other countries, even developed ones. Overall learning achievement, however, has not improved as expected and remains unequal among the student population. Students from lower income families perform consistently lower than those from higher income quintiles in every standardised test applied in the country. There seems to be a general agreement on the fact that teaching practices within the classroom have not evolved jointly with the learning environment. A significant percentage of the teachers reported they are not in possession of the knowledge and skills needed to deliver their lectures in a good fashion. Finally, comparisons among public and private subsidized school do not show significant differences in their learning outcomes, when controlled by socio-economic background.

• ICT and the school system: experiences and future prospects

The inclusion of ICT in education is crucial both to prepare students for the information society and to make the most of new learning tools. ICT use enriches the school curriculum in at least two fundamental ways: 1) enhancement across every subject, through resources bank, simulations, learning sequences, collaborative activity, etc. This in itself has the potential to transform dramatically the learning environment. 2) the pursuing of digital literacy in its own right, understanding by it more than the ability to use a computer but a sophisticated set of competences related to information processing.

Chile is well ahead in Latin America in the incorporation of ICT in education. One key component of the education reform has been the introduction of computer into schools. The program called ENLACES (meaning links) has brought computers to public schools making internet access available to a significant population of students. In addition the program has trained teachers in how to introduce ICT in the classroom for the purpose of both enriching the learning environment and teaching pupils ICT skills. Chile has made progress in the four key dimensions involved in any attempt to introduce ICT in the school system: infrastructure, use, teachers training, and relevant contents.

Digital Infrastructure. The number of schools with computers and internet access was 6,200 from a total of 10,000 in 2001. The following table shows clearly that a significant proportion of the student have access to computers at school. It must be remarked that these figures are among highest among Latin American countries.

<table>
<thead>
<tr>
<th>Percentage of schools</th>
<th>Number of students</th>
<th>Percentage of total enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary schools</td>
<td>62%</td>
<td>2,000,000</td>
</tr>
<tr>
<td>Secondary schools</td>
<td>100%</td>
<td>712,000</td>
</tr>
<tr>
<td>Total</td>
<td>67%</td>
<td>2,712,000</td>
</tr>
</tbody>
</table>

Source: Ministry of Education. Red Enlaces, 2001

12 The facilities of the Enlaces Network have total access to the Internet since March, 1999, when the Telefónica -CTC telephone company made a donation of 5,000 telephone lines for the school system. It also donated the free use of communications for 10 years, to all the facilities in the network.
The ENLACES program has placed 42,800 computers in schools, which correspond to a ratio of students to computers of 63 students per computer (Primary 71/1; Secondary 43/1, excluding private-fee-paying), which is still insufficient to cover actual needs. The figures for Chile are very low compared to more developed countries such as Canada with ratios of 11.1 for primary and 8 for upper secondary. These are considered the minimal ratios in order to really take advantage of the educational potentialities of ICT. Although the availability of hardware does not guarantee its effective use, an inadequate number of computers can seriously affect the development of ICT within schools. In addition in Chile the monthly use of ICT per student is only of 10 minutes. Finally schools connection to internet are very low speed connections, there are very few schools with broadband access, which would allow teachers and students to really take more advantage of the pedagogical benefits of ICT. Thus there still a wide space for improving ICT access and use in chilean schools. The government’s goal for 2005 is to reach a ratio of 30 students per computer, representing an important though still insufficient effort for succesfully introduced ICT for teaching and learning purposes.

**Teacher training.** In order to use information technology in teaching and learning, teachers need to be trained. They must master ICT skills at least at the level of the average student, or somewhat higher, and must be able to integrate ICT into their teaching and to prepare students for the information society. The extent to which teachers have access to ICT training can be regarded as an indicator of a school’s adjustment to technological progress and to new forms of teaching methodology. The ENLACES program has trained in basic use of ICT (since 1993) approximately 77,000 teachers (of primary and secondary levels), which correspond to 54% of the total amount of teachers working in public and private subsidised schools. A more specialized training has been given to 15,000 teachers in how to take advantage of internet for learning purposes.  

Table 2.7 Home based computer access for teachers by school administrative regime, year 2000

<table>
<thead>
<tr>
<th>Teacher: ¿Do you have a computer at home?</th>
<th>Municipal</th>
<th>Private-subsidized</th>
<th>Private-fee-paying</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>55,0</td>
<td>58,1</td>
<td>69,7</td>
</tr>
<tr>
<td>No</td>
<td>45,0</td>
<td>41,9</td>
<td>30,3</td>
</tr>
<tr>
<td>100,0</td>
<td>100,0</td>
<td>100,0</td>
<td>100,0</td>
</tr>
</tbody>
</table>

Source, CIDE 2001

**Digital content.** The production of digital content adequate to the national K-12 curriculum, the effective use of global knowledge and information that is constantly produced and enlarged in the Web, and the continuous interaction between teachers, students and families is a challenge that has recently been address. The best information infrastructure is of little educational worth if there is no relevant content available in the web. Chile’s

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13 This initiative has been developed by Fundación Chile, a non-for-profit technology transfer institution. A number of other initiatives have been launched to support the introduction of ICT in the school system. Among other the a government agency for economic developing (CORFO) has recently made available special loans for teachers to buy computers for their homes (www.corfo.cl). The Ministry of Education is also starting a project for teaching mathematics using ICT.
Ministry of Education and Fundación Chile, a non-profit, privately managed, technology transfer organization, implemented in 2001 a National Educational Portal\textsuperscript{14} that is delivering digital resources, support services and teacher training for Chilean schools. This portal is responding to the learning demands and teaching interests of the K-12 education community: teachers, school managers, students, families, and education researchers and policy makers. The portal had in the two first months around 40,000 daily visits (average).

2.4 TERTIARY EDUCATION

As completion of secondary education has become near universal in Chile, participation in tertiary education has increasingly come to be viewed as an important prerequisite for working and learning throughout adult life. It is widely accepted that tertiary education play a critical role in the enhancement of Chile’s competitiveness, through the training of its workforce and the advancement of knowledge, which in principle should lead to new products and processes. Tertiary education entry and participation help to ensure the development and maintenance of a highly educated population and labour force being strongly associated with better access to employment and higher earnings (OECD, 2001c; Bravo and Contreras, 2001; Beyer, 2000).

In what follows participation rate in tertiary education is analysed taking into consideration the different options available (academic versus more applied and technical tracks) and the quality and relevance of learning inputs and outcomes.

Access and participation in tertiary education

In the early eighties the tertiary education system underwent a comprehensive series of structural and financial reforms aimed at: (i) open up the traditional system through unregulated market provision of private higher education with no public subsidies; (ii) diversify supply of tertiary education through differentiated institutions based on a functional hierarchy of educational certificates (iii) stimulate State financed higher education institutions to diversify their funding sources, alleviating the finance burden for the State.

The diversification and stratification process resulted in the tertiary education system structured in three tiers: universities, professional institutes (IP) and technical training centers (CFT)\textsuperscript{15}.

<table>
<thead>
<tr>
<th>Box 2.2 The chilean Tertiary Education System</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Universities</strong> offer undergraduate-first degrees and postgraduate programs. They are the only institutions authorised to award bachelor (<em>licenciatura</em>), master (<em>magister</em>) and doctoral academic degrees in the country. In addition, universities are the only institutions awarding <em>professional certificates</em> in 17 professional fields that were established as requiring as a pre-condition a <em>bachelor academic degree</em> (engineering, medicine, law, psychology, architecture, etc.) A distinction has to be made between what have to be called “traditional” or “public” universities from “private” universities, the first group receiving substantial public funding and the latter relying almost exclusively on student fees. There are 25 public universities though only 16 of them are actually public, the others being private institutions that were included before the reform among the tertiary institutions receiving public funding. In this sense to speak of “public” is strictu sensu is misleading for these institutions. The 25 universities meet at the Consejo de Rectores. There are 39 private universities.</td>
</tr>
</tbody>
</table>

\textsuperscript{14} www.educarchile.cl
\textsuperscript{15} IP stands for Institutos Profesionales and CFT for Centros de Formación Técnica.
Professional Institutes deliver 4 year programs and are authorised to award professional certificates in any field they want to, excluding the 17 fields requiring in addition an academic degree to be awarded which are only awarded by universities. IP are all private and do not receive public funding. One of them, Instituto Nacional de Capacitación INACAP, was formerly the State owned and mainly technical vocational education and training provider in the country. During the 80’s it was transferred to a especially created non-for-profit private corporation, whose Board of Directors compose mainly by the Confederación de la Producción y el Comercio which is the most important industry and commerce association in the country. INACAP is today by far the biggest Professional Institute across the country, with more than 60,000 students. There are 60 Professional Institutes.

Technical Training Centres offer two year technical vocational programs awarding what is called a Higher Technical Level certificate (note that secondary technical professional schools award in addition to the secondary education license a Middle Technician Level certificate). They are all private Institutions that have to be accredited by the State to deliver their programs accomplishing certain formal requirement regarding staff, infrastructure, etc. It has to be noted that it is a requisite for a certificate of this level to be awarded that students have to have attended a program lasting at least 1,600 hours. There are 121 CFTs.

The three tiers are subjected to a statuory regime according to which they are located in one out of four categories: full autonomy, accredited, examined and supervised. Full autonomy mean institutions can open programs and locations without any restriction nor supervision process. The 25 traditional or public universities were declare autonomous by definition. From the private universities group, 13 have become autonomous; 11 Professional Institutes and 6 Technical training Centres. The process to become autonomous is controlled by the Consejo de Rectores.

Regarding admissions, there is no a single system. Traditional universities set-up more than 30 years ago the Academic Aptitude Test (PAA) comprising skills centered exams on maths and language (spanish) and more specific knowledge centered tests on various subject matters like history, sciences and mathematics. The PPA is designed and scored according with international assessment standards. Access to traditional universities is highly competitive, with some institutions concentrating most of the applicants. Private universities and the other tertiary institutions can make use of PAA on a voluntary basis for their own purposes as the exams results are made public.

Neither tertiary level is a pre-requisite for a higher one, excepting within universities (usually postgraduate studies requiring undergraduate studies or academic first degrees). There are no formal equivalencies nor compulsory recognitions arrangement between certificates from different levels, only contingent arrangements usually within an institution offering different levels (ie INACAP usually recognises prior learning for its student wanting to get a professional degree in the same field in which he has got a technical certificate).

See Table 2.8 for enrolment in each tier of the Chilean Tertiary Education System.


The significant increase in the supply resulted in a dramatic student intake with participation rates going from 10.8 % in 1980 to 31.5 % in 2000 (425,000 students). This current participation rate is slightly higher that the observed in other middle income countries, though it still ranks far below the average for OECD’s countries (51 %). Before the reform, tertiary education in Chile comprised a limited amount of public universities and an even smaller amount of private providers publicly funded. In 1996, in turn, there were 242 private (and 25 public tertiary level institutions with private enrollments accounting for 63% of the total and only 30% of the budgets coming from public sources (Persico, 2001). Interestingly, most of the tertiary education expansion has been financed by private sources, mainly linked to tuition fees (see Chapter 2 of this report).

Following a broad tendency in latin-america (World Bank/UNESCO, 2000), high-income groups are heavily over-represented in tertiary education enrollments, as shown in Figure
2.5. As can be seen, the three higher quintiles account for most of the tertiary education enrollment expansion. Access to tertiary education is then highly unequal in the country.

Figure 2.5 Participation Rates in Tertiary Education
1987-2000 by Income Quintile

![Participation Rates in Tertiary Education](image)


It has been demonstrated that by accessing tertiary education individuals can enjoy significantly higher earnings and individuals from poor families can have access to move up in the earning scales promoting social mobility (Contreras, 2001). The following table shows earnings graduates from different levels got from the labour market.

Table 2.8a Earnings by level of education completed (1996 chilean pesos)\(^{16}\)

<table>
<thead>
<tr>
<th>Educational Level</th>
<th>Average Earnings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary (8 years)</td>
<td>107,202</td>
</tr>
<tr>
<td>Secondary (4 years)</td>
<td></td>
</tr>
<tr>
<td>Humanistic-Scientific</td>
<td>177,197</td>
</tr>
<tr>
<td>Technical Vocational</td>
<td>164,270</td>
</tr>
<tr>
<td>Tertiary</td>
<td></td>
</tr>
<tr>
<td>Technical Training Centre</td>
<td>254,609</td>
</tr>
<tr>
<td>Professional Institute</td>
<td>284,382</td>
</tr>
<tr>
<td>University Undergraduate</td>
<td>556,650</td>
</tr>
<tr>
<td>University Postgraduate</td>
<td>857,942</td>
</tr>
</tbody>
</table>


\(^{16}\) 2002 information not available. Current rate exchange is US$ 1 = $ 650 (chilean pesos)
As shown in the table, a student with undergraduate studies completed earns eight times the average salary obtained for an adult with primary education only. The difference between university and technical professional degrees is also significant while is lower between Professional Institutes and Technical Training Centres. This last difference raises the issue of the private economic return of the additional 2 years a student has to study in a Professional Institute in comparison with a Technical Training Centre.

Additional information shows that enrollment in universities is concentrated on higher income quintiles, with 84.5% of the students attending private universities coming from the two higher quintiles. In the case of IP and CFTs, students tend to come from lower income backgrounds with 45% of the enrollment in CFTs from quintiles I, II and III. To an important extent this tendency reflects the financing structure of tertiary education in Chile, as developed later.

### Table 2.8b Distribution of Tertiary Education Enrollment by Income Quintile (%)

<table>
<thead>
<tr>
<th>Type of Tertiary Education (Institution)</th>
<th>Income Quintile</th>
<th>Total Number of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I (lowest)</td>
<td>II</td>
</tr>
<tr>
<td>Universities (public)</td>
<td>5.0</td>
<td>13.6</td>
</tr>
<tr>
<td>Universities (private)</td>
<td>3.8</td>
<td>2.7</td>
</tr>
<tr>
<td>Professional Institutes</td>
<td>6.6</td>
<td>13.2</td>
</tr>
<tr>
<td>Technical Training Centres</td>
<td>7.0</td>
<td>15.7</td>
</tr>
<tr>
<td>Total</td>
<td>5.1</td>
<td>11.5</td>
</tr>
</tbody>
</table>

Source: Persico (2001)

In addition to the inequality in access it is important to note that most of the enrollment concentrates on Universities rather than in the other tiers of the tertiary education system. Figure 2.8 indicates that after an initial period of expansion enrolments in IPs has continue increasing but at a slow pace. Enrolment in CFTs in turn have sharply decreased. As a result the ratio between university graduates and technical graduates has worsened according with international standards. The decline of the enrollment in the lower tiers of the tertiary education system is the opposite of what would it be expected from an effective vertical diversification expansion policy (World Bank, 2000; 1998).
A number of reasons have been given to account for universities concentrating young people’s preferences. First, there is clearly a matter of parity of esteem between university and non university degrees. Technical and/or professional programs are seen as adding less symbolic capital to the student in comparison to traditional university degrees. Employers have more confidence in university degrees as proxies for skills and competencies. Second, technical vocational programs delivered by CFTs and Ips are arguably viewed as dead-ends as their certificates have not formal value for higher levels of education. Third, CFTs do not receive substantial public funding as opposed to most universities so paradoxically it might be more affordable to attend a university that to pay CFT’s fees. Fourth, partly as a result of this financial regime, CFT’s concentrate their programs in subjects like commerce and services not requiring a significant level of investment in equipment but add less value for the labour market. Fifth, partly as a combination of its financial regime and lack of incentives for student to follow a technical pathway, enrollment in CFT is decreasing. Sixth, in general, programs offered by CFT are of low quality, not only due to the lack of investment, but also due to the inexistence of curricular guidelines or education quality monitoring controls. Seventh, but not least the economic return and social prestige, that is the economic and symbolic capital derived from university degrees are higher. A policy fostering technical professional pathways among the youth will have to consider these factors to be effective.

17 In 1998, 44 percent of those attending CTFs enrolled in administration or commercial areas. Given the limited resources available, 80 percent of their budgets go to support operational costs, leaving only 2.5 percent for real investments. In practical terms, that means 70 percent of the CTFs do not have the infrastructure needed for their own activities and have to resort to using buildings not intended for educational purposes Source: Ministry of Education. Division of Higher Education. Department of Evaluation and Monitoring. Technical Training Centers. Consolidated Management Report. Preliminary Version. 1999.
Quality and relevance of tertiary education

Universities. They have a dual role of preparing the most skilled workforce and to generate and transfer knowledge to be applied for the purpose of improving the countries technological capacities. In both cases universities should maintain close links to industry as successful international experiences suggests (World Bank/UNESCO, 2000; World Bank, 1999). Chilean universities do not maintain close linkages with industry and there are no mechanisms for systematic feedback to indicate the kind of knowledge that should be taught and the skills that should be gained in universities. Education and business partnerships are scarce in Chile and as a result tertiary education is frequently described as not contributing substantially to the country’s participation in the knowledge economy (Brunner, 2001; World Economic Forum, 2000). Major investment in new-income generating activities, a declining capacity for basic research and a somehow self-referenced culture have probably reduced the attractiveness of universities as sites for industry investment (op.cit.). Regarding its formative role, university curriculum does not necessarily reflect the needs of industry, and frequently graduates are not well prepared to perform their jobs without further training. This is a signal that system the is oriented to the demand for higher education rather than to the demands coming from industry and the workplace. Thus a better mechanism for integrating the demands of the market into the education system is required if Chile is to transform itself into a knowledge-based economy. The knowledge based economy calls for university faculty to become “learning facilitators” and “knowledge utilization co-ordinators”, training students and transforming research results into marketable products (Gibbons, 1998).

Technical-professional institutions (CFT/IP). It has been recognised that private and public tertiary technical vocational institutions, particularly technical training centres offering two years programs, operate in a context void of any State education policy and strategy (World Bank, 2002). It is not clear, for instance, whether the technical vocational track will or will not be a policy priority for the country, and how can it be made attractive for the generations still in secondary education. Neither is clear whether the vertical differentiation process will or will not be reinforced by building up pathways to connect lower and higher levels of the tertiary education system. In these environment it is understandable the lack of a policy and operational mechanisms to check the quality of the learning outcomes from the institutions and to make available this information to those parents and young people making decision regarding where to invest in their education.

In terms of its relevance, the extreme free market policy and lack of public funding have been determinant in CFT centering their programs in areas which are of low cost and vaguely considered in high demand by potential students. Most of the enrollment is concentrated in areas like commerce and services who do not require a significant level of investment in equipment and that add less market value. Most technical training centres and professional institutions operate under outdated curriculum definitions not attuned to

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18 It is beyond this report to assess the chilean higher education system, its contribution to knowledge generation, etc. Some indicators lead to the conclusion that the situation is far from what can be expected: (i) qualification of teaching staff in most OECD countries university professors are recruited from the Ph.D. level; Chile produces 1/20 (per population unit) of the Ph.D.s produced on average by OECD countries, and less than 15% of faculty have advanced degrees (Argentina: 15%); (ii) coverage: it is about 31.5% in Chile, compared to 35% in Argentina, and 17% in Hungary, but significantly lower than in Korea (48%) and OECD countries, which are approaching higher education for all, with more than 50% higher education enrollment on average, and more than 80% of enrollment in the most advanced countries; and (iii) incomplete diversification: the subsector has relatively low enrollment rates at the lowest tier (17%, two year vocational and technical level), the graduate level, and in high cost / low private return fields such as basic sciences (2.5%).
industry needs (CIDE/MIDEPLAN, 2000). The quality of the educational services (teaching quality, learning environment, pedagogic strategies, IT support, etc) provided by CFT are insufficient and there are no explicit standards they have to achieve to operate. There are no substantial accreditation mechanisms nor external information available for those adults or youth deciding where and what to study. In this context, those larger institutions usually offering not only two year but four year professional programs seem to offer better quality services than those concentrated in short technical vocational programs. Relevance however remains questioned for all the technical professional institutions.

The systematic decreasing in technical training centres enrollments have raised doubts regarding their financial and institutional viability. There is no a clear public policy about whether to maintain them adding public funding and new incentives or leave them navigating in the current environment. If left to market forces, it is highly probably that the only way in which institutions offering only technical vocational two year programs can survive is through merging/take over processes. Otherwise they would have to obtain financial support for improving their programs, which seems unlikely19. Another scenario would be that smaller technical training centres disappear and large professional institutes and universities expand their share in the two year technical vocational programs market.20

Ministry of Education/World Bank Project. A Higher Education Improvement Project is currently dealing with most of the issues described (see Box below). Mid-term evaluations have not come up but there are reasonable concern of the possibilities for the project to accomplish its main performance indicators. It has been argued, for instance, that “the few financial incentives set in motion for technical professional institutions’ students, most of them financed by MECE-SUP, lack appropriate targeting. In addition these incentives are not sufficiently attractive to ensure an improvement in the inflow of TPI’s enrollment” (World Bank, 2002, p.4).

One of the most important and difficult objectives the MECE-SUP program is committed to is to build up an accreditation and evaluation system comprising all levels of tertiary education. The free market approach underpinning the 80s reforms of the educational system did not contemplate a significant role of the State as a regulator and responsible for public confidence on tertiary institutions’ quality. Actually strong resistances on the side of several tertiary education private providers have been raised against establishing overarching accreditation and evaluation systems. It is not clear then how the necessary agreements among the many stakeholders involved will be achieved for these purposes.

An additional challenge is how to make compatible and assure synergies between the MECE-SUP and the Lifelong Learning and Training Program starting in 2002. Especially relevant is how to make a reality curriculum articulation and progression pathways from secondary to tertiary technical vocational education and horizontal articulation between the latter and training programs articulated in learning modules.

19 Technical Training Centres are not even eligible for donations, as established by law.
20 A policy discussion has been launched regarding the extent to which CFTs might play a similar role that Community Colleges play in the USA, that is a particular kind of tertiary education institution clearly separated for universities offering a huge variety of adult education programs from tertiary technical vocational to programs preparing student for university degrees to company-based training provision and self-improvement and leisure courses for adults (see for instance Moura de Castro, 2000).
Box 2.3 Higher Education Improvement Project (MECE-SUP)

In 1998 the Chilean government decided to implement a six-year project (US$ MM 241) fostering to improve the performance of the Chilean higher education system in three key dimensions: (1) coherence and efficiency; (2) quality and relevance; (3) equity. The strategic choice taken was consistent with Chile’s market-based economy and limited role for the State: through the project the government wanted to strengthen the State’s participation in tertiary education policy making and system regulation. The most challenging issue is to define an institutional framework improving the system’s coherence. Regarding (2), the project promotes study programs and levels of higher education that are responsive to social demand and labor market needs and, thus, would have direct impact on Chilean socio-economic development. The project’s expected outcomes are:

1. coherence/efficiency: a new policy framework will be established at national level aiming at completing diversification, creating a more coherent and flexible set of rules and an efficiency regulatory framework.

2. quality/relevance: a quality assurance system will be established for all higher education institutions and study programs in order to provide concrete guidance to students, employers, Government, and the higher education sector itself.

3. contractual competitive financing system introduced for institutional support. The purpose is to have a system of allocation of public funds based on performance as an incentive to increase quality and efficiency among institutions. This is the main component of the project, accounting for 94% of its total funds.

The project has four key performance indicators: (i) increased percentage of graduates employed in their fields of study within six months of graduation (ii) improved positive views from employers on quality of graduates (iii) increased enrollment in and graduation from relevant technical, undergraduate and graduate programs. (iv) increased proportion of low income students that enter and graduate from the higher education system.


2.5 LEARNING AND TRAINING FOR WORK

Trends related to globalization, technological change and deep changes in employment patterns and work organization suggest that the training imparted by the education system is not sufficient for the skills needed for a lifetime of productive work. As a result all the learning activities intended at helping adult workers whose existing competencies are not aligned with market demands have become a crucial component of country’s strategy to accumulate human capital.

The OECD has remarked that while much is known about the efforts governments and individuals expend to promote learning within formal education institutions, far less is known about the extent of learning at the workplace or in other settings outside formal education and after the completion of initial education (OECD, 2001c). In Chile the information available comes mainly from SENCE, the agency in charge of administering a tax incentive for company based training and other public funds for special disadvantaged groups (see the Box below). There is no information at an aggregate level regarding the training activities done by companies and financed exclusively by them.

In what follows some of the most relevant patterns of participation in learning and training for work are described. Quality and relevance of training are also addressed.
Participation in learning and training for work

A first issue relates with what counts as learning and training for work. For the purpose of this report we have focused on *formal enterprise-based training* and *labour market training* for the unemployed, hard-to-employ and other special groups\(^{21}\). In Chile government is directly involved in both sectors as public subsidies are available for business companies to train their workforce and also for at risk groups to participate in mitigating or remedial training (see the Box below).

**Box 2.4 The Chilean Training System**

The National Training and Employment Service (SENCE), a government agency depending on the Ministry of Labour administers what has been called by law The National Training System. This system represents an innovation in latin america, as far as SENCE is a pure regulator that does not own or operate training facilities. In other words it is a demand driven system in which regulation and provision are institutionally separated. The purpose of this reform to generate stimulate competition among providers assuming this would result in a better supply of training opportunities for the adult popultation. The system comprises the following two components.

**Training Tax Rebate Scheme (Company based training).** Companies are allowed to deduct costs incurred in training their workforce from their annual taxable income up to a maximum of 1% of their total payroll value. This tax incentive operates in practice as a demand subsidy with training decisions taken by employers. Businesses present their training programs to SENCE, and if the programs meet quality and relevance criteria, the firms receive a tax rebate that covers a portion or the total training program cost, depending on the trainees’ salaries (below a certain salary SENCE covers all the training cost). The system involves three actors: (1) the demand represented by business companies or institutions purchasing training activities as part of its human resource development strategy; (2) the supply side represented by private training providers (”OTEC”\(^{22}\)) and (3) non-for-profit intermediate organisations (”OTIC”) working as brokers helping those companies who might demand it to identify their training needs and buying for them the training programs that best suit the skill gaps detected. Usually OTICs are closer to specific economic sectors and are supposed to be experts in their clients business in order to better advised them. OTICs are given a fixed percentage of the total resources they administer by companies delegation which can reach up to 1% of their total payroll. The system has been in place since 1976. In 1997 important though not structural changes were introduced to stimulate training in small companies as it was proved that less than 10% of the total expenditure in training was made by them. Another innovation was a new regulation establishing special apprenticeships/training contracts between employers and employees using the income tax rebate scheme to subsidise training of workers before employment begins and for a period of three months after separation of the worker. The overall performance of the National Training System is discussed in Chapter 2 and Chapter 4 of the presente report.

**FONCAP (Training programs for groups at risk of social exclusion).** The 1997 reform created a special fund called FONCAP comprising two branches: (1) a special direct subsidy for small and microenterprises aimed at compensating the low proportion of these companies using the tax rebate scheme, usually for cash flow constrainsts. FONCAP finances up to a 20% of the training costs. The purchasing decision remains on the companies. (2) a special fund to finance training programs intended for groups of the population under threat of unemployment or other forms of social exclusion that can be mitigated developing employability and/or basic occupational skills in the targeted population. In this case SENCE operates purchasing training programs from private providers (OTEC). Pro-employment programs, program for Women Heads of households, basic

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\(^{21}\) Adult education in formal settings including vocational education and special programs for completing primary or secondary education was included in a previous section. Self-improvement and leisure education are not included in this report.

\(^{22}\) OTEC is the acronym for Organismo Técnico Ejecutor de Capacitación and OTIC for Organismos Técnicos Intermediarios de Capacitación (SENCE, 1999), FONCAP stands for Fondo Nacional de Capacitación (National Training Fund).
skills for disadvantaged and unemployed youth, among several others. Particularly relevant for its influence in other Latin American countries was a program called Chile Joven addressing disadvantaged youth (Interamerican Development Bank, 2001). Though originally (1994) the program was not administered by SENCE today it represents a usual mode of operation of the institution for the purpose of labour market training programs. Chile Joven introduced an innovative system to finance competitive contracting out of training services from private providers. The contract between the government agency and the provider established that the service would include classroom training and then on-the-job apprenticeships were participants would develop practical occupational skills using the equipment of actual productive enterprises. Between 1990 and 1999 the program trained 200,000 youth. Chile Joven’s overall impact evaluation is commented in Chapter 3.

**IALS estimation on participation in learning and training for work.** Different measures coincide in that participation in learning and training activities for work is low in Chile. Based on a special question included in the IALS, the following Table clearly states that in Chile participation in all type of learning and in job-related learning is far below the average, disregarding the job status.

Table 2.9: Participation in learning of 25-64 year-olds according to type of training and job status, IALS, 1994-1998, (%)

<table>
<thead>
<tr>
<th></th>
<th>All Job Status</th>
<th>Employed</th>
<th>Unemployed</th>
<th>Out of the Labour Force</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ALL TYPE OF TRAINING</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>18.1</td>
<td>23.2</td>
<td>26.7</td>
<td>6.9</td>
</tr>
<tr>
<td>Australia</td>
<td>35.6</td>
<td>42.2</td>
<td>28.3</td>
<td>16.1</td>
</tr>
<tr>
<td>Belgium (Flanders)</td>
<td>21.5</td>
<td>26.8</td>
<td>16.6</td>
<td>9.8</td>
</tr>
<tr>
<td>Canada</td>
<td>36.4</td>
<td>41.9</td>
<td>30.1</td>
<td>23.1</td>
</tr>
<tr>
<td>Chile</td>
<td><strong>19.1</strong></td>
<td><strong>22.9</strong></td>
<td><strong>22.9</strong></td>
<td><strong>11.1</strong></td>
</tr>
<tr>
<td>Denmark</td>
<td>56.2</td>
<td>60.7</td>
<td>51.1</td>
<td>39.0</td>
</tr>
<tr>
<td>United States</td>
<td>31.5</td>
<td>48.5</td>
<td>30.2</td>
<td>16.9</td>
</tr>
<tr>
<td>Finland</td>
<td>58.2</td>
<td>69.9</td>
<td>29.4</td>
<td>32.1</td>
</tr>
<tr>
<td>Hungary</td>
<td>18.1</td>
<td>27.7</td>
<td>9.5</td>
<td>2.2</td>
</tr>
<tr>
<td>Ireland</td>
<td>22.0</td>
<td>29.4</td>
<td>8.6</td>
<td>14.5</td>
</tr>
<tr>
<td>Netherlands</td>
<td>36.3</td>
<td>43.2</td>
<td>38.8</td>
<td>21.8</td>
</tr>
<tr>
<td>Norway</td>
<td>48.4</td>
<td>54.1</td>
<td>33.2</td>
<td>21.8</td>
</tr>
<tr>
<td>New Zealand</td>
<td>46.4</td>
<td>53.1</td>
<td>31.4</td>
<td>29.7</td>
</tr>
<tr>
<td>Poland</td>
<td>14.1</td>
<td>20.5</td>
<td>7.9</td>
<td>2.8</td>
</tr>
<tr>
<td>Portugal</td>
<td>13.0</td>
<td>16.7</td>
<td>9.8</td>
<td>4.7</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>27.2</td>
<td>33.5</td>
<td>14.3</td>
<td>7.8</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>44.9</td>
<td>56.0</td>
<td>33.1</td>
<td>14.3</td>
</tr>
<tr>
<td>Slovenia</td>
<td>33.3</td>
<td>42.9</td>
<td>13.7</td>
<td>10.5</td>
</tr>
<tr>
<td>Switzerland</td>
<td>41.5</td>
<td>45.7</td>
<td>32.3</td>
<td>27.3</td>
</tr>
<tr>
<td>Sweden</td>
<td>54.3</td>
<td>60.1</td>
<td>45.6</td>
<td>28.7</td>
</tr>
<tr>
<td><strong>average</strong></td>
<td><strong>34.9</strong></td>
<td><strong>42.8</strong></td>
<td><strong>26.4</strong></td>
<td><strong>13.6</strong></td>
</tr>
<tr>
<td><strong>JOB RELATED TRAINING</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>14.9</td>
<td>20.1</td>
<td>25.1</td>
<td>3.1</td>
</tr>
<tr>
<td>Australia</td>
<td>30.3</td>
<td>38.1</td>
<td>33.8</td>
<td>6.9</td>
</tr>
<tr>
<td>Belgium (Flanders)</td>
<td>14.0</td>
<td>19.8</td>
<td>8.6</td>
<td>0.9</td>
</tr>
<tr>
<td>Canada</td>
<td>29.6</td>
<td>37.5</td>
<td>22.0</td>
<td>9.9</td>
</tr>
<tr>
<td>Chile</td>
<td><strong>11.7</strong></td>
<td><strong>17.0</strong></td>
<td><strong>9.3</strong></td>
<td><strong>2.5</strong></td>
</tr>
<tr>
<td>Denmark</td>
<td>48.7</td>
<td>54.6</td>
<td>38.8</td>
<td>26.9</td>
</tr>
<tr>
<td>United States</td>
<td>37.6</td>
<td>45.2</td>
<td>28.5</td>
<td>10.1</td>
</tr>
<tr>
<td>Finland</td>
<td>40.0</td>
<td>51.1</td>
<td>11.6</td>
<td>15.8</td>
</tr>
</tbody>
</table>
In addition to participation rate, the IALS provides information on the average hours of adult education and training for the 16-65 cohort. Both in the case of All Type of Training and in Job Related Training Chile performs poorly. In the first case while the mean number of education/training hours per adult for Chile is 49.2 for the average OECD countries is 68.7. In the case of job-related training the figures are 18.2 for Chile and 54 for OECD countries.

Additional information from the IALS (Bravo and Contreras, 2001) indicates the following:

- women show a higher participate rate in job related training than men (26.3% women, 16.3% men, as percentage out of the total employed workforce) 23
- participation in job related training is higher among the most educated population (see figure)
- participation is more frequent among those workers from large companies and that have managerial responsibilities
- higher training participation rates highly correlated to IALS performance (100% of those performing at level 5 participated in training in the last 12 months before the survey)

Excepting the different participation rate observed between women and men, all the other outcomes confirm the international tendency.

From the perspective of the probabilities of participating in training the less favoured are low educated workers working in enterprises with less than 100 employees and not having some sort of managerial position is less able to participate in learning (Bravo and Contreras, 2001).

**SENCE’s estimations on participation in company-based training.** Since the income tax rebate system was put in place participation rates have increased in a consistent way. The following figure shows the quantitative evolution for the 1980 to 2000 period. This trend can be explained by the changes in the business environment and the necessity that most companies face of improving their workforce skills and competencies. As it will be developed further, most of the demand is concentrated in large companies usually working with world class standards. 24

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23 This figure is not consistent with alternative measures by SENCE.
24 Particularly indicative is the absolute disproportion between the expenditure in training by mining companies, most of them run and owned by world wide holdings, in comparison with any other industry sector. As Chile is the most important mining district in the world, usually companies

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Hungary</td>
<td>12.8</td>
<td>19.8</td>
<td>6.1</td>
</tr>
<tr>
<td>Ireland</td>
<td>15.8</td>
<td>23.5</td>
<td>7.1</td>
</tr>
<tr>
<td>Netherlands</td>
<td>24.1</td>
<td>32.5</td>
<td>29.4</td>
</tr>
<tr>
<td>Norway</td>
<td>44.4</td>
<td>50.6</td>
<td>26.7</td>
</tr>
<tr>
<td>New Zealand</td>
<td>38.4</td>
<td>46.9</td>
<td>24.1</td>
</tr>
<tr>
<td>Poland</td>
<td>10.6</td>
<td>16.5</td>
<td>2.4</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>21.7</td>
<td>27.3</td>
<td>11.9</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>39.7</td>
<td>51.8</td>
<td>24.0</td>
</tr>
<tr>
<td>Slovenia</td>
<td>25.6</td>
<td>34.4</td>
<td>9.1</td>
</tr>
<tr>
<td>Switzerland</td>
<td>26.3</td>
<td>31.8</td>
<td>26.9</td>
</tr>
<tr>
<td>average</td>
<td>29.3</td>
<td>37.6</td>
<td>21.4</td>
</tr>
</tbody>
</table>

* less than 30 cases in the cell
The figure indicates that demand for training has sharply and consistently increased since it was established. Evidence shows that despite its expansion, the income tax rebate scheme has important limitations.

First, participation in training through this scheme is still very low as only 11.5% of the employed workforce participated in training in 2000 (SENCE, 2001).

Working in the country are at the forefront of new human resource development strategies requiring intensive investment in training. These companies spent several times its 1% tax rebate scheme which has reasonably triggered a certain debate regarding why these kinds of companies are receiving public funding.
Second, only 14.9% of the companies contributing to the training levy-rebate scheme make use of its training benefits leaving the system working at a third of its full capacity. This figure by itself raises questions regarding the effectiveness of the system to encourage and stimulate participation in training.

Third, most of companies using the training system are large ones covering less than 10 percent of the labour force, showing that the tax incentive has not been effective in stimulating the demand for training among small and medium-sized enterprises. Figure 2.10 shows that microenterprises, for instance, represent approximately 81.7% of the total number of enterprises but their participation rate in training is about 0.4%. On the other hand 0.4% of the enterprises are large ones but they concentrate the 82.7% of the training.

This represents a serious imbalance that questions the effectiveness of the whole scheme to stimulate training in segments of society that historically have been reluctant to so doing. It has been suggested that small companies lack seed capital to finance the acquisitions of training courses (the tax rebate scheme required until recently that firms had to acquire with their own resources the training programs before they are reimbursed from the government).

Fourth, the system has left the distribution of training across different categories of workers relatively unchanged, as most of the training goes to higher educated, more qualified and skilled workers. The evidence shows that low and non-qualified workers account for only 8.2% of total training expenditure. Table 2.10 indicates that blue-collar workers’ participation rate is only 8.2% while more qualified workers and administratives account for 62.1%. This pattern suggest that initial education and learning and training for work are mutually reinforcing.

25 It has to be said that usually Top Managers from large companies are trained at the expenses of companies themselves and that a significant part of their training is made in universities, abroad, or under in-house arrangements (virtual learning, for instance).
Table 2.11 Number of workers participating in training in 2000 by occupational level

<table>
<thead>
<tr>
<th>Occupational Level</th>
<th>Number of Workers</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top managers</td>
<td>27,023</td>
<td>4.4</td>
</tr>
<tr>
<td>High level professionals</td>
<td>103,179</td>
<td>16.6</td>
</tr>
<tr>
<td>Middle managers</td>
<td>53,925</td>
<td>8.7</td>
</tr>
<tr>
<td>Clerk/administrative</td>
<td>198,270</td>
<td>32</td>
</tr>
<tr>
<td>Qualified workers</td>
<td>186,991</td>
<td>30.1</td>
</tr>
<tr>
<td>Semi-qualified workers</td>
<td>33,382</td>
<td>5.4</td>
</tr>
<tr>
<td>Unqualified workers</td>
<td>17,465</td>
<td>2.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>620,235</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Source: SENCE (2001)

To sum up, there is a clear challenge for the country to increase the rate of participation in training as a substantial proportion of the current labour force (80% of which works in small and micro enterprises) will be still working in twenty years (50% aprox) (CELADE, 2001).

The unequally distributed participation rates in training under the tax incentive open up a policy debate regarding the extent to which the whole system is reaching its purposes. According to the only economic evaluation done (Geo Consultores, 2000), the scheme is being used mostly by companies that would train their workforce anyway (large companies working with world practices regarding human resource management). This raises up an issue of allocation of public funding. On the other hand, it has been argued that there are incentives for workers to invest in training by themselves, under certain facilitating conditions. In this sense it is interesting to note that the tax incentive locates the purchasing decision on employers, not in employees which is at odds with one of the principles of lifelong learning strategies namely, making the learner more responsible for his own development. From these and other considerations it can be argued that the chilean training system for the employed workforce is too based on an only mechanism, the tax incentive for companies, and that it would necessary to complement it with other incentives and forms of operation. In can be suggest for instance the introduction of a more active incentive policy and facilitating conditions for smaller companies to invest in training.

The mere fact that training is mostly directed to more educated workers in larger companies suggests there are strong distributive reasons in Chile for developing public policies directed to those less educated and less skilled workers whose employers underinve in human capital (Bravo and Contreras, 2001; World Bank, 2002; ILO, 2002). Evidence suggests that companies operating in a low skilled environment tend not to create high skilled positions as they are too difficult to fill. On the other hand, low skilled workers will not have the incentives to engage in training as it is not perceived as necessary for employment. As a result high educated and costly workers are usually hired.
on the grounds of their potential for trainability and their learning-to-learn capacities, widening the wage differentials and threatening a significant proportion of the workforce to bad jobs, low salaries and less learning opportunities.

It has to be remarked however that this argument supporting public intervention does not solve by itself the issue of finding the most cost-effective way to provide as many workers as possible with relevant and transferable workplace skills and competencies. In fact the main features of the current training system (the State regulating and not providing training, demand subsidies, etc.) seems to be appropriate to support cost-efficient and effective public intervention. What are needed are special policies and complimentary incentives for companies and workers. This will imply an additional financial burden that should be shared between public and private sources.

**Quality and relevance**

SENCE lacks the legal and technical capacity to be able to control in an effective manner the quality of the training services provided by the numerous private agencies. Moreover, most enterprises are not particularly demanding in this respect, due to their lack of expertise and the fact that training is subsidized. As a result, the quality of the training services provided is uneven. By way of illustration, prestigious universities compete in the training market with fairly informal training agencies\(^{26}\). The training market is therefore ineffective in stimulating investment in quality enhancement through, for example, teacher training, teaching equipment and materials, curriculum design, training needs assessment and research and development. This situation makes difficult to establish what works, why and in which settings.

A number of studies have been produced however evaluating the impact of training programs on companies’ productivity and trainees’ salaries and employment prospects (Bravo et al, 1999; Geo Consultores, 2000; Santiago Consultores, 1999; SENCE, 1999).

**Company-based training.** In the specific case of company-based training, the issue of quality is usually though as a direct concern of company’s themselves, as the purchasing decision is in their hands. Under this vision relevance is taken for granted as company’s would have the capacity to select the right providers and training courses best fitting their particular needs. As a result there is no clear information regarding the extent to which workers participating in training actually get the mix of skills and competencies required for them to work productively. It is not strange that most studies addressing the problem of training impact on business performance, what are the best practices observed in successful training courses, etc. have been carried on by public agencies. A recent study by Bravo et al (1999) showed that training does have an impact on both productivity and salaries of those workers participating. Bravo’s evidence is consistent with most international evidence that businesses most likely to develop successful training programs are larger, using flexible production systems, and are experiencing rapid technological changes and growing sales. They also use to have longer probationary periods and high firing costs and operate in sectors of low unemployment.

**Training programs for groups at risk of social exclusion.** Several impact evaluation studies have been carried on regarding the social programs implemented by SENCE. Interestingly, SENCE’s programs have been trying different organisational structures and

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\(^{26}\) Most universities, technical training centres and professional institutes are accredited as OTECs and they deliver training programs as an additional source of income. Training only institutions are usually small, frequently consultant firms. In this scenario because of their prestige as “higher” education institutions, universities have clear advantages over small OTECs. On the other hand they are less flexible and do not customize their services.
incentives for the programs to be as cost-effective as possible. Chile Joven introduced an innovative system to finance competitive contracting out of training services from private providers. The contract between the government agency and the provider established that the service would include classroom training and then on-the-job apprenticeships were participants would develop practical occupational skills using the equipment of actual productive enterprises. Another program called Capacitación y Formación en Oficios a Jóvenes de Escasos Recursos (Occupational Education and Training for Disadvantaged Youth) tried a system in which training providers were given an additional premium if they were successful in finding a job for the trainees after a short period the training was finished. These an other examples demostrate that SENCE follows an active policy fostering improving efficiency and cost-effectiveness. Apart from the different organisational arrangements tried, however, the impact evaluations available suggests very variable returns to these various schemes in terms of future employment, gainings in salaries, enrolment in further learning and other relevant variables from a lifelong learning perspective (Geo Consultores, 2000a; Geo Consultores, 2000b; Santiago Consultores, 2000, Bravo, 1999). One of the limitations detected in most of SENCE’s programs is that they are subjected to performance indicators that push for rapid outcomes without considering, for instance, the quality of the jobs trainees are placed as a result of the programs.

To sum up, there is no clear empirical evidence to judge the quality and relevance of training in Chile. There seems to be an implicit consensus however that in general training provision is not aligned with the real demands from the world of work or that they are not effective in producing the skills needed by the labour market. A number of reasons have been given to explain this situation and there are interesting implications for a lifelong learning policy.

First, there is a problem of information between the supply and demand side in terms of what are the competences more relevant to be developed in the workforce. This makes difficult for SENCE to establish priorities and playing a more active role regarding what skills in what areas are more relevant for the country. A pilot project fostering the development of a national competency certification system is trying to address this issue inviting leading companies from several economic sectors to define the generic and occupational competencies they consider crucial to compete in a global arena demand. This project needs to be escalated to really become a solution to the mismatch between the education and training supply side and the demand for competences side.

Second, there are no explicit standards to judge the quality of provision and the mechanisms used by the government agency managing the income tax rebate system to approve training providers are merely formal and bureaucratic rather than substantial. As the number of providers have increased (more than 3.000) and public funding for training under the tax incentive has also increased it seems important to introduce more substantial criteria to accredit training providers as OTECs. There is evidence that many of the institutions authorised by SENCE to provide training with public funding are severely underfinanced, use outdated methodologies and training materials and, in general, are not centered in the outcomes but in the training process.

A Third issue has to do with the fact that as the education is not equipping students with the basic literacy and numerical skills required by the knowledge economy there is a danger of the training system ending up teaching remedial skills, a task for which it is not well prepared and which duplicates at a higher cost what should have been taught in schools. A direct implication of this situation is the problem of who should pay for this
remedial training focused in general and basic skills, as opposed to occupational specific training for which employers demonstrates more willingness to invest in.

Fourth, particularly important for a lifelong learning approach, is the lack of coherence between some of SENCE’s programs and other ministeries actions or priorities. A good example is the program Chile Joven who despite it was considered succesful had unintended consequences for the 15-19 years old participating: it was proved that the program stimultated drop-outs from secondary schools.

Fifth, SENCE’s programs lack of a competency framework according to which certain skills are considered more crucial than others and that should be explicitly considered in training programs. It is only recently that SENCE is slowly introducing the notion of competency-based- modular training as more efficient, relevant and outcome focused in comparison with time-based training programmes.

2.6 SUMMARY

• An overall evaluation of the participation in formal education indicates that Chile is at a relatively advanced stage with respect to other middle income countries. This is especially clear in the case of primary and secondary education. In the case of tertiary education, participation has increased but it is still below international benchmarks. In addition, access remains highly unequal across socio-economic backgrounds. Participation in learning and training for work is also low in the country as only 8.7% of the labour force participates in job related training. Training tends to reinforce skill differences resulting from unequal participation in initial education as participation rates in job-related training rise with levels of educational attainment. Highly educated workers from large companies and in managerial positions have more probabilities of participating in job-related training than workers from less favoured backgrounds. This is reflected in wages and the risk of unemployment which is highly correlated with low skills and educational attainment (Bravo, Contreras, Larrañaga, 2001).

• Despite the strong correlation between educational attainment and literacy levels, there is sufficient variability to suggest enrollment is not a good instrument on its own to close the skill gap. Increasing demand in the workplace for individuals who are good at using and interpreting knowledge flexibly can only be partially addressed through curricular changes in schools and universities, as changes initiated in the formal education system today will take several decades to have an impact on the population at large. Learning and training outside formal education also allows individuals an opportunity to repair and/or complement previously received education and training.

• As it was Stated before, the country faces a serious skill gap as a significant part of the workforce, disregarding their educational attainment, do not posses the basic literacy and numeracy skills needed to participate in more productive jobs. They are trapped in a low skills/bad jobs equilibrium that only can be changed through a decisive collaboration between government and employers. There is an issue then regarding how to compensate for the basic skills gap generated in the initial education. As the education is not equipping students with the basic literacy and numerical skills required by the knowledge economy there is a danger of the training system ending up teaching remedial skills, a task for which it is not well prepared and which duplicates at a higher cost what should have been taught in schools. In fact the performance of a training system cannot be assessed independently of the performance of the education system.
• This chapter made clear that each sector in which learning occurs has its own unfinished agenda. Primary and secondary education face the challenge of improving the quality of learning outcomes. Tertiary education faces the issue of inequalities in access and insufficient institutional and regulatory frameworks improving quality of provision in a decentralised system. In addition, there is no a clear policy regarding what to do with technical vocational education at the tertiary level. The training system has to find the way to increase participation from small companies and defining and creating performance based accreditation systems for those institutions providing training under the tax incentive and/or the FONCAP programs.

• It is interesting to note that the Chilean education and training system does not lend itself easily for a systemic view. From a lifelong learning approach there is a risk of each of the sectors operating as a self-referenced system setting its own policies without considering the implications for other sectors. This is a clear signal that the education and training systems are not enough learner centred. The sectorial unfinished agendas represent then an opportunity to assume a more systemic approach.

• Some of the consequences of this lack of coordination are already visible. Two examples: (i) Chile Joven’s (see Box 2.3) unintended effect of stimulating drop-outs from secondary schools in the 15-19 cohort to place them in low quality jobs (ii) lack of coordination between secondary and tertiary technical vocational programs with no arrangements to recognise prior learning from new entrants to technical training centres. This results in discouraging students for following the technical track and increases in the costs of the system.
3. INSTITUTIONAL FRAMEWORKS SUPPORTING LIFELONG LEARNING

3.1 INTRODUCTION

This chapter addresses the extent to which Chile has developed the institutional frameworks and arrangements to support lifelong learning in the country. This is a broad topic as it involves the different structures and processes that have to be in place to give individuals the opportunity to improve their human capital at different stages of life. We assume OECD’s concept according to which fostering lifelong learning requires “promoting coherent links between learning and work, through creating pathways and bridges between the two so that transitions between them can be smooth, and through better mechanisms for recognising skills and competences” (OECD, 2000b, p.137).

In addition, a recent document prepared by the Chilean government and the World Bank it is recognised as one of the reasons justifying a lifelong learning initiative in the country the existence of “disjointed systems providing lifelong learning and training opportunities of appropriate quality and relevancy” (World Bank, 2002, p.6). The approach taken in this Chapter is to take account and substantiate the most important issues involved in such statement. In so doing not only weaknesses but opportunities are also described.

3.2 QUALIFICATION FRAMEWORKS AND LEARNING PATHWAYS

The technical vocational/professional pathway: a system?

Perhaps one of the most striking features of the Chilean education system is the lack of connections between secondary and tertiary technical vocational education but also between the latter and other tertiary education options and, finally between these different sectors and learning and training for work.

There is no common language regarding fields in which programs are offered which results in a jargon difficult to understand for employers, parents and students. There are even serious concerns regarding the precise meaning of the term higher level technician (see Box on Chilean Tertiary Education Structure), which is the formal designation for those graduates from technical training centres, disregarding the field of specialisation. Something similar happens with those graduates from secondary technical vocational schools, who are called middle level technicians.

These formal titles suggest that both levels should be seen as connected parts of a continuum comprising (i) an initial vocational educational level intended at giving students general education mixed with some occupational and technological knowledge and skills and (ii) a post-secondary level intended at preparing technicians that once in the workplace can have some managerial responsibilities while being supervised by higher level professionals in industry or services. In other words, in an integrated concept, secondary technical vocational schools should be recognised as entry level for technical training centres for those student wanting to follow a technical vocational pathway. This concept however is difficult if not impossible to realise, as both levels do not share a common qualification framework and are subjected to completely different regulations. As a result it is highly difficult to say what the difference is between the two qualifications and what is the value added for a graduate from a secondary technical professional school to attend a technical training centre.

From the perspective of the potential learner this situation generates confusion and discourages following a technical pathway. From the perspective of employment prospects, the terminology generates a signaling problem as for potential employers it is
difficult to distinguish a secondary from a post-secondary technitian. This is particularly true for jobs in areas different from traditional manufactures in for which traditional occupational classifications do not make sense anymore (non-qualified, semi-qualified, qualified, etc.).

It has been argued that a revision should be made of the content of both qualifications in order to updated them (CIDE/Mideplan, 2000). This necessity has been recognised and competency models have been considered a good option to underpin curriculum updates for their emphasis on measurable learning outcomes. The importance of involving industry representatives in defining the relevant sectorial skill and competencies has been also recognised. In fact, a revision of the secondary technical education curriculum has recently finished resulting in a significant reduction in the number of occupational specialties offered as many were not relevant and did not reflect actual demands from the labour market. Curriculum was organised in terms of learning modules that have to be achieved in the last two years of schooling (see Box 2.1 for the chilean education system structure).

In the case of Technical Training Centres things are more difficult as curriculum is deregulated and the State only has the power to approve centres and implementing a bureaucratic rather than substantial supervision.

The MECE-SUP project has had to face this issue as it includes a component fostering the development of a national system for quality assurance but seems unlikely that will try to undergo an overall revision of the tertiary education qualifications.

The problem remains being how to connect both levels and make the technical pathway an attractive option rather than a dead-end27.

Vertical (des)integration between technical vocational with professional and academic degrees, within formal education

A further important issue is that neither tertiary technical level is connected with professional and/or academic degrees. a pre-requisite for a higher one, excepting within universities (usually postgraduate studies requiring undergraduate studies or academic first degrees). There are no formal equivalencies nor compulsory recognitions arrangement between certificates from different levels, only contingent arrangements usually within an institution offering different levels. Then institutions offering different levels of tertiary education like INACAP or DUOC28 usually recognises prior learning for its student wanting to get a professional degree in the same field in which he has got a technical certificate).

Something similar occurs between non-academic professional degrees offered by Professional Institutes and academic degrees and their correspondent professional certificates offered by traditional and private universities.

In sum, there are no flexible pathways between different levels from formal education and the only pathway that has no limits or a dead-end is then by definition, is the academic traditional delivered by universities. As shown in Table 2.8, the wage premium for undergraduates is significantly higher than for lower level graduates.

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27 Isolated experiences exist in which technical training centres recognise prior learning from students coming from secondary technical schools or even from other tertiary institutions. Usually larger and more prestigious tertiary institutions offering both professional and post-secondary technical programs have internally developed mechanisms to facilitate credit transfer among different levels.

28 Both institutions concentrate more than 50% of the technical professional education market.
Recognition of learning gained through training: an opportunity

In the case of Learning and Training for Work, there is no connection with the formal education system nor can those participating in training gain formal recognition for what they have learned. Those workers that have participated in any modality of training (company based, government program for at risk groups, etc) do not receive a valid certificate accrediting the skills they have gained but only a diploma whose market value rests on the prestige and legitimacy of the provider delivering the course.

The situation is changing, however. Recently (November 2001) a prohibition for training courses financed by SENCE through the tax-rebate scheme to lead to formal qualifications was eliminated. Previously the law ruling the tax incentive mechanism put a limit in hours to the length of the company-based training programs to be financed by SENCE with the purpose of preventing the system for being used by employers to finance formal tertiary or post-graduate studies. In addition it established that no formal educational certificate would be awarded at the end of the training period. Some Professional Institutions and CFTs participating in the training market started modularizing their tertiary education courses with the purpose of (i) offering them in a more flexible way to workers and (ii) being financed with employers 1% tax incentive.

Links between education/training and industry

Another feature frequently referred is the structural disconnect between the education, labour and private productive sectors in the provision of lifelong learning and training opportunities in Chile (World Bank, 2002; Mineduc, 2002). In fact there are no formal mechanisms to assure that provision remains relevant for the world of work. The case of universities is too complex to be discussed here but it represents an example of self-referenced systems operating in isolation with respect to industry needs, despite participation of business representatives in many tertiary institutions boards. In the case of technical training centres low cost teaching programs directed toward marketable certificates in professional fields where private rates of return are supposedly high constitute the golden rule guiding their development (CIDE/Mideplan, 2000; Brunner, 1997). In what follows examples are given of relatively structured mechanisms linking education and work.

Educational corporations linked to industry. It is interesting to note that employers associations like Confederación de la Producción y el Comercio and the different Sectorial Chambers (industry, commerce, agriculture, etc.) do have links with education institutions and in some cases they are directly involved in non-for-profit private educational corporations administering technical vocational schools (see Box 2.1). During the 80’s structural reform to the education system 50 technical schools (representing a 7% of total enrolment in secondary technical vocational education) were transferred to these especially set-up institutions. The rationale was to stimulate closer links between schools and the work of work.

Tertiary technical education. Legal restrictions on CFTs make difficult for them to establish a more intensive involvement with the business sector. They cannot be funded by private capital, as they are not eligible for donations. On the other hand they usually do not have links with the business world, which would allow the curriculum to be better adapted along the lines of labour market requirements. The MECE-SUP project has developed a preliminary set of accreditation criteria for CFTs that includes as a pre-requisite to have industry representatives from the relevant sector or activity in a special council. This criteria will inform a pilot voluntary exercise with several CFTs. If the institutional
framework for accreditation processes is approved, the criteria will have to be achieved for CFTs applying for public funding (CNAP, 2001).  

_Dual schools._ During the last years a dual model has been tried in the country in what constitutes a successful example of collaboration between technical schools (78) and business companies (2,273). The experience was evaluated and the outcomes indicate a positive impact on variables like work placement, among many others. This is for sure the closest link possible between a school and companies. Interestingly, companies involved in the project have declared their interest in continuing collaborating in educational projects, particularly with the dual model (Bravo et al, 2001).

### 3.3 MAKING INFORMAL LEARNING VISIBLE

Making learning visible disregarding where, when and how was achieved is perhaps one of the most innovative features of lifelong learning approaches. The argument for systems especially designed to recognise skills and competencies acquired in settings different from formal education and training is straightforward. The problem does not exist when adults return to a formal education system enrolling a program leading to the next higher qualification. Problems arise when adults wanting to receive some credit for the knowledge and know-how acquired through experience. Insofar as such experience is not counted it devalues work-based learning relative to academic learning, while increasing the cost of learning for adults by requiring them to expend time and money to relearn in an academic setting what they already know.

In Chile there is no an institutionally recognised mechanism through which workers can receive formal recognition for the skills they have gained across their work experience. However, there is an ongoing pilot project being lead jointly by Fundación Chile, SENCE and main representatives from leading business companies in four sectors of the economy (see Box below).

<table>
<thead>
<tr>
<th>Box 3.1 Workplace Competencies Certification System: reducing informational asymmetries in the labour market and steering the provision of learning opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rationale for workplace competencies certification systems: job market signaling.</strong> They are aimed at giving formal recognition to learning occurring at places different from formal education and training, mainly through working experience. Competency-based certification systems are designed to improve: (1) the signaling of workers’ knowledge and skills to employers and (2) the signaling of employers’ skill requirements to teachers, trainers and trainees. Better signaling of employer skill requirements results in better training programs and a more motivated set of trainees. Better signaling of worker skills can increase the proportion of trainees who find jobs in their field. This increases the payoff of training and this in turn attracts additional people into training. The system should therefore, focus on certifying skills and knowledge that are taught in training programs or learned at work, not traits of character that are hard to teach and difficult to measure reliably (Bishop, 1996). Certification thus solves the informational problem of potential employers not knowing the skill level of a prospective employee. Besides, workers are induced to invest more effort in acquiring skills because of the more “portable” value of these skills with prospective alternative employers. In sum, the system is aimed at solving information asymmetries and job market signaling problems.</td>
</tr>
</tbody>
</table>

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29 The possibility of making public subsidies available for students attending CFTs is being now discussed in the country. Accreditation processes are intended to be compulsory for those institutions to be part of the funding system (see Chapter 4 on funding).
**Chilean Pilot Project.** In Chile a pilot project is being developed through a partnership between the public (Ministry of Labour and SENCE) and private sectors (business companies and sectorial employers associations and sectorial trade unions representing employees from mining, construction, tourism, information technologies). Fundación Chile has played the role of articulating the several stakeholders involved, transfering and adapting methodologies and workplace competencies standards available abroad and creating the local institutional capacities for accrediting, assessing and certifying workplace competencies. The scope of the project includes the design and implementation of a pilot experience comprising all the components of an workplace competencies certification system: competency standards development, assessment guidelines (procedures, tools) and the institutional arrangements needed for the system to be accountable and legitimate (separation between the training provision and assessment/certification functions, external audits, etc.). The main outcome from the project will be a proposal for institutionalising the system and setting up an agenda for a law reform making possible the use of the tax rebate scheme not only for training but also for assessment and certification of workplace competencies.

**Institutional framework and sustainability.** A crucial aspect for a workplace competencies certification system to be successful in Chile is to be perceived by employers as adding value, highly flexible, responsive, based on international benchmarks and cost-effective. The first implication of this principle is that the system should not intend to cover every occupational area or economic sector in the country but only those for which demand is mature or near to. All the stakeholders involved, including the government and the Ministry of Finance, have agreed that the system has to be located close to the demand side and administered by a private non-for-profit organisation in charge of accrediting **awarding bodies** and **assessment organisations**; continuous improvement; promotion and expansion; inter-sectorial consistency. Fees for assessment and certification will be charged to applicants by accredited awarding bodies and assessment agencies. Employers will cover the costs involved by themselves or making use of a demand subsidy (probably a tax incentive); workers from medium and small companies whose employers underinvest in human resource development, self-employed and unemployed workers will have a special government subsidy. Other financial tools will also be considered in the future.

**Feedback to technical vocational formal education (secondary and tertiary) and training.** It has been thought that the described system can steer the technical vocational education provision helping re-structuring their curriculum in terms of learning modules. A modularised technical vocational education and training provision can be a decisive platform for establishing flexible pathways and progression routes. In this way there could be a **training and assessment pathway** and an **only assessment pathway** to getting a workplace competency certificate, depending on the learner’s situation.

**Towards an output based accreditation system for institutions providing technical vocational tertiary education and workplace training.** A workplace competency system can also provide the criteria and mechanism to externally judge technical vocational and training providers’ performance in terms of learning outcomes. Samples of learners who have completed training/learning modules delivered by a technical training centre or an OTEC can be externally assessed by the Workplace Competencies Certification System to check whether they have actually acquired the relevant knowledge, skills and competencies. On this ground institutions providing learning modules can be evaluated in an annual basis and the resulted information made available to the public opinion and inform accreditation processes as well.

### 3.4 INFORMATION AND GUIDANCE SYSTEMS

Making information available is crucial for stimulating informed learned demand and provider responsiveness, and improving education and training system management. Individuals cannot be expected to make sound decisions on possible career paths and relevant learning opportunities; providers cannot be expected to offer the most appropriate and responding learning opportunities and the employers cannot take the best training investment decision. Though some efforts have been made to create such systems (ie MECE - SUP component, World Bank Project for Chilean Higher Education), it cannot be
3.6 SUMMARY

It can be sustained that Chile accomplish several of the most desirable features of modern education and training systems: decentralised and mostly private provision, horizontal and vertical diversification of tertiary education, demand subsidies for training and education, increasing private spending in areas with higher private returns, clear and focused educational agenda, agenda for well allocated resources for education, etc.

Despite this favourable environment Chile lacks the necessary institutional frameworks needed for the kind of action required for a lifelong learning strategus involving not only education and training provision but also labour market information services, business links and partnerships and, importantly, the probable creation of new institutions for accomplish functions of accreditation, certification, quality assurance and the like. For these institutional arrangements to be succesful they have to include several stakeholders and be innovative themselves in terms of being located in the private sector operating with funding from both government and cost-recovery mechanisms, in some cases.

The following table describes some of the areas in which building up stronger links, some of them institutionalised, should become a priority.

<table>
<thead>
<tr>
<th>Type of links</th>
<th>Objective pursued</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horizontal links within the education system</td>
<td>Facilitate mobility of individual through the creation of pathways between the different tracks of education and training</td>
</tr>
<tr>
<td>Vertical links between initial and continuing education and training</td>
<td>Facilitate the transition between the different moments of competences acquisition</td>
</tr>
<tr>
<td>Links between education and labour market policies</td>
<td>Enhance the cooperation between the different actors (e.g. ministry of education and labour, social partners) and the coherence of policies and measures implemented</td>
</tr>
<tr>
<td>Links between education and production systems</td>
<td>Facilitate the transition between the two, stimulate the responsiveness of education systems, raise the awareness of enterprises on long-term benefits of training and help young people to familiarise with the world of work</td>
</tr>
</tbody>
</table>
4. RESOURCES FOR LIFELONG LEARNING

4.1 INTRODUCTION

Lifelong Learning implies important changes in the costs of providing and participating in education, training and learning activities (OECD, 2001a). For countries like Chile, the magnitude of the skill and competencies gaps already described imply that an important financial effort will have to be made in the next decades to engage the knowledge economy. Increases in the total outlays by society for learning activities and the sought for new ways to raise and allocate resources is one of the main challenges to be addressed.

Chile belongs to the group of countries where formal initial education (primary, secondary, tertiary) still presents huge challenges. At the same time the need to develop a knowledge economy is so pressing that concentrating simply in the annual inflow of trained young people from formal education is insufficient to meet economic and social aspirations. Thus, the country has to combine educational reforms oriented to raise participation, equity and quality at the school and higher education levels with lifelong learning and training reforms intended for upskilling the current labour force to fully engaged the knowledge economy.\(^{30}\)

The increasing in the total outlays by society for education and training opens up the question of how much would this effort cost; to what extent is compatible with the unfinished agenda of the education and training reforms; what are the potential sources of funding; and how to allocate them in the most efficient way possible.

Competition for public resources combined with the presence of substantial private returns to certain aspects of lifelong learning (i.e., skills certification) imply a need to increase the private share of the overall investment burden (OECD, 2001d; 2000; Berner and Experton, 2001). In this scenario fiscal constraints for public spending and actual private capacity (employers’ and learner’s) to pay for learning will become then the main issues involved.

This chapter provides a description of the public and private expenditure on education and training during the last two decades and an analysis of the above mentioned issues involved in financing lifelong learning. The chapter is structured in three parts.

4.2 CURRENT INVESTMENT IN EDUCATION AND TRAINING FOR WORK

Resource allocation across sectors in which lifelong learning occurs

**Total expenditure in education and the unfinished agendas.** Since the return of democracy in 1990 Chile has tripled the public spending in education, reverting sharply the previous tendency when it went down in about a 20% between 1980 and 1989. For the 1980-2000 period, actual expenditure has increased in 181%. As shown in Table 4.1, both public and private expenditure have increased in a significant way during the 1990 to 2000 period as a percentage of GDP. During this period the economy country has been growing at a 7%.

The priority given by the centre-left coalition in government since 1990 to education is reflected in the fact that public expenditure in education out of total public expenditure has gone up from 12.5% in 1990 to 18.1% in 2000. This figure is higher that the shown by OECD countries which is 12.9% (OECD, 2001c). Increasing public expenditure in education and training has been an important part of the education reforms implemented since 1990.

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30 The notion of first and second generation reforms used by Brunner (2000a) can be useful to grasp this policy dilemma that of education and training reforms in Latin America. From a different standpoint, it has been proposed a distinction between a proactive and a mitigating or remedial functions that learning and training for work reforms would have to combine (ILO, 2002).
education has not stagnated despite the severe fiscal constraints for public spending resulting from the economic crisis starting in 1998 (Arellano, 2001b).

### Table 4.1 Total Expenditure in Education 1990-2000 (% of GDP)

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Expenditure/GDP</td>
<td>2.6</td>
<td>2.9</td>
<td>3.1</td>
<td>3.4</td>
<td>3.9</td>
<td>4.3</td>
<td>4.6</td>
</tr>
<tr>
<td>Private Expenditure/GDP</td>
<td>1.8</td>
<td>2.0</td>
<td>2.5</td>
<td>2.8</td>
<td>3.1</td>
<td>3.1</td>
<td>1.1</td>
</tr>
<tr>
<td>Total/GDP</td>
<td>4.4</td>
<td>4.9</td>
<td>5.6</td>
<td>6.2</td>
<td>7.0</td>
<td>7.4</td>
<td>5.8</td>
</tr>
</tbody>
</table>

Sources: Cox (2001); Arellano (2000); Mineduc (2000)

A disaggregated analysis shows that most of the public expenditure has been allocated in the school system, mainly primary and secondary. Expenditure in the school system (excluding adult education) accounts for 84% of the total increasing of public expenditure in education for the 1980-2000 period (tertiary education accounts for 15%). Following a trend from the 80s, public investment in tertiary education increased until 1995, when the policy priority given to primary and secondary levels started to be more visible in the annual public budget (González, 2000a). This change in the weight of public expenditure in each sector is reflected in per-student expenditure; while in 2000 the State spent four times more resources in tertiary education than in primary/secondary education, in 1983 this proportion was eleven times (González, 2000a)

31

The rationale behind these resource allocation priorities rests on the previous under-investment in the school system, the high social returns to primary and secondary education, the very poor learning outcomes observed especially among students from poorest backgrounds and the very low salaries of teachers (González, 2000a; Cox, 2000b; Beyer, 2000).

Though important progress has been made since 1990 and enrollment rates compare well with international benchmarks, the pervasive low learning outcomes and social inequalities described in Chapter 2 justify the spending to continue be focused in primary and secondary education. It has to be remembered as Stated in Chapter 2, that there is still a gap to close to make equitable access to secondary education across income levels. Despite the increase achieved from 1990, per student expenditure in Chile is still far from being the optimal for those learners from less favored backgrounds, according to international benchmarks (Figure 4.1). It has been suggested that more resources should be allocated in this group, as a mean to compensate de cultural capital deficit that explains

31 This relation is quite different to the observed in OECD countries, excepting Korea and the United States.

32 At the moment the capitation grant or subvention (see Box 2.1) is by far the most important component of the public expenditure in education accounting for 60% of the total budget. A significant proportion of these resources have been concentrated in the improvement of teacher's salaries, a priority for the education reform started in 1990.
the low levels of learning outcomes described in the first chapter (García-Huidobro, 2000).  

From a lifelong learning perspective it is important to remark that public investment is therefore concentrated in those learners at a school age. Demands of tertiary education and training are seen as requiring new combinations of private-public investment, with an increasing relative importance given to private expenditure while keeping in principle a role to the public sector in correcting market failures and setting up information systems to reduce informational asymmetries. In fact, estimations show that in Chile social returns to primary/secondary education are larger than social returns to tertiary education. Likewise, private rates of return are higher for tertiary education (in the form of better employment and income opportunities) and has been growing during the 90s. According to a recent estimation, the private rates of return to primary education, secondary education and tertiary education in Chile are 6%, 10% and 22% respectively, following a pattern usual for upper middle income countries (Beyer, 2000; Delannoy, 2000).

33 A number of studies have been developed to test the differences between private-subsidised and municipal schools in terms of learning outcomes (Mizala and Romaguera, 2000; Tokman, 2001; Carnoy and McEwan, 2001 among many others). González’ revision of these studies concludes that the apparent differences in favour of private-subsidised school disappears when socio-economic background is taking into account (González, 2001). Quite recently (January 2002) results from a study by Baytelman suggests that municipal schools seem to add more value to students from poorer backgrounds in comparison to private subsidised schools. This raises a controversy as private subsidised school operate in a more flexible regulation and in principle should be more effective.
Interestingly, nearly all the tertiary education expansion has been financed by private sources (see Chapter 2), reflecting that incentives have worked as expected. Current public expenditure in tertiary education represents 30.6% of total public expenditure in education, which is well below the average OECD countries and makes Chile one of the countries with the highest private investment in tertiary education only comparable to Korea and the United States. The total expenditure, however, represents a 1.8% of GDP, figure that compares well with other countries (average OECD countries being 1.3% of GDP). The tendency in Chile is different from what has been observed in most OECD countries where the expansion of private expenditure in tertiary education has not been accompanied by a decreasing in public expenditure (OECD, 2001c).

Despite its expansion, access to tertiary education remains concentrated in the higher income quintiles, as it was said before. In 2000 only 25.6 percent of the students attending the traditional universities were from the lowest income quintiles (Mideplan, 2001). Expansion of enrolment has not been accompanied for accessible funding for students from poorer socio-economic backgrounds. As noted by the OECD, even the strongest incentives to invest in lifelong learning mean nothing unless financial resources are available (OECD, 2001c).

<table>
<thead>
<tr>
<th></th>
<th>% of Public Expenditure</th>
<th>Total expenditure in Tertiary Education (% of GDP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>72.5</td>
<td>1.0</td>
</tr>
<tr>
<td>Australia</td>
<td>68.8</td>
<td>1.7</td>
</tr>
<tr>
<td>Chile</td>
<td>30.6</td>
<td>1.8</td>
</tr>
<tr>
<td>France</td>
<td>87.7</td>
<td>1.2</td>
</tr>
<tr>
<td>Germany</td>
<td>92.3</td>
<td>1.2</td>
</tr>
<tr>
<td>Italy</td>
<td>82.2</td>
<td>0.8</td>
</tr>
<tr>
<td>Japan</td>
<td>44.6</td>
<td>1.1</td>
</tr>
<tr>
<td>Korea</td>
<td>21.8</td>
<td>2.5</td>
</tr>
<tr>
<td>Malasia</td>
<td>79.3</td>
<td>1.4</td>
</tr>
<tr>
<td>Mexico</td>
<td>75.2</td>
<td>1.1</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>84.6</td>
<td>1.0</td>
</tr>
<tr>
<td>USA</td>
<td>51.3</td>
<td>2.7</td>
</tr>
</tbody>
</table>

Source: OECD (2001c)

An additional issue to be examined is the distribution of the expenditure across the three tiers that the Chilean tertiary education system comprises: universities, professional institutes and technical training centers (CFTs). As stated before technical training centers does not receive significant public funding, situation that has repeatedly described as the main factor explaining the sharp decreasing in enrolment, as commented in Chapter 2.
Though at a declarative level governments have considered crucial to increase the amount of graduates with post-secondary technical vocational qualifications, incentives remains untouched and the enrollments continue falling down in this sector. Regulations controlling CFTs the centers are not allowed to benefit from the Donation Law for educational purposes, nor can the students apply for loans or scholarships from the Ministry of Education.

*Learning and training for work.* Information regarding learning for work, especially informal learning occurring on-the-job, off-the-job or in other settings apart from company-based subsidised training programs or SENCE’s labour market training programs is extremely limited if not in existent at an aggregate level. It is then difficult to estimate how much the country is spending in learning and training for work and to derive conclusions for elaborating sound policies. As described in Chapter 2, available information shows that participation in training is very low in the country reaching near a 10% of the employed labour force.

Regarding public and private investment in training under the tax rebate scheme, the following table shows their evolution from 1996 up to 2000. Public contribution represents 77.8% while private expenditure 22.2% of the total expenditure in training. In terms of sectors of economic activity, mining is the only sector in which private expenditure is higher that public. It has to be remarked that probably the total expenditure in company-based training is bigger than SENCE’s estimations as it does not include training undergone with private resources exclusively. Anyway, it is difficult to judge whether this level of expenditure is adequate in itself. The best indication is that the tax-rebate scheme operates at one third of its full capacity and that a minor proportion of companies train their people.

*Figure 4.2 Annual expenditure in training under the tax rebate scheme 1996-2000 (MUS$)*

Source: SENCE (2001)
It is fundamental for the system to reach those workers working in small firms, creating the appropriate incentives for employers to invest. Studies done showed that one of the most important obstacles was cash flow, as the tax rebate scheme implies that companies have to finance by themselves training programs and wait for reimbursement at the turn of the year. Especially in periods of low internal demand due to economic crisis, small companies just lack the seed capital for investing in training.

Two mechanisms have been introduced to tackle this problem.

1. In 1997, SENCE created FONCAP a special fund including a direct subsidy for small and micro-enterprises. The subsidy covers up to 80% of the training costs while companies have to assume the remaining cost (SENCE, 1999; see also Box 2.3). There have not been an evaluation of this subsidy but it has been improving its relative weight among the total resources available through FONCAP, representing a 13% of the total resources available in this special fund SENCE, 2001). Despite this relative success this instrument is limited to public funds availability as FONCAP is part of SENCE's ordinary budget.

2. In 2000 the chilean government set up a new training financial mechanism through which interested companies contract with chilean banks the pre-financing for the acquisition of training programs of their interest. It has been calle Mandato Especial Irrevocable. Once the training has been provided the banks collect from the government the amount corresponding to the cost of the module and charge a service fee. Through this mechanism the liquidity problem reducing small enterprises use of the tax rebate system can be overcome. There have not been published an evaluation of this new mechanism but preliminary information indicates that the number of small and micro-enterprises acquiring training programs has raised dramatically from 20,000 to 60,000 in less than tow years since the 20 months.

Probably one of the most interesting features of these mechanisms is that they keep the basic tax-rebate scheme in the sense that the State does not interfere in the training decisions of companies and workers. On the other, however, in the absence of external criteria on the quality and relevance of training programs, these policies can end up wasting public resources by encouraging opportunistic behaviours by employers and workers. SENCE lacks a strong mechanism to supervise what is done in the training field with public resources and as a result there is no clarity regarding the extent to which the whole training system is performing well. A call should be made to establish and reinforce quality and relevance standards fro training programs.

Demands for funding and the demographic opportunity

Main demands. The main demands for funding will come from three sources. First, the necessity of improving quality of both primary and secondary levels, especially for the poorest groups of the Chilean society. Second, there will be pressure to expand the participation rate in pre-primary and post-primary levels (secondary, tertiary and continuing education). Third, an expansion of the participation rates in continuing education and training, without forgetting the quality of provision as well.

It is impossible for Chile to cover simultaneously the costs involved in increasing participation in secondary and tertiary levels and improving quality in primary and secondary levels. It has been argued that doubling the current participation in tertiary education and increasing in a 50 % participation in secondary education would cost 1,5 % of the GDP (Arellano, 2000a). A similar cost would require a 50 % increase in the current
investment per student in primary and secondary education, if Chile wants to reach the OECD countries level of investment. Competition for public resources combined with the presence of substantial private returns to certain aspects of lifelong learning imply a need to increase the private share of the overall investment burden. The way out to the participation-quality dilemma is to set up explicit policies of cost recovery and to expand the privately financed supply.

The demographic bonus. The age composition of the population is a key demographic variable to estimate the amount of resources to be invested in education and training in the next decades. A number of reports confirm that Latin American countries today are at a stage of demographic transition where the largest population groups are young adults who are beginning productive activities or will do so in the coming decades (CELADE, 2000; IADB, 2000). The decrease in the share of the school and tertiary education-age population in the population as a whole constitutes what has been called the “demographic bonus” (CELADE, 2000). As the rates of dependency of children drop quickly while the proportion of elderly is still low, there is a window of opportunity of offering a better education to what will be a smaller number of children entering the school system. While in 1970 there was 1.5 economically active people by each school age person, in 2000 that relation was 2.3 and will reach 3.2 by 2050.

Conversely, less relative proportion of 19-29 years olds demanding tertiary level education leave space and resources for improving the current situation produced by massive expansion without appropriate institutional frameworks.

As less resources will have to be spent to keep the current participation rates, the chilean government can redirect some of their resources to improve quality of both primary and secondary levels, especially for the poorest groups of the Chilean society.

The figure shows that during the next fifteen years or so more people will be entering the labour force.
The same demographic trend imposes great challenges, however. Sources of employment must be created quickly and educational opportunities must be extended beyond basic schooling to help new entrants into the job market find productive employment. Likewise, "safety networks" must be put in place to make easier the transition from education to work avoiding social disaffection among the young.

Regarding labour markets dynamics, demographic trends have similar effects than on education. As young people present higher unemployment rates than adults, its less relative weight will contribute to decrease the overall unemployment rate. A smaller proportion of young people presuring to enter the labour market gives Chile the opportunity to structure better strategies than those applied when this segment was larger.

4.3 Making lifelong learning affordable: sectorial and systemic issues

Previous sections have shown that investment in education is and will remain being a priority in the country. Assuming that at least at the school level expenditure in education will continue concentrating public funding 34 then there is a problem of how to finance the additional financial burden derived from others sector of lifelong learning. OECD has suggested a number of measures to make affordable lifelong learning for all. In this section a very brief discussion is made regarding the current financing systems operating in the sectors and their contribution to make lifelong learning affordable.

Primary and Secondary Education: improving quality and cost-effectiveness

As participation in primary and secondary is near universal in the country, reforms and consequently funding efforts seem to be more relevant from a lifelong learning perspective for improving quality and cost-effectiveness at the school level. As mentioned earlier, the adult population low literacy level demand a that school improve learning outcomes. A number of mechanisms have been tried in the country for improving quality. They have been profusely studied as innovative mechanisms inspired in free market principles applied at a large level. We will focus on only three initiatives: (i) the subvention as an innovative voucher system broadly applied in the country (ii) the introduction of a shared

34 This has been the case even in the middle of an economic crisis.
financial mechanisms in public schools (iii) the introduction of a system of merit awards for teachers of effective schools.

School choice/voucher-type per-student subsidy. The market-driven reform resulting in decentralising public education and introducing parents’ choice of school has been perhaps the main structural innovation introduced in the chilean school system. As a unique experience of a large scale demand subsidy for education, the effects of the chilean subvention system have been analysed in several local and international studies. Its first visible effect has been an increasing in enrolments in private-subsidised schools and a correspondent decreasing of the enrolment in municipal schools (Mineduc, 2001a).

The effect of different institutional regimes on learning outcomes has been studied in detail mostly through econometric estimations of educational production functions35. Most studies have detected slightly better results on private-subsidised schools in comparison to municipal public schools. It has been noted however that this estimations have limitations and differences between private and public schools under the voucher system tend to diminish when student’s socio-economic backgrounds are taken into account. In this context, it has been raised the question of how is possible that despite they can be managed with much more flexibility than public schools, student froms private subsidised schools do not perform much better (González, 2001)36. Interestingly, an unpublished recent study (January 2002) by ¿Baytelman? suggests that municipal schools seem to add more value to students from poorer backgrounds in comparison to private subsidised schools. The implications of this study are still to be analysed.

In a recent paper evaluating the voucher system as a whole Contreras concludes that “policy makers should support a voucher system and increase its availability. The voucher system is a tool that provides students with the opportunity to increase their tests scores and have greater access to higher education and this future social mobility” (Contreras, 2001) (see Box for this research details).

One of the most serious criticisms of the school choice model in Chile is that private subsidised schools can select their students. On this ground it has been argued that these schools’ apparent better learning outcomes are based on selecting better performers rather than improving their teaching practices.

Shared financing system and the segmentation effect. In 1993 the government introduced the possibility for private-subsidised primary schools, and municipal and private-subsidized secondary schools to charge families a fee. The purpose was to add more resources to the school system taking advantage of parent’s will to pay for their son’s education. In principle this mechanism contributes to a better allocation of public funding as permits a proportional reduction of the subsidy when the family fee revenues reaches certain level37. In 1996, co-funding of this kind resulted in revenues of US$ 80 million (equal to roughly 6.3 percent of total subsidy expenditures for that year). In 1997, 27 percent of enrollments (824,000 pupils) belonged to schools with shared-funding, with monthly payments which varied between US$ 0.8 and US$ 50.

35 Mizala and Romaguera, 2000; Tokman, 2001; Carnoy and McEwan, 2001 among others.
36 Public schools are subjected to more bureaucratic restrictions regarding staffing, resource allocation, etc
37 These discounts are applied progressively on the portions that exceed the value of the subsidy scale; if the fee is less than half the value of the subsidy, there is no reduction; if the fee is between 1 and 2 times the subsidy, the discount is 20percent, etc. (Cox and Lemaitre, 1999)
It is interesting to note that this formula has been successful in attracting more private resources to the education system.

Its impact on equity however is regressive as it reinforces segmentation in public education and social segregation of families that cannot pay. These tendencies undermine the principle of equity, and calls for neutralising mechanisms. Action has already been taken in the form of a school-based scholarship fund for students from poor backgrounds.

National System of Merit Awards to Schools (SNED). One of the innovations introduced to improve school effectiveness is a salary reward for teachers on the grounds of relevant school performance criteria. This innovation represents an excellent way to make teachers responsible for the school performance, though the system has been highly resisted by them. Based on international lessons learned and best practices on these systems, SNED evaluates schools’ performance on a yearly basis.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Performance indicators</th>
<th>Weight of Variables %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effectiveness</td>
<td>SIMCE scores in Math and Language</td>
<td>37</td>
</tr>
<tr>
<td>Value-added Initiative</td>
<td>Differences between two last scores in SIMCE</td>
<td>28</td>
</tr>
<tr>
<td>Equality of Opportunities</td>
<td>Student retention rate</td>
<td>22</td>
</tr>
<tr>
<td>Integration of teachers and parents</td>
<td>Acceptance of educational work by parents</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Parents perceptions on the school</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Parents perception on maths and languages teachers</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Parents councils</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Schools have action plans with explicit educational and administrative targets</td>
<td></td>
</tr>
<tr>
<td></td>
<td>School promotes discussion with parents regarding SIMCE’s scores</td>
<td></td>
</tr>
</tbody>
</table>

Sources: Mizala and Romaguera (2000); Delannoy (2000)

SNED has been applied twice and from follow-up studies it can conclude that it can become an interesting tool to improve both school effectiveness and pupils’ learning outcomes (Mizala, A.; Romaguera, P. (2000)).

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38 The fund increases with the level of the charges to the families, and it is financed from two sources: a) fiscal resources from reductions in the discounts applied to the student subsidy; b) private resources that correspond to a proportion of the charges made by the school to the families (5 percent if the fee does not exceed the equivalent of one unit of public subsidy, 10 percent if the charge is between 2 and 4 units of subsidy). (Gonzalez 2001, 1998).
Tertiary education: equitable access, cost-effectiveness

As said before, tertiary education faces serious challenges in Chile regarding funding, institutional frameworks, quality and incompletely diversified vertical diversification, among several issues. Obviously the main issue regarding funding is how to make sustainable the expansion of the system while keeping an eye on equity and quality. Demographic tendencies help but re-structuring current financial policies regarding public funding seems unavoidable. It is far beyond this paper to cover all the issues involved. From a lifelong learning perspective main issues are (i) how higher education can be made affordable for students from lower income families, (ii) how to make more efficient public funding for universities, (iii) how to create the conditions and incentives for more students enrolling technical training centres and, in general, (iv) how to make more efficient tertiary education delivery.

Making tertiary education accessible. As developed before, access to tertiary education is unequal in Chile. Only 15% of university students, for instance, come from the poorest 40% of families. By accessing tertiary education individuals can enjoy significantly higher earnings and individuals from poor families can have access to move up in the earning scales promoting social mobility (Contreras, 2001). To a significant extent today academically qualified but financially needy students have not had access to efficient financial support mechanisms and the existing mechanisms do not apply for private universities. Here relies then the importance of making tertiary education available for all.

Currently university students can:

(i) pay fees in private or public traditional/public universities by their own 39;
(ii) apply for a publicly funded loans whose payment is deferred and that have to be returned on the basis of future income; students have to prove their financial incapacity (this mechanism is available only for traditional universities: students enrolled in non traditional universities have no access to State subsidised loans)
(iii) apply for special loans in the bank system for postgraduate programs or certain undergraduate programs in whatever university (this system is not accessible to low income students as they cannot satisfy banks' requirements).
(iv) apply for scholarships in public universities

Students applying for or enrolled in both Professional Institutes and Technical Training Centres have to pay tuition fees on their own, as no public subsidies are available for them. This fact is particularly striking, as students from this two tiers of the tertiary education system are mostly from low income families, as shown in Table 2.8.

(The impact of these financial mechanism on participation and equity were already described in Chapter 2).

A proposal being elaborated at the Ministry of Education concerning student subsidies has reopened the debate on the overall financing of this level of the education system. The

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39 Universities with core public funding set tuition fees at the approximate level of the real costs of provision and marginally adjusted according to their market reputation. Private institutions funding comes from tuition fees, whose priced is left to market forces without any intervention for the State. A limited access of public resources are available for private institutions under the Indirect Fiscal Support mechanism. Each institution receives a premium for each student enrolled whose scores in the Academic Aptitude Test (PAA) are among the best 27,000 (PAA an instrument assessing knowledge of students completing secondary education and usually used by traditional universities to select students) among the best 27,500.
proposal includes the creation of a National System of Funding for Tertiary Education aiming at creating a diversified set of financial instruments to support students from different backgrounds and situations. The proposal argues that this system will be sustainable, stimulates the expansion of enrolments in tertiary education and it will contemplate instruments assuring that institutions will meet quality criteria. More specifically, the proposal complements existing mechanisms in order to (1) expand access to public loans to students from private institutions and (2) make students from Professional Institutes and Technical Training Centres eligible for State subsidised loans. The proposal includes a whole set of mechanisms and incentives to improve the repayment of loans. Currently State is recovering rates reach only 66% of the total resources involved in public loans.

**Public funding for traditional universities (Direct Fiscal Support).** One of the most controversial issues regarding tertiary education is the Direct Financial Support given mostly to traditional/public universities. This mechanism accounts for about 50% of the total public expenditure in tertiary education and 95% of it is distributed among 25 traditional universities on a historical basis. Controversy raises for two reasons (1) this system of resource allocation lacks any obvious indicator of need (2) it excludes private institutions. It has been argued that traditional/public universities are facing structural financial imbalance (Salas, 2001) and university fees are constantly increasing according to a strong segmentation in term of both quality and socioeconomic factors.

It is frequently said has become clear that the State has to do an effort in order to make funding available for student from poorer backgrounds. In order to do so an initiative has recently announced including the following measures:

**Learning and training for work: making private investment attractive and affordable for smaller companies and empowering workers for acquiring training**

Financing arrangements for university education are regressive especially when analysed form the perspective of those not participating in post-compulsory formal education. These part of the adult workforce, usually from disadvantages backgrounds but not satisfying the requirements to participate in remedial training schemes for under risk groups, do not benefit at all from public funding. Graduates from tertiary education institutions receive in turn large public subsidies even when they usually come from relatively well-off families and have high income prospects.

As it was said before, in the case of training there is a clear rationale for the State to intervene as private investment seems to be less than optimal. As explained, a number of policies are already in place but more is needed if the country wants to augment in a significant way participation in training. Main issues are how to increase training in those segments less covered today, while assuring the training delivered is aligned with industry needs and of appropriate quality.

The increasing though still low demand for training under the tax rebate scheme has raise the issue for the State of the extent to which the significant resources involved (nearly US$ 100 million on a yearly basis, with two thirds coming from public expenditure) are really targetting the right population. Even more substantially, the concern is the extent to which the system is contributing to accelerate human capital accumulation, that is, that training provided is relevant and cost-effective. Discussion regarding this issue is just starting in a more systematic way and it probably would demand a long effort as most improvements of the tax-rebate scheme would require changings in the law regulating its operation.
**Improving the tax-rebate scheme.** A threshold approach explains current demand for training by employers and can be useful to inform a partial re-design or adjustment of the tax-rebate system as its current form has proved not capable of reaching the intended targeted population. A distinction can be made among three groups. First, a group of employers for which training is perceived only as a cost and consequently there is no demand for training nor use of the tax-rebate system. Second, a group of companies for which training is starting to be seen as a potential contribution to improve productivity because of new business environment requiring new organisational and individual competencies. Employers from this group understand then training cost and benefits and could start using the tax-rebate as far as it will not imply additional costs to cover. The third group corresponds to those companies for which training is seen as strategic due to its impact on productivity. The benefits of training outweigh its costs and consequently demand is expressed in acquisition of training courses using or not the tax-rebate scheme.

Information regarding training demand suggests that the threshold (that is the second group of companies/employers) is located in what are called Small Emergent Companies according to their estimated sellings per year. *Public incentives should be focused in this segment.* This framework suggests obviously that adjustments to the tax-rebate system should be judged on the grounds of their effectiveness in making companies close to threshold to start participating on training. Some requirements or policy alternatives can be mentioned to do so.

First, this requires from both OTIC (intermediate/broker agencies) and OTEC (training providers approved by SENCE) to concentrate in this segment of the market, which does not happen today. For this to be possible changes would have to be introduced in the incentives for both actors of the training system, basically prices and intermediation administrative costs. Current payment system makes OTICs centering their attention in larger companies leaving unattended the small and micro-enterprises segment. This is an unintended consequence derived from problems in the institutional arrangements of the National Training System. A number of other changes should be made for the intermediation function to really accomplish its original mission that is being effective brokers and a more convenient option for companies to acquire training programs by themselves. Creating incentives for both OTIC and OTEC targeting small companies with appropriate training programs should then be a central issue. Intermediation is a necessary function because of informational and scale asymmetries in the training market.

Second, the tax-rebate scheme could be differentiated according to companies size: smaller companies receiving more resources and larger less resources from the system. It has to be remembered that blue-ship and large. The intended effect of this policy is stimulating training in companies closer to the threshold. This way of introducing a principle of equity is fairly consistent with the way in which employers operate in the training market; larger companies will probably continue investing in content specific training for their workforce even receiving less support from the tax-rebate system or no subsidy at all and smaller ones will become closer to the threshold as far as incentives make investment in training more attractive.

Some mechanisms in place in other countries to stimulate investment in training would be of low application in Chile, like France’s and Australia’s mandatory spending for training which is the same for all the companies without distinctions. Companies using the tax-rebate system have to cover by themselves the differences with this maximum when they acquire more expensive training programs.

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40 This section is based on Geo Consultores (2001)
41 Both are already prescribed. Regarding price, there is a maximum per-hour training fixed by SENCE which is the same for all the companies without distinctions. Companies using the tax-rebate system have to cover by themselves the differences with this maximum when they acquire more expensive training programs.
Empowering the individual: a voucher system for workers. As the previous strategies need changes in the law regulating the tax-rebate scheme that can be politically difficult in the short term, a second approach possible is directly design a demand driven subsidy for the adult workforce using the same resources available through the National Fund for Training (FONCAP). This would require a minor change in the special fund for small and micro-enterprises (see Box 2.3) in order to give workers and not only employers access to FONCAP resources for training. Substantial monitoring system must be created however to keep accreditation of institutions up to date and assure that training purchased by workers is relevant.

An alternative option would be to introduce co-financing mechanisms which seems viable as preliminary studies suggest workers are keen to pay for training, within certain limits (Geo Consultores, 2001). This opens the window for workers and the State co-financing relevant training in those competencies in demand in the labour market. This mechanism can be relevant especially for those self-employed workers or whose employers underinvest in training, which is basically what happens in small companies covering more than 80% of the current work force. Decisions on new incentives have to consider however that delaying investment in human capital reduces substantially its return. In consequence a priority should be given to incentives and subsidies for younger workers.

If this is tried, then evidence can be gathered regarding the possibility of designing other instruments involving workers co-financing their training. Any of these schemes assume that if individuals are given free choice and enough information about training providers and labour market options they will select, firstly, the type of training that will maximize their future returns. In this sense, training vouchers or similar mechanisms have to be conceived as part of a larger system comprising labour market information mechanisms, qualification and quality frameworks and probably certification systems. This structural approach is suggested in the Chapter 5 on Policy Implications.

Improving the effectiveness of training programs for disadvantaged groups. Evidence varies regarding the effectiveness of these programs in terms of post-training placement or impact on salaries. Evidence confirms however that decentralised systems in which trainer providers or other agencies operate on an outcome based structure of incentives can improve effectiveness. Apart from this what seems to be necessary is a more explicit framework according to which SENCE can prioritise certain types of training in terms of its outcomes. The best known framework playing this role is the competency-based-training approach relying on explicit competency standards which can be assessed in a valid way once training is finished. SENCE could become a better purchaser of training by stimulating training providers to adopt such a framework and structure training modules especially intended at developing basic or occupational competencies. Eventually, SENCE through a decentralised process could externally determine the effectiveness of training using traditional portfolio and criteria referenced assessment procedures.

Addressing low literate adult workforce. In Chapter 1 it was commented the overwhelming skill gaps detected by the IALS. The correlation between literacy levels and educational attainment makes clear that a significant part of chilean adult population lack basic skills. From the perspective of lifelong learning these people are at risk as they are not common users of the training system and second chances at school do not suit them for a number of reasons. In terms of cost and benefit, the opportunity costs of foregone earnings is significant if education requires time out of work. As a matter of fact, even for the lower educated earnings tend to rise with age so the opportunity cost is higher for older workers. This operates against participation in adult education and calls for innovative
approaches more linked with training for work. As private rates of return decrease with age (because of the relative compression of the period to amortise the investment costs) pursuing long programs of education would reduce even more the period in which the benefits obtained for education and training can be enjoyed. There are no local studies regarding this issue but probably it is also the case in Chile that drop of rates of return accelerates after the age of 40. The situation is probably similar to OECD countries as Chile faces a demographic transition with an aging population.

In this context lifelong learning for those adult workers has to combine a realistic vision of what can be achieved and how to provide education and training programs attuned to their life stage.

**Tax incentives and public subsidies for certification of workplace competencies.** In principle, certification systems involve private and social returns. For workers getting their skills certified can imply in the middle run to have access to more productive jobs and better salaries. The signal effect that certificates have in the labour market can reduce the transition periods between jobs and can also help to take more effective decisions regarding further training.

For companies to have the possibility of getting their workers certified can improve the efficiency of human resources processes. Particularly attractive for companies is the possibility of reducing transaction costs and the risk involved in recruiting new employees in a labour market with severe informational problems. For society the benefits are a more productive and motivated workforce which in turn can make a better contribution to technology transfer and participation in knowledge intensive businesses.

In sum this benefit can be traduced in an overall improvement of the chilean economy. The investment needed to develop the system would probably have to combine public and private efforts with the State investing seed capital for setting the competency standards and designing special subsidies for workers to have access to assessment and certification services on a co-financing scheme and special tax incentives for stimulating demand for certification among employers.

Importance of certification systems or prior learning recognition mechanisms can be also argued on the basis of cost and benefits involved. Currently, adults wanting to receive credit for the knowledge and know-how acquired through experience have to spend time and money to relearn in an academic setting what they already know. A valid mechanism for adults to get their competencies recognised would be highly cost-effective when the alternative costs are taken into account.
5. POLICY IMPLICATIONS

A Lifelong Learning strategy creates new challenges for policy and programme coordination, financing and the provision of learning opportunities for all (OECD, 2001a; ILO, 2002, Commission of the European Communities, 2000). It calls for an integrated vision of education and training over an individual’s entire life-span; a wide range of education and training pathways; new settings for learning and training; new systems of resource allocation; new incentives including skills certification to motivate individuals to learn. In the case of Chile it is fair to say that the policy making process regarding lifelong learning is still in a preliminary stage.

The policy recommendations offered in this chapter are structured around what we see as the main issues not only to implement a Lifelong Learning strategy but to make it a national and visible priority.

5.1 POLICY MAKING PROCESS

Building support and consensus for a lifelong learning strategy

Policy makers have just started to recognise the importance of an encompassing strategy for improving Chile’s human capital stock. Up to now attention has been focused on urgent “sectorial” rather than “systemic” unfinished agendas within the education system. On the other hand, raising unemployment resulting from the economic crisis has made labour and training policies to become remedial and short term.

Despite this scenario, a decisive step has been done through a long discussion between the chilean government and the World Bank in preparing a project proposal complimentary to the MECE projects developed during the 90’s. Initially the project involved the Ministry of Education and its purpose was basically to improve formal adult education (more than 6 million adults with primary and/or secondary education uncomplete) and implementing the curricular changes in secondary technical vocational education. Eventually the Ministry of Education and the World Bank itself considered broadening the project’s scope involving the demand of competencies side, represented by a number of initiatives that were carried on by SENCE jointly with Fundación Chile. The current project, already approved, represents then a first step in the implementation of a long term lifelong learning project.

It is the opinion of the authors that despite this progress the country is just progressing from an advocacy to an analysis and prioritising stages in the formulation of a lifelong learning policy for the country. This can be verifying by checking the main performance indicators most of them sectorial in nature and without any reference to other components. At this stage this is not necessarily a weakness particularly for the project will start at a slow pace in 2002. In the meantime it will be crucial to consider all the stakeholders that have to be involved, and for the government to change a traditional centralised view for building up partnerships especially with industry and leaders in the business arena.

Institutional innovations and stakeholder involvement

Chile does not have an overall strategy for developing its human capital. IALS outcomes were widely commented in the country, raising the public concern on Chile’s human capital. Recurrent international reports showing that the country is losing leadership in the continent and that it seems to have lost the possibility of becoming a contributor to the knowledge economy have also raise concern in the political and business arenas. It has been remarked that for countries like Chile competitive advantage can be better fostered

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42 We are following here the five stages model suggested by the OECD with respect to lifelong learning policy making: advocacy, analysis, prioritising, allocating resources and evaluating effectiveness.
through improving the country’s capacity for adapting and transferring new technologies from abroad (Bitran, 2001; World Bank, 1999). This strategy requires a significant accumulation of human capital able to contribute in the process of adapting technologies intensives in knowledge.

It could be important to start with sectorial Human Resources Reports analysing current and future skill gaps. These reports could inform white papers including policy recommendations. Current diagnosis are mostly intuitive, based on outdated statistical occupational categories or too broad and overwhelming (International Adult Literacy Survey) to stimulate further actions. A closer diagnosis can both inform decisions on priorities for lifelong learning and at the same serve as an expression of public consensus. Besides it would important for the country to continue participating in international comparative test hopefully addressing not only cognitive and academic skills but generic competencies as well.

A crucial aspect to be addressed is the necessity of new private actors to be involved not only as peripheral participants in higher level committees but at the more operative level steering, for instance, the training system. It is quite clear that for lifelong learning becoming successful new actors have to be involved but new institutions have to be created. Demand-driven and privately managed institutional arrangements for accrediting institutions offering learning opportunities and a skills certification system are examples of endeavours that have to be supported by a multiplicity of actors. Implementation of institutional arrangements like those mentioned will probably affect particular interests of some of the stakeholders involved. For this reason it is necessary early stakeholder involvement and clarity regarding public and private interests that have to be kept.

Sharing a vision and setting up clear targets and performance indicators

There is a risk of the Lifelong Learning and Training Project becoming a traditional educational policy based on formal institutional arrangements for learning. Part of the problem has to do with a too sectorial view in which matters of education, employment, training and the like are seen in isolation. One way to overcome this tendency is to agree clear targets involving a combination of sectorial and truly systemic performance indicators.

Targets must be outcome oriented rather than input oriented. Reducing to a 15% in the next 10 years the percentage of 18-35 people performing at level 3 in the IALS can be an example of a target that can be achieved combining different formal and non-formal learning strategies. International experience suggest that this targets have an important effect in terms of aligning parallel efforts to achieve the targets defined.

5.2 A STRUCTURAL APPROACH TO LIFELONG LEARNING

It seems highly unlikely that the current institutional frameworks can support adequately systemic efforts to give people more accessible, flexible and relevant learning opportunities in a cost-effective way. From this standpoint it is important to define those central structural components of a lifelong learning strategy. These are: qualifications frameworks, accreditation processes, certification of informal learning, information systems, labour market intermediation systems, human resources management certification systems, financial incentives and for private investment.

43 What was called Brunner’ Report on Education is a good example of the pervasive influence that a document elaborated with the participation of several think tanks, politians, businessmen, etc can have in policy formulation in Chile.

44 Regrettably Chile has declined to participate in the new Adult Literacy and Lifeskills Survey (ALLS).
6. REFERENCES


Arellano, José Pablo (2000b). *Reforma Educacional. Prioridad que se Consolida*. Editorial Los Andes, Santiago, Chile

Arellano, J.P. (2001a) *International Competitiveness and Education in Latin America and the Caribbean Countries*.


Bellei, C. (2001). ¿*Ha tenido impacto la Reforma Educativa Chilena*? Seminario “Alcance y resultados de las reformas educativas en Argentina, Chile y Uruguay”. BID.


Bravo, D; Contreras, D.; Larrañaga, O. (2001b) *Competencias básicas e inserción laboral en Chile*. Departamento de Economía, Universidad de Chile (unpublished paper)


Contreras, D (2001) *Evaluating a voucher system in Chile. Individual, family and school characteristics*. Documento de trabajo Nº 175, Departamento de Economía, Universidad de Chile.


Geo Consultores (2000a) *Evaluación económica de la franquicia tributaria para la inversión en capacitación en la empresa. Informe Final* (Study contracted by SENCE and the Finance Ministry)


MINEDUC (2000) Los centros de educación integrada de adultos. MINEDUC, Santiago, Chile.


MINEDUC (2001a) Compendio Estadístico 2000

MINEDUC (2001b) Hacia una nueva educación de adultos. Informe de la consulta nacional de docentes. División de Educación General, Ministerio de educación, Santiago-Chile.

MINEDUC (informes del SIMCE)


OECD (2000b) From initial education to working life. Making transitions work. Paris


OECD (2001j) Adult learning at the OECD. Will Cinderella get to the ball? Presentation by J.Martin at the International Conference on Adult Learning Policies. Seoul-Korea.

SENCE (1999) Capacitación Laboral. La Experiencia Chilena. SENCE, Santiago, Chile
The International Association for the Evaluation of Educational Achievement (IEA) (2001). Citizenship and Education in Twenty-eight Countries. Civic Knowledge and Engagement at Age Fourteen (http://www.wam.umd.edu/~iea/)

