Chapter 1: The Bío Bío Region and its higher education institutions

Over recent years Chile has enjoyed economic growth and institutional stability and reform. This chapter presents the profile of the Bío Bío Region with its main economic activities and its socio-economic characteristics as compared to other Chilean regions. It examines the expansion of higher education institutions in the region and their role in regional development. It identifies the main strengths and weaknesses of the region and analyses the major challenges in the context of the increasing participation of higher education institutions in the definition and implementation of regional development strategies.

1.1 Bío Bío Region and administrative organisation

The Bío Bío Region is one of 15 administrative regions[1] in Chile. It enjoys a central position in continental Chile, between the regions of Maule to the North and Araucanía to the South. The distance between Concepción and the national capital of Santiago is of 500 km. The region comprises four provinces (Ñuble, Concepción, Bío Bío, and Arauco) each led by an appointed governor, and 54 communes.[2] The Province of Concepción with its 12 communes, including the capital city (Concepción), is the most populated. It represents 36% of the regional territory and is the second largest province. Ñuble (capital: Chillán) is the largest province with 40% of the regional territory comprising 21 communes. The Province of Bío Bío (capital: Los Ángeles) is subdivided into 14 communes. In the southwest of the regional territory, Arauco with its 7 communes (capital Lebu) encompasses only 8% of the regional population and 15% of the regional area. The longest distance between two provincial capitals is not greater than 250 km. The region also comprises ten "Planning Territories" representing groups of communes with common economic and social characteristics, on the basis of voluntary agreements favouring integrated territorial strategies and projects with critical mass.

The Chilean administrative system is characterised by strong centralisation, although decentralisation trends have begun to emerge in recent years (see Section 1.6).[3] Regional governments are led by an "*intendente*", designated by the President of the republic. The *intendente* is also the president of the regional government's general council. In the Bío Bío Region, this council is composed of 22 members, elected for 4 years by the municipal council members of the 54 communes. The general council members are elected by provincial quotas (The situation will change after the forthcoming regional elections in 2010 or 2011 when the members will be elected, for the first time, through direct popular vote). Presently the Province of Concepción has 9 members, Ñuble 5 members, the Province of Bío Bío 5 members and Arauco 3 members. The regional government prepares and approves regional development policies, plans and programmes; prepares the regional budget proposal; decides assignment of resources from sector funding sources; develops territorial planning, training, technological, social, cultural, environmental actions; offers advice to municipalities and prepares for emergency situations. The *intendente* represents the President of the republic, develops duties related with the maintenance of public order and coordinates and controls public services. The governance structure of the Bío Bío Region's is shown in Table 1.1.

Table 1.1. The governance structure of the Bío Bío Region

Bío Bío Region	**a) The government of the region – national government line** • **Intendant *(Intendente):*** the direct representative of the President of the Republic in the region. The *intendente* is named by the president of the republic and is maintained in the office at the discretion of the president. The *intendente* directs the government of the region according to the guidelines given directly by the president. **b) The regional government – territorially decentralised line** • Intendant*:* acts as the executive head of the regional government and presides the Regional Council. • Regional Council: supervises the *intendente*'s duties; 22 members elected for four years (according to quotas) by the members of the 54 municipal councils. In 2009, a reform was launched to elect regional councillors through a direct popular democratic election. This change will come into effect in the forthcoming regional elections in 2011 or 2012. **Main functions:** • Design programmes and policies for regional development and productivity. • Approve the regional development plan. • Define and take investment decisions regarding use of resources from regionally defined public investments, especially from the National Fund for Regional Development. • Advise municipalities. • Build and administer the paving of sidewalks and roads in rural areas. • Carry out various tasks related to land management, human settlements and infrastructure equipment. **c) Other public administration units in the region:** • **Ministerial regional secretaries:** national ministries' regional representatives who coordinate the public services under their responsibility. The Regional Planning Secretariat is a key institution in the investment process.
Provinces (4)	• **Governor*:*** appointed by the President. Governor represents the *intendente* in the province. • **Provincial Economic Council:** headed by the governor, acts as an advisory institution to the provincial governor. **Main functions:** supervise public services provided in the province. Maintain public order and citizens' safety.
Municipalities (54) Public corporations, with both legal personality and private assets, whose end is to satisfy the needs of the local community	• **Mayor*:*** highest authority in a municipality; chair of the municipal council. • **Municipal council:** advises, regulates and supervises the mayor's performance. It is in charge of ensuring the effective participation of the local community. • **Economic and social council:** composed of representatives of civil organisations of the municipality. Both the mayor and the council are chosen through popular elections every four years. **Main functions:** *Exclusive functions:* to develop, approve and modify the communal zoning plan; to promote local development; to enforce all measures regarding transport; to implement provisions regarding construction and the planning and urban regulation of the commune. *Shared responsibilities:* public health, primary and secondary education, culture, work training and economic development, tourism, traffic regulations, social housing development and sanitary infrastructure, citizen safety. Municipalities can collect fees for municipal services, concessions or licences; enforce taxes on activities or goods with a clear local identity to be used for local development; award grants to public or private non-profit organisations; acquire or transfer moveable properties or real estate.

Source: adapted from OECD (2009a), Territorial Reviews: Chile, OECD Publishing, Paris, p. 47

1.2 Demography and society

The Bío Bío Region is the second most populated region, after the Metropolitan region. According to the 2002 census it comprised 1.9 million inhabitants (12% of the population). It is the region with the highest percentage of rural population (18%). It is also one of the most densely populated (50 inhabitants per km^2), surpassed only by the Metropolitan and Valparaíso regions. Most of the population lives in the coastal zones of the Province of Concepción. Half of the regional population (912 889) live in this province in which the communes of Concepción, Hualpén, and Talcahuano concentrate 25% of the region's population. The urban agglomeration known as the Greater Concepción, also including Penco, San Pedro de la Paz and Chiguayante, represents 36% of the population living in the Bío Bío Region. Besides the coast, there is another important population concentration in the Province of Ñuble, home to 24% of the regional population (483 103 inhabitants). Around the central highway, Chillán, Chillán Viejo, Bulnes and San Carlos comprise 255 000 inhabitants, (almost 14% of the region's population). The third most populated province is Bío Bío, with 19% of the regional population (353 315 inhabitants). Its capital, Los Ángeles has over 150 000 inhabitants.

The population in the Bío Bío Region grew in the last inter-census period (1992-2002) by 7% (national growth rate was 21%). In terms of migration, the region has been a net exporter of population. Net migration was of 19 000 in 1997-2002, about 1% of the regional population. The main reason appears to be lower wages, with departure after completion of secondary education but also after tertiary education (Aroca, 2004; Dresdner *et al.*, 2005) (See Section 2.10). Around half of emigrants move to the Metropolitan Region. Other destinations are the Valparaíso, Araucanía, Los Lagos, and Antofagasta regions. Moreover, the migratory process from rural areas to urban areas continued, with the proportion of urban dwellers increasing from 67% in 1962 to 82% in 2002 (Self-Evaluation Report, SER). Within the region (2002 census) the communes receiving net immigration (Province of Concepción) are San Pedro de la Paz, Chiguayante, and Coronel whereas Concepción, Talcahuano, and Lota have lost population. Within the other provinces, Chillán Viejo and Los Ángeles exert a strong attraction. Chillán instead experienced net out migration.

The Bío Bío Region is culturally diverse. Of the total regional population 7.8% declare to belong to one of the eight officially recognised ethnic groups, although the great majority of these are Mapuche[4]. Most have moved to urban centres, living in conditions of poverty and indigence. They are mainly located in Cañete, Talcahuano, Concepción, Tirúa, Coronel and San Pedro de la Paz. Alongside ethnic identity there remains in Bío Bío the

heritage of certain activities that have evolved like coal mining, forestry, fishing and agriculture, textiles and steel. There is however an insufficient recognition of cultural heritage that could contribute towards shaping a stronger regional identity.

As the rest of Chile, the region has experienced enormous improvement in social conditions in the last two decades. At the national and regional levels the proportion of families that cannot satisfy their basic needs with their own income has fallen by a half between 1994 and 2006, while the proportion of indigents, depicting more serious poverty, was reduced by a third between 1992 and 2006. In a national comparison, Bío Bío is however one of the regions with the highest proportion of poor (20.7% versus 13.7%) and indigent (5.2% versus 3.2%) families (MIDEPLAN, 2006), alongside Araucanía, Maule and Coquimbo, agriculture intensive regions whereas Bío Bío, although strong in the primary sector is mostly characterised by its manufacturing profile.

Chile has experienced remarkable improvements in literacy rates over the last two decades, now putting it at levels close to those of most OECD countries. The Bío Bío Region is no exception to this national trend. The percentage of the regional population that can write and read increased from 49% to 88% between 1992 and 2002. Considering only the population over 15 years of age the increase is even higher, with literacy rates jumping from 47% to 94% in the same period. The average number of schooling years has also increased, with 15% of the population having 12 years of education in 2002 (less than 12% 10 years earlier). However, a national comparison shows that schooling levels are slightly lower in the region than in the rest of Chile (16% with 12 years of education) because age groups over 40 years present lower schooling rates in the region. Nonetheless, the overall gap tends to disappear, because these age groups now have schooling rates comparable to national averages.

1.3 The regional economy

The Bío Bío Region is the second most important region in Chile behind the Metropolitan Region (47.2% in 2004) by its contribution to the national product, providing slightly over 10% of GDP in 2004 (OECD-World Bank, 2009). Sustained growth in economic activity in the region and country has allowed the per capita income to increase steadily between 1990 and 2006. The regional economy grew 60% in this period, increasing the per capita income from USD 2 500 to USD 4 000 (RSC, 2009), which puts the Bío Bío Region in the 9th position of the 15 Chilean regions. However, the national per capita income grew faster than the per capita income in the region. From the perspective of the Chilean economy, the contribution of the Bío Bío

Region is very important for manufacturing (20.3% of the national GDP generated by this activity in 2005, second region behind Santiago), for fishing (with 20.6%, second region behind Los Lagos) and for agriculture and forestry (third position behind O'Higgins and Maule with 15.1% in 2005) (OECD-World Bank, 2009).

The most important sector of activity in the regional economy is manufacturing. It represented in 2003 35% of regional GDP as compared to 15.8% for the national average. (OECD-World Bank, 2009). Natural resource based activities (agriculture, fishing, forestry, energy production) also represent a significant share of regional GDP, as indicated above. Agriculture remains an important economic activity: wheat and the traditional crops continue to have great significance in the regional product in spite of the development of forestry. Currently 16% of the regional area is allocated to intensive use (annual crops, fruit and vineyards, vegetables and flowers, artificial grassland and fallow), 44% is used by prairies and 40% by forest plantations. The generation of electric power is another productive activity of national importance. It has been developed significantly in the last decades, due to the exploitation of the hydroelectric potential of the Bío Bío basin. Finally construction, financial services and commerce have experienced considerable growth in the last decade of the 20th century, as in the rest of Chile.

The entry of the Bío Bío Region into international markets has strongly contributed to changing its economic structure. This is reflected in the significance that the region's exports have in the national context. At present, it exports products representing a value of over USD 4 billion (FOB) that corresponds to 8% of the deliveries that Chile sends abroad. Its regional export development has been closely related to the manufacturing industry that processes forest and fishing resources. In 2006, 630 firms exported 855 different products to 130 countries. The three most important export markets for the region were the United States (25.3%), China (9%) and Peru (7%). 57% of exports are directed towards North and South America, 25% to Asia and 14% to Europe.

Forestry has considerable importance for the regional economy: it concentrates 50% of the planted surface in the country. Three quarters of the planted surface are covered by the Monterrey pine, while eucalyptus plantations occupy 20% of the rest. Forest growing is fast developing in the provinces of Ñuble, Bío Bío and Arauco, sharing homogeneously 97.5% of the planted surface. This activity has been facilitated by the opening to global markets and by subsidies supporting plantations and forest management. This has resulted in an annual decrease of agricultural land over recent years of around 3%. However, in the recent period the growth rate of plantations has decreased, in part because of the strong demand for

new lands, which has made the cost of land more expensive. This has led to an increase of reforested areas with a decrease of the deforestation rate. Wood industries (paper, paper products including cellulose, building supplies and furniture) have developed in parallel, now representing a third of manufacturing and 66% of regional exports. Round log and pulp chunk exports have decreased considerably as production efforts are being re-oriented to more elaborate products.

In 2008, the average labour force in the Bío Bío Region was of 760 000 workers, with slightly more than 91% employed and a participation rate of 49%. Labour force and occupation in the Bío Bío Region constitute one tenth of the labour force and occupation at the national level. Two-thirds of the employed are dependent workers and one quarter are independent workers. The major contribution to employment comes from the tertiary sector (62% in 2007). The other main employment sectors are agriculture and fishing (15%) and manufacturing (also 15%) (RSC, 2009). The most important change since 1986 is the reduction of the share of the primary sector in employment: by one half for agricultural and fishing activities and from 3% to 0.5% for mining, whereas the construction and tertiary sectors have increased their share (RSC, 2009). The rate of unemployment in the region is systematically higher than the national average: 8.7% in 2008 as compared to 7.7% on the national level. In some periods the unemployment rate gap between the region and the country average has even been superior to 2%. One explanation is the big increase in the female labour force that the regional economy has not been able to absorb (Bruhn and Inostroza, 1997).

The Bío Bío Region is characterised by a "dual economy": on one side, big, highly productive firms (forestry, steel) and on the other a wide array of small and medium sized enterprises, with low absorptive capacity. 82% of regional firms had sales of less than USD 100 000 in 2007 and these represent more than 80% of employment. The rate of firm creation is also one of the lowest in the country, according to Benavente *et al.* (2008). Although no figures were made available to the review team, it is also generally recognised that firm linkages are limited, with few supply chains or innovation spillovers.

1.4 Higher education in Chile

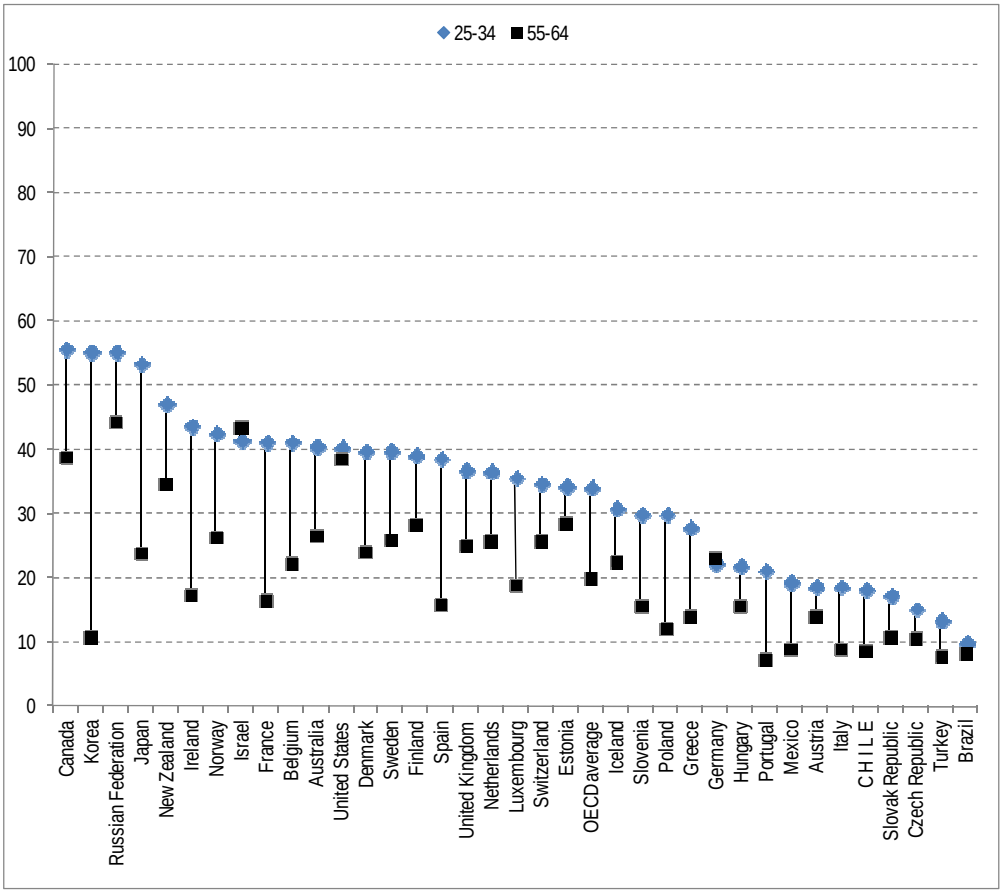
Chile has enjoyed significant progress in tertiary education over the last decades, moving successfully from an elite to a mass higher education system: "In the span of one generation, enrolment rates for students from the two lowest income quintiles have risen by a factor of five." (OECD-World Bank, 2009) This major step has been taken thanks to bold policy innovations within a system where public and private institutions both play

important roles. In spite of the success, the percentage of graduates remains below OECD average levels (13% versus 27% in 2004). The 2009 Tertiary Education Review of Chile (OECD, World Bank) also notes a number of challenges that need to be the focus of second generation higher education reform: the high cost of education is mainly carried by students and their families, while public spending per student is low by OECD standards. Equity in access to higher education has not been achieved as it is linked to differences between public and private secondary schools, the latter providing better secondary graduation rates and preparation for university entrance. Student aid, although it has increased substantially, is still not available to all those who should be able to benefit from it. The relevance of higher education requires attention as there is a need to move away from career based approach towards competence building. In addition, all higher education institutions which have been accredited should have access to public funding.

There are three types of higher education institutions in Chile: technical training centres (CFTs), professional institutes (IPs) and universities. The universities are divided in two categories: those belonging to the Council of Rectors of Chilean Universities (CRUCH universities),[5] also known as "traditional universities" and the newer universities known as "private universities".[6] Technical training centres can only deliver titles of "Higher Level Technicians", the professional institutes can only give "Professional Titles" while the universities exclusively have the right to confer "Academic Degrees".[7] All these institutions are granted autonomy covering academic, economic and administrative fields after assessment of curricular plans, graduation mechanisms and quality of education. Three public sources of financing, complementary to funds received from other sources, exist:

- The Direct Public Contribution, (*Aporte Fiscal Directo* or AFD) granted exclusively to CRUCH universities (distribution responding for 95% to historical standards).
- The Indirect Public Contribution (*Aporte Fiscal Indirecto* or AFI), a competitive subsidy assigned according to the number of new students enrolled in the institution that count among the 27 500 students with the best results in the University Selection Test (PSU).[8]
- The Institutional Development Fund (*Fondo de Desarollo Institucional* or FDI) targeting CRUCH universities, aiming to improve internal resource assignment.

Figure 1.1. OECD population with at least tertiary education (2007)



Countries are ranked in descending order of the percentage of 25-34 year-olds who have attained at least tertiary education. The year of reference for Chile is 2002 and for the Russian Federation is 2004.

Note: For technical reasons, these figures use Israel's official statistics, which include data relating to the Golan Heights, East Jerusalem and Israeli settlements in the West Bank.

Source: OECD (2009b), Education at a Glance: OECD Indicators, OECD Publishing, Paris. StatLink http://dx.doi.org/10.1787/664024334566

Higher education institutions may also apply for competitive funding from the Programme for the Quality and Equity Improvement of Higher Education (MECESUP), designed to increase the effectiveness of public higher education institutions funding. Currently, MECESUP funding is available to CRUCH universities. In addition, other types of higher

education institutions have access to certain parts of the programme. MECESUP programme will be discussed in detail in Chapter 5.

The number of enrolled students in Chile grew spectacularly between 1990 and 2007 (202%). Undergraduate enrolment increased by 197%, post professional by 268% and postgraduate enrolment by 840% during this period. In 2007 national enrolment in higher education institutions comprised 726 285 undergraduate, 7 105 post-professional and 20 153 postgraduate students. This translates into a national coverage of 38.4% of the population aged 18 to 24 years. In 1990 this percentage was only of 14.4%, underlining the huge increase in access to higher education of this age group. In parallel, the number of higher education institutions (RSC, 2009) has been seriously reduced between 1990 and 2007, dropping from 248 institutions to 205, a trend affecting mostly technical training centres (CFTs) and professional institutes (IPs). Universities maintained their numbers relatively stable, with a higher number of private universities in comparison to CRUCH universities. Regarding institutional regimes, in 2007, 93.4% of universities, 65.9% of professional institutes, and 21% of technical training centres had obtained autonomy.

The regions with the highest national enrolment shares in 2007 were the Metropolitan region (48.9%), the Bío Bío Region (12.8%) and Valparaíso (12.5%). The same year, universities had 67.6% of the total, while professional institutes (IPs) and technical training centres (CFTs) represented 20.8% and 11.6% respectively. Universities concentrating enrolment were the University of Chile (5.8%), Universidad de las Américas (5.1%), Andrés Bello University (4.9%), University of Concepción (4.4%), Universidad del Mar (4.4%) and the Pontificia Universidad Católica de Chile (4.3%). In professional institutes (IPs) enrolment in 2007 was distributed mainly between DUOC-UC (27.6%), the former University Department for Peasants and Workers of the Catholic University of Chile, now an independent entity, INACAP Professional Institute (15.7%), the National Institute of Professional Training linked to the main Chilean business association (*Confederación de la Producción y del Comercio*), and AIEP (9.9%), a professional institute linked to the Andrés Bello University. Within technical training centres (CFTs) student enrolment is concentrated in CFT INACAP (27.3%) and CFT Santo Tomás (19.5%).

Availability of financial resources grew rapidly from 1990 to 2007. The Direct Public Contribution (AFD) resources were multiplied by five while the Indirect Public Contribution (AFI) tripled. Total public contribution to higher education in 2007 (CLP 180 billion) was about eight times the amount spent in 1990. In 1990, five CRUCH universities concentrated 60.7% of all AFD resources (53% in 2007). AFI resources are almost exclusively absorbed by universities (99.1% in 2007), while professional

institutes got 0.49% and technical training centres 0.12%. Amongst universities, CRUCH members concentrate most AFI resources. In 1990, six of these received 60.1% (77.6% in 2007). The University of Concepción belongs to the AFD and AFI groups indicated above. Among the private universities, a few institutions concentrate AFI resources. In 1990 three institutions received almost 71% of these AFI resources. In 2007 five institutions obtained almost 64% of resources. Within professional institutes and technical training centres, there also exists a high concentration of AFI resources amongst a limited number of institutions.

Higher education institutions' staff in teaching, research, or extension programmes was estimated by the National Information System of Higher Education (SIES) at 47 022 in 2007. Of these, 30.3% had a postgraduate degree (master or doctorate). The CRUCH universities had 9 455 and the private universities 5 747 staff with postgraduate degree.

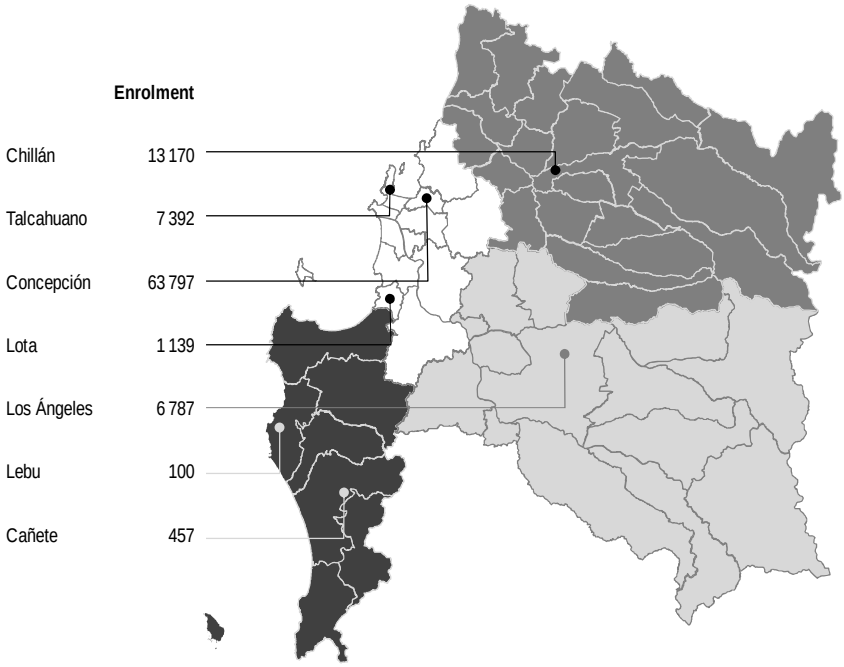
1.5 Higher education in the Bío Bío Region

Following national trends, tertiary education in the Bío Bío Region has registered significant progress between census years. The population share with higher education increased from 13% to 21% between 1992 and 2002 in the region, slightly less than the national share for 2008. Also, the socioeconomic background of university students has shown an increasing share of those coming from the lowest income quintile (quintile 1). Today, at least 70% of higher education students in the Bío Bío Region have reached an educational attainment level higher than that of their parents. According to the information recovered from the survey relating to higher education institutions in the Bío Bío Region conducted by the regional self-evaluation team, it appears that of the students entering the system in 2008, 36.5% belonged to the first quintile, 28.1% to the second quintile, 18.2% to the third quintile, 13.1% to the fourth quintile and 4.1% to the fifth quintile. This means that the higher education system in the Bío Bío Region has an important equalising effect in the study opportunities of young people from lower income groups. Unfortunately, the data also suggests large number of students with the financial means to do so are choosing to leave the region for their studies (see Chapter 2).

The Bío Bío Region is the second, behind the Metropolitan Region, in terms of higher education offering and student enrolment, which undeniably constitutes a strong asset in terms of regional development potential. The region concentrated in 2007 12.7% of all the higher education institutions headquarters in Chile, 12.8% of the national higher education enrolment, and 11.9% of the supply of undergraduate programmes. Higher education in the Bío Bío Region is provided mainly in Concepción and Talcahuano,

which concentrates three quarters of the total regional enrolment, but also in Chillán and Los Ángeles and to a lesser degree in Lota, Cañete and Lebu, where some higher education institutions have their seats (see Figure 1.2). The number of higher education institutions with seats in the region has in effect increased rapidly over the last years: from 44 in 2000 to 70 in 2007, with a high growth rate of professional institutes (IPs) and private universities, while the technical training centres (CFTs) share decreased.

Figure 1.2. Enrolment in HEIs in the Bío Bío Region, 2008



Source: RSC (Bío Bío's Regional Steering Committee) (2009), "The Bío Bío Region, Chile: Self-Evaluation Report", OECD Reviews of Higher Education in Regional and City Development, IMHE, *www.oecd.org/dataoecd/1/59/43694606.pdf*

The growth of higher education capacity has enabled the region to support a four-fold increase in enrolment between 1983 and 2007, from 21 000 to 94 000. However, the share of the Bío Bío Region in national enrolment remained stable at around 12%, as all regions experienced growth of higher education over the same period. In 1990 13.7% of the age group 18-24 years attended undergraduate education and in 2007 the percentage had increased to 39.9%, surpassing the national average by three percentage

points (RSC, 2009). Moreover, the evolution shows an accelerating pattern over the last decade. Undergraduate enrolment expanded by 82% in universities, 149% in professional institutes (IPs), and 52% in technical training centres (CFTs) between 2000 and 2007. In 2007 the total regional enrolment was of 96 732, with 62 205 in universities as undergraduate students. The increase in enrolment is concentrated around the main knowledge centres: Concepción has 58.8% of technical training centres, 77.9% of professional institutes, and 74.6% of university enrolments, followed by Chillán and Los Ángeles (20% and 11% of technical training centres; 11.8% and 10.3% of professional institutes; 13.3% and 6.4% of university enrolments respectively).

Postgraduate enrolment almost doubled between 1999 and 2007, from 1 500 to 2 880 students, but remains at low levels. The growth rate was slightly less than the national one, so the regional share of postgraduate students decreased from 11.5% to 10.2%. Of all enrolled students in higher education institutions in the Bío Bío Region, 68% are in universities, 21% in professional institutes (IPs) and 11% in technical training centres (CFTs).

Most of the students enrolled in the regional higher education institutions come from the Bío Bío Region, with an average of only 6% of them coming from other regions (RSC, 2009) but a significant number leave the region after graduation. The largest proportion attended municipal secondary schools. The composition of student enrolment in CRUCH universities with regional presence deteriorated in terms of the national higher education entrance examination (PSU) scores. The share of incoming students with average scores higher than 700 points represented 8.6% of total entrances in 1998. By 2008 it had fallen to only 4.4%.[9] This, and the fact that the higher education institutions have not reformed their education delivery to better respond to the needs of the new type of students, may explain high drop-out rates (around 50% after two years).

The number of academic staff, measured in equivalent hours,[10] was approximately 3 868 in 2009. Of these 83% was hired by universities, 13% by professional institutes (IPs) and 5% by technical training centres (CFTs). The University of Concepción represents 32% of the total, the University of Bío Bío 12%, the Universidad Católica de la Santísima Concepción 9%, the San Sebastián University 8% and the Universidad del Desarrollo 4%. The University of Concepción, the University of Bío Bío and the Universidad Católica de la Santísima Concepción, *i.e.* the CRUCH universities in the region, obtain the biggest part of the public funding resources: In 2007, these three institutions obtained 10.1% of the Direct Public Contribution, AFD (CLP 12 438 million), 11.2% of the Indirect Public Contribution, AFI (CLP 1 737 million) and 34.2% of the Institutional Development Fund, FDI - MECESUP (CLP 1 641 million) on a national basis.

Finally, in terms of research and development (R&D), the Bío Bío Region is the second region behind the capital city area on the basis of indicators such as funding, staffing, publications or patents. The research scene is dominated by University of Concepción, but other universities are also strengthening their capacity. High quality research of international excellence is conducted in different fields such as oceanography and chemistry (University of Concepción), wood industry (University of Bío Bío), and aquaculture (Universidad Católica de la Santísima Concepción) and it boasts a Centre for Advanced Polymer Research, a joint venture between the University of Concepción and the University of Bío Bío, with regional and national funding.

1.6 Regional development perspectives

Following its tradition of strong administrative centralisation, Chile's regional policy has been largely defined and implemented in a top down fashion, leaving little leeway for regional initiative. As in OECD countries, the links between regional development and decentralisation have been increasingly recognised during this decade. This has resulted in policy measures since 2006-07 transferring new responsibilities to regional governments:

- Funding: over 50% of specific funds (10% including sector funds) are now decided in regions
- Definition of regional development strategies
- Creation of regional development agencies

Although not specifically targeting regional development, the National Innovation Strategy launched in 2007, provides a framework for innovation and competitiveness policies within regions. This strategy draws up guidelines until 2020 that include increased R&D spending, improved levels of educational attainment and entrepreneurial innovation. The Bío Bío Region has been in the forefront of these developments. As early as 2001, "*Innova Bío Bío*" was launched on the basis of an agreement between CORFO (a national public agency linked to the Ministry of Economy) and the regional government, to jointly support actions fostering competitiveness. This unique initiative served as model for what would be later known as "*Innova Chile*" (see Chapter 3). Likewise, in 2004, CORECYT (Regional Council for Science and Technology) was created in the Bío Bío Region, the first such council in the country, based on a public-private partnership between regional government, business and universities,

aiming to design regional strategies and policies that promote research and create knowledge networks.

Within the Regional Development Strategy of the Bío Bío Region for 2008-2015 education, science, technology and innovation are amongst the regionally defined strategic priorities. Strategic Line number three relates to *"Education of quality at the service of individuals, social mobility, economic competitiveness and democratic participation"* and Strategic Line number four refers to *"Science, technology and innovation for a dynamic and competitive regional economy and social development"*.

The implementation of these strategic goals is the responsibility of the regional government. The definition and implementation of the Agenda for Innovation and Regional Competitiveness are carried out by the regional development agency,[11] the board of which comprises representatives of regional government, national agencies such as CORFO and business. The agenda is defined and implemented in association with public and private actors, including higher education institutions and civil society.

The three strategic sectors within the agency's agenda are food and agriculture, tourism and higher education, science and technology. These areas are funded on the basis of PMCs[12] (Programmes for Improvement of Competitiveness), now representing at least 10% of the resources of national public agencies involved in productive development, according to the budgetary law and to which national agencies such as CORFO and funds such as FNDR (National Fund for Regional Development) or FIC (Innovation and Competitiveness Fund) contribute alongside regional funds. The PMC for Education, Science and Technology aims to reinforce the "higher education cluster" in the Bío Bío Region by a series of diverse actions including the creation of a Centre for the Improvement of Firm Competitiveness, support to aquaculture, the development of a pole for the health sector and support to improving social skills among first year university students. The OECD Review of Higher Education in Regional and City Development in the Bío Bío Region is one of the components of the Programme for Improvement of Competitiveness.

1.7 The role of higher education institutions in regional development

In Chile there is no explicit "third mission" or regional development task assigned to higher education institutions. Regional engagement is left largely to the initiative of the individual institutions. However, some aspects of national policies and programmes support regional orientation. For example, the national accreditation system involves a strand for outreach (*vinculación con el medio*) that assesses the institutional policies and

mechanisms that link the higher education institutions with the local businesses and community and also aim at enhancing the academic and professional development of the staff and fulfilling institutional goals. In addition, some public funding, most importantly MECESUP (Programme for the Quality and Equity Improvement of Higher Education) includes requirements, which in practice guarantee that part of the funding will benefit higher education institutions outside the Metropolitan region and indirectly also their regional economies.

In the Bío Bío Region, a survey was conducted on this subject for the purpose of the regional self-evaluation for the OECD/World Bank Review. Amongst the respondents, regional engagement (strong links to the community and provision of research of regional pertinence) is considered as a priority and mentioned explicitly in the statement of the institution's mission in 2 out of 4 CRUCH universities, in 3 out of 11 professional institutes (IPs) and 4 out of 9 technical training centres (CFTs). Market research, reference to the Regional Development Strategy, studies relating to economic and social needs and labour market analysis are used by higher education institutions to define courses and academic programmes. Specific links with the private sector are in the form of internships for students, research in topics of regional interest, joint R&D programmes with firms and training programmes for employees. Some institutions also facilitate the labour market insertion of graduates by providing support and advice within specialised departments.

In spite of these efforts, the Bío Bío Region, the second pole of higher learning in Chile behind the Metropolitan area, experiences unemployment rates that are higher than national averages and is a net "expeller" of undergraduates to other parts of the country. In 2006, there was a net migration of university, professional institutes and technical training centres undergraduates, respectively of more than 2000, close to 1 500 and 1 000 (MIDEPLAN, 2006). This seems directly related to the level of wages in the Bío Bío Region, lower than the national average but also to the lack of sufficient skilled job opportunities. The situation is quite different for postgraduates who tend to remain in the region that even attracts postgraduates from other parts of the country. It seems relevant to put this data in parallel with recent trends in higher education in Bío Bío, as presented in Section 1.4 above: in 2007 39.9% of the age group 18-24 years attended undergraduate education, surpassing the national average by 3%. This means that the increase in higher education coverage contributes, at least in part, under present conditions, to a regional "brain drain".

In this context, important issues arise. How can higher education institutions increase co-operation and better tailor their educational offering to the needs of the regional economy? Can stronger links with the private

sector be developed to facilitate better integration with the labour market? Can regional innovation and R&D benefit firms better, in particular small and medium sized enterprises, with more impact on the local economy? To what degree and how can the regional government steer such a process, in close cooperation with higher education institutions and the private sector? The following chapters will seek to develop these issues and provide possible answers.

Notes

1. The number of regions in the country, formerly 13, was increased to 15 in 2007 by the creation of Los Ríos in the south and Arica-Parinacota in the north.

2. Mayors and Communal Councils are elected by universal suffrage.

3. In spite of this, major public and corporate decisions are still taken in Santiago where management of most firms resides, remaining close to government. The Corporation for the Regionalisation of Bío Bío (*Corporación para la Regionalización del Bío Bío*, CORBIOBIO), a regional association, is actively pursuing a decentralisation agenda, advocating the sharing or transfer of more decision-making power to regions in strategic areas of economic development.

4. Pehuenches and Lafquenches are the other major groups in some parts.

5. The CRUCH is an autonomous public institution, created in 1954 to "coordinate the academic activity of its 25 members, protecting their quality and academic excellence, by generation of university and public policies, defining under and postgraduate training guidelines and promoting scientific, humanistic, and technological research of excellence, sustained activities with the community and support to the country's culture…" There are three CRUCH universities in Bío Bío: University of Concepción (UDEC), University of Bío Bío (UBB) and the Universidad Católica de la Santísima Concepción (UCSC). In the Metropolitan Region there are five, in Valparaiso four.

6. This distinction is misleading as within the CRUCH universities there are some that are privately held but the terms "private universities" are widely used for non CRUCH institutions.

7. Academic degrees recognised by law, and exclusively given by universities: *licenciado, magíster* and *doctor*.

8. The results of this test are requested only by the universities belonging to the CRUCH. These universities establish minimum requirements of performance in this test in order for admittance.

9. Information from the "*Encuesta a Instituciones de Educación Superior en la Región del Bío Bío*" (Survey of Higher Education Institutions in the Bío Bío Region) carried out by the Bío Bío's Research Team in 2009.

10. Full time plus half time and part-time measured in equivalent hours.

11. The ARIDP (Agencia Regional de Innovación y Desarollo Productivo) is the regional agency for innovation and productive development, the first agency in Chile including the term "innovation" in its name.

12. Programme for Improvement of Competitiveness (Programa de mejoramiento de competitividad, PMC).

References

Aroca, P. (2004), *Migración interregional en Chile: Modelos y resultados* 1987-2002 (Inter-regional migration in Chile: Models and results 1987-2002), Notas de Población, CELADE-CEPAL, Year 31, Vol. 78, pp. 97-154.

Bruhn, V. and P. Inostroza (1997), Mujer y Desempleo en la VIII Región, Informe Económico Regional 26 (Woman and Unemployment in the Bío Bío Region, Regional Economic Report), April, pp. 31-42.

CRUCH (Council of Rectors of Chilean Universities) (2008), CRUCH website, *www.cruch.cl/cruch.html*, accessed 28 September 2009.

CSE (National Council of Education) (2008), *www.consejo.cl*, accessed 28 September 2009.

Dresdner, J., *et al.* (2005), *Análisis sobre el mercado laboral en Chile a través del procesamiento de información secundaria disponible. Zona 3: Región del Bío Bío* (Chile's labour market analysis through the processing of available secondary information. Zone 3. Bío Bío Region) Requested by *Chile Califica* to the Department of Economics, University of Concepción, third progress report, August.

MIDEPLAN (Ministry of Planning and Cooperation, Government of Chile) (2006), *National Survey of Socio-economic characterisation (CASEN)*, MIDEPLAN, Santiago.

MINEDUC (Ministry Education, Government of Chile) (2006), "Compendium of Higher Education Statistics", *www.educacionsuperiorchile.cl/pags/comp_esta_inst.html*, accessed 17 January 2010.

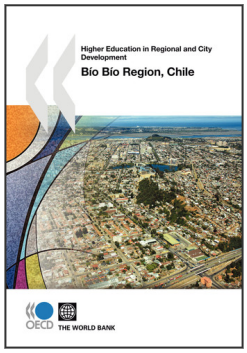
OECD (2009a), Territorial Reviews: Chile, OECD Publishing, Paris, p. 47.

OECD (2009b), Education at a Glance 2009: OECD Indicators, OECD Publishing, Paris.

OECD-World Bank (2009), *Tertiary Education in Chile*, Reviews of National Policies for Education, OECD Publishing, Paris.

Quiroga, M. (2008), "Poor Areas or Poor People: Decomposing Differences in Living Standards and Poverty", Working paper presented at the 7th Nordic Conference in Development Economics, University of Stockholm, Stockholm, 16-17 June 2008

RSC (Bío Bío's Regional Steering Committee) (2009), "The Bío Bío Region, Chile: Self-Evaluation Report", OECD Reviews of Higher Education in Regional and City Development, IMHE, *www.oecd.org/dataoecd/1/59/43694606.pdf*



From:

Higher Education in Regional and City Development: Bío Bío Region, Chile 2010

Access the complete publication at:
https://doi.org/10.1787/9789264088931-en

Please cite this chapter as:

OECD/The World Bank (2010), "The Bío Bío Region and its higher education institutions", in *Higher Education in Regional and City Development: Bío Bío Region, Chile 2010*, OECD Publishing, Paris.

DOI: https://doi.org/10.1787/9789264088931-5-en

This work is published under the responsibility of the Secretary-General of the OECD. The opinions expressed and arguments employed herein do not necessarily reflect the official views of OECD member countries.

This document and any map included herein are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

You can copy, download or print OECD content for your own use, and you can include excerpts from OECD publications, databases and multimedia products in your own documents, presentations, blogs, websites and teaching materials, provided that suitable acknowledgment of OECD as source and copyright owner is given. All requests for public or commercial use and translation rights should be submitted to rights@oecd.org. Requests for permission to photocopy portions of this material for public or commercial use shall be addressed directly to the Copyright Clearance Center (CCC) at info@copyright.com or the Centre français d'exploitation du droit de copie (CFC) at contact@cfcopies.com.