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OECD Economic Surveys: Chile 2013

BETTER POLICIES FOR BETTER LIVES

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This Survey is published on the responsibility of the Economic and Development Review Committee of the OECD, which is charged with the examination of the economic situation of member countries.

The economic situation and policies of Chile were reviewed by the Committee on 25 September 2013. The draft report was then revised in the light of the discussions and given final approval as the agreed report of the whole Committee on 4 October 2013.

The Secretariat's draft report was prepared for the Committee by Sean Dougherty, Aida Caldera Sánchez, Carla Valdivia de Richter and Nicola Brandt, with statistical assistance from Roselyne Jamin and Valery Dugain, under the supervision of Patrick Lenain.

The previous Survey of Chile *was issued in January 2012.*

BASIC STATISTICS OF CHILE, 2012

(Numbers in parentheses refer to the OECD average)[a]

LAND, PEOPLE AND ELECTORAL CYCLE

Population (million)	17.4		Population density per km²	23.0	(34.3)
Under 15 (%)	21.8	(18.1)	Life expectancy (years, 2011)	78.3	(80.0)
Over 65 (%)	9.5	(15.3)	Males	75.7	(77.3)
Foreign-born (%, 2010)	2.1		Females	81.0	(82.8)
Latest 5-year average growth (%)	1.0	(0.6)	Last general election	January 2010	

ECONOMY

Gross domestic product (GDP)			Value added shares (%, 2011)		
In current prices (billion USD)	268.6		Primary	3.4	(2.5)
In current prices (billion CLP)	130 526.9		Industry including construction	39.1	(27.7)
Latest 5-year average real growth (%)	3.8	(0.6)	Services	57.5	(69.8)
Per capita, PPP (thousand USD)	22.4	(37.1)			

GENERAL GOVERNMENT

Per cent of GDP

Expenditure[b]	21.5	(42.8)	Gross financial debt[b]	12.2	(102.4)
Revenue[b]	22.0	(36.2)	Net financial debt[b]	-6.9	(65.6)

EXTERNAL ACCOUNTS

Exchange rate[d] (CLP per USD)	486.8		Main exports (% of total merchandise exports)	
PPP conversion rate (USD = 1)	334.2		Manufactured goods	38.0
In per cent of GDP			Crude materials, inedible, except fuels	31.3
Exports of goods and services	34.2	(53.6)	Food and live animals	15.7
Imports of goods and services	33.9	(50.1)	Main imports (% of total merchandise imports)	
Current account balance	-3.5	(-0.4)	Machinery and transport equipment	36.6
Net international investment position (2011)	-9.5		Mineral fuels, lubricants and related materials	22.6
			Manufactured goods	11.2

LABOUR MARKET, SKILLS AND INNOVATION

Employment rate (%) for 15-64 year olds	61.8	(65.0)	Unemployment rate (%)	6.4	(7.9)
Males	73.6	(73.1)	Youth (%)	16.3	(16.2)
Females	50.2	(57.0)			
Average worked hours per year	2 029	(1 766)	Tertiary educational attainment		
Gross domestic expenditure on R&D			25-64 year-olds (%, 2011)	28.9	(31.5)
(% of GDP, 2010)[b]	0.4	(2.4)			

ENVIRONMENT

Total primary energy supply per capita (toe)	1.9	(4.2)	CO_2 emissions from fuel combustion		
Renewables (% of total primary			per capita (tonnes, 2010)	4.1	(10.1)
energy supply)	24.2	(8.5)	Water abstractions per capita (1 000 m^3, 2007)	2.2	
Fine particulate matter concentration[c]			Municipal waste per capita[c] (tonnes, 2009)	0.4	(0.5)
(urban, PM10, µg/m^3, 2011)	55.0	(20.1)			

SOCIETY

Income inequality (Gini coefficient, 2011)	0.501	(0.304)	Education outcomes (PISA score, 2009)		
Relative poverty rate[c] (%, 2009)	30.2	(23.0)	Reading	449	(493)
Public and private spending (% of GDP)			Mathematics	421	(496)
Health care[b]	7.6	(9.5)	Science	447	(501)
Pensions (2009)	5.0	(8.7)	Share of women in parliament (%, July 2013)	13.9	(25.8)
Education (excluding tertiary, 2010)	3.4	(4.0)	Net official development assistance		
			(% of GNI)	0.0	(0.4)

Better life index: *www.oecdbetterlifeindex.org*

a) Where the OECD aggregate is not provided in the source database, a simple OECD average of latest available data is calculated where data exists for at least 29 member countries.

b) 2011 for the OECD.

c) 2010 for the OECD.

d) Period average for 2012. The SPOT price on 1 October 2013 is 502.83.

Source: Calculations based on data extracted from the databases of the following organisations: OECD, International Energy Agency, World Bank, International Monetary Fund, Inter-Parliamentary Union and Central Bank of Chile.

OECD Economic Surveys: Chile 2013

Executive summary

Main findings

Sustaining rapid growth

Sound macroeconomic policies and a commodity price boom have yielded an enviably long phase of economic growth and job creation. The banking system is healthy, and the strong government financial position has been rewarded by low sovereign spreads and credit rating upgrades. The economy is projected to continue growing at a healthy pace. Historically-low unemployment has resulted in some labour-market tightness, but inflation remains contained. Strong domestic demand and weakening foreign markets have pushed the current account balance into deficit, which has been financed mostly through FDI, thus limiting the risk of capital flow reversals. Downside risks to growth could emerge mainly from a sharper fall in the copper price. Inflationary pressures could also be reignited by the tight labour market. Monetary and fiscal policies are well positioned to address these short-term risks, with the help of the floating exchange rate.

Strengthening green growth

Strong economic growth with heavy reliance on natural resources has come at a cost for the environment, notably air quality and in some areas water availability. The use of renewable energy sources is high, yet this is limited primarily to hydropower, and energy needs are met to a significant degree by imported fossil fuels. Mechanisms to internalise environmental externalities and to promote green innovation and technology adoption have improved, but remain insufficient. Energy taxes do not adequately cover externalities, especially for energy use outside the transport sector and diesel. There is scope for the mining sector to continue reducing its large amounts of local emissions and soil contamination.

Making labour markets more inclusive

Economic growth and recent policy reforms have increased employment, reduced poverty and lowered income inequality, though the latter remains high. Women and young people have entered the labour force in greater numbers, but their participation rates remain low compared to most OECD and Latin American countries. Attitudes towards women's work and childcare commitments, as well as regulations regarding childcare provision, pose a barrier to female employment, though progress is underway. Overall education quality and access to higher education have improved, but early stages of compulsory schooling remain the priority. Among low-skilled workers, a high minimum wage and strong employment protection hamper access to the job market, and the public employment services and training systems are underdeveloped.

Boosting entrepreneurship and innovation

Growth has been driven largely by factor accumulation over the past decade, though there are signs that productivity growth has picked up recently. Business R&D intensity is low, innovative outputs have been weak and technological progress has suffered from a shortage of qualified STEM graduates. Policy settings have become more supportive of innovation recently, with reforms making it easier and faster to open a business and to access financing. Notably, *Start-up Chile* has attracted international attention as a way to foster entrepreneurship. Chilean firms have become more innovative, including in traditional sectors centred on comparative advantages and natural resources. The underused R&D tax credit has been made easier to claim, and its take-up is now increasing. Still, there is scope to further expand the innovation system, improve existing programmes and strengthen institutional coherence.

Key recommendations

Sustaining rapid growth

- Maintain the sound macroeconomic policy framework. If short-term downside risks materialise, ease monetary policy and, as foreseen in the fiscal rule, allow automatic stabilisers to work.
- In view of Chile's situation as a small open economy subject to substantial external shocks, medium-term budget targets should be consistent with maintaining a strong government net financial position.
- As the Chilean economy advances, equity and well-being more broadly would benefit from the further development of high quality education and efficient, well-evaluated social protection programmes. These should be funded by fighting tax evasion and, if needed, through non-distortionary tax measures.

Strengthening green growth

- Formulate and adopt a fully-fledged green growth strategy, including policies to achieve recently-introduced emission and renewable energy targets. Fully reflect the social costs of externalities with pricing mechanisms, such as raising excise taxes and removing tax exemptions on fuels.
- Develop effective mechanisms to optimise water use in areas where water rights have been over-allocated, such as through the buying-back or forfeiture of unused water rights.
- Enforce the recently-adopted obligations for owners of mining licenses to clean up polluted sites and reduce emissions. Intensify work with the mining industry to rehabilitate abandoned mining sites.

Making labour markets more inclusive

- Increase female workforce participation by expanding high-quality childcare, promoting flexible working hours and providing non-transferable parental leave entitlements to fathers. To increase childcare take-up, continue to publicise the availability of childcare options.
- Boost youth employment by expanding the reduced minimum wage for youth under 18 to those under 25 years old and implementing the reformed apprenticeship contracts. In parallel with extending unemployment benefits, lower the relatively high severance pay for regular workers.
- Strengthen the public training framework through quality standards and performance assessments for training providers, and by better targeting low-skilled workers. Improve job search assistance by strengthening local employment offices.

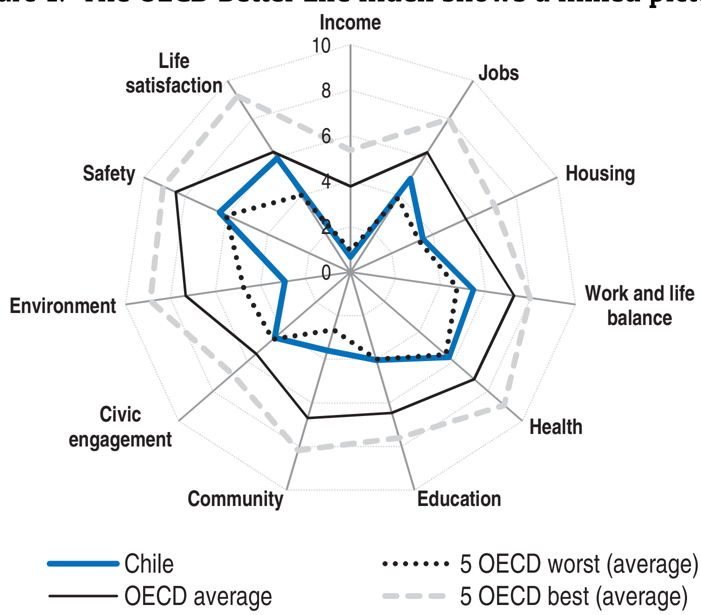
Boosting entrepreneurship and innovation

- Co-ordination among the various innovation policymaking agencies could be improved by establishing the Ministry of Innovation recently proposed.
- Further facilitate industry and research linkages, and promote public-private co-ordination to exploit natural endowments, such as for copper mining, helping to complement comparative advantages.
- Regularly review innovation programmes, close down or adjust inefficient ones, and expand those that are proven to work.

Assessment and recommendations

Chile has made tremendous progress towards greater economic prosperity and lower poverty. Per capita income more than doubled over 20 years to be the highest in Latin America. Chile enjoys a prudent fiscal policy and strong inflation-targeting framework, features that have been well-recognised by sovereign rating agencies. The financial sector is healthy, and the government has sought to broaden the productive base of the economy and to boost entrepreneurship and innovation through investments in education and the reduction of product-market entry barriers. Despite these achievements, key challenges contained in this report should continue to be addressed by the new government taking office in March 2014 following the 2013 presidential elections.

Figure 1. **The OECD Better Life Index shows a mixed picture**



Note: Each well-being dimension is measured using one to three indicators from the OECD Better Life indicator set. Normalized indicators are averaged with equal weights. Indicators are normalised by re-scaling (linearly) to be from 0 (worst) to 10 (best).
Source: OECD Better Life Index, *www.betterlifeindex.org*.

How to read this figure: Compared to the OECD average, Chile scores relatively poorly on income and the environment; but highly on life satisfaction.

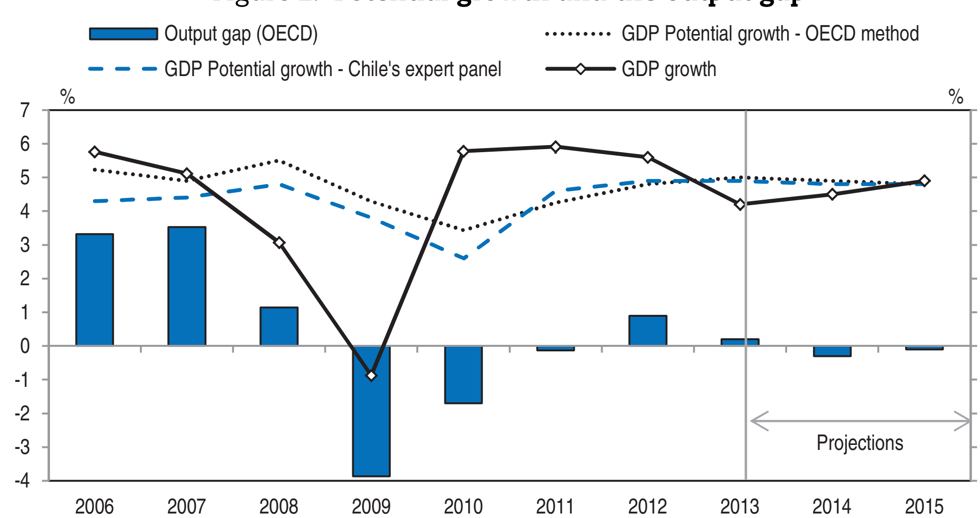
StatLink http://dx.doi.org/10.1787/888932923336

Chile's economy relies heavily on natural resources. It produces almost a third of the world's copper, representing more than half of Chile's exports. It is also the world's second largest producer of salmon and the fourth largest wine exporter. Subjective well-being and life expectancy are near the OECD average. Nevertheless, on a large number of well-being aspects tracked by the OECD's Better Life Index, Chile ranks relatively low (Figure 1). Income inequality, which reduces social cohesion, is the highest in the OECD – with the top 20% of the population earning 13 times as much as the bottom 20% – and is aggravated by marked inter-regional differences (OECD, 2013a). However, relative poverty has declined at a faster pace than in any other OECD country (OECD, 2013b), falling by almost 6 percentage points since 2005. Typical ambient air quality in the main cities has improved but remains low, while many Chileans live in inadequate housing and have limited access to high-quality education.

Macroeconomic developments and the outlook

GDP growth averaged 5.8% annually through 2010 to 2012. Post-earthquake reconstruction and a commodity price boom benefitting Chile's main export products – notably copper, agriculture, forestry and fisheries – partly explains this good outcome. But more fundamentally it reflects Chile's sound macroeconomic, financial and structural policies, and domestic and external confidence in the country's prospects. The virtuous interaction between strong business confidence and the favourable terms of trade has boosted investment, notably in commodity-related sectors, while private consumption has picked up. The recovery from the global economic and financial crisis was swift (Figure 2). In turn, this has supported gains in employment and real wages. Growth slowed in 2013 mainly through a deceleration of investment, as major mining and energy projects approached completion, and a weaker external trading environment. Consumer confidence has also trended down in 2013. With the cooling of domestic demand, GDP is projected to have grown by 4.2% in 2013, down from the previous year and then gradually pick up to 4.9% by 2015 as trading partners' growth increases (Table 1).

Figure 2. **Potential growth and the output gap**



Source: *OECD Economic Outlook* database, updated with recent information, and Dirección de Presupuestos – Gobierno de Chile.

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Table 1. **Macroeconomic indicators and projections**

Percentage changes, constant prices

	2012	2013	2014	2015
GDP	5.6	4.2	4.5	4.9
Private consumption	6.0	6.5	5.0	4.8
Government consumption	3.9	3.0	4.5	4.3
Gross fixed capital formation	12.0	6.5	6.3	4.8
Housing	5.6	4.2	4.5	4.9
Final domestic demand	7.2	6.1	5.3	4.7
Stockbuilding[1]	0.0	-1.7	-1.4	0.0
Total domestic demand	7.3	4.4	4.0	4.8
Exports of goods and services	0.9	4.8	5.0	5.0
Imports of goods and services	4.8	6.3	5.7	4.6
Net exports[1]	-1.3	-0.5	-0.3	0.1
Other items				
Potential GDP	4.8	5.0	4.9	4.8
Output gap[2]	0.9	0.2	-0.3	-0.1
Employment	1.8	2.1	1.0	0.9
Unemployment rate	6.4	6.1	6.3	6.4
GDP deflator	1.7	1.4	2.6	3.0
Consumer price index	3.0	2.0	2.9	3.0
Core consumer prices	2.2	1.6	2.9	3.0
Current account balance[3]	-3.5	-3.3	-3.8	-3.6
Central government net lending[3]	0.6	-1.0	-0.9	-1.0
Central government gross debt[3]	11.9	..	..	..
Central government net assets (only treasury assets)[3, 4]	-0.4	..	..	..
Central government net assets (all financial assets)[3, 5]	6.7	..	..	..
Short-term interest rate (3-month central bank instruments)	5.1	4.9	4.8	5.0
Long-term interest rate (10-year government bonds)	5.5	5.4	5.3	5.5

1. Contributions to changes in real GDP (percentage of real GDP in previous year).
2. As a percentage of potential GDP.
3. As a percentage of GDP.
4. Only includes treasury assets (FEES, FRP and other treasury assets).
5. Includes treasury assets and other government financial assets (cash, temporary investment and other claims).

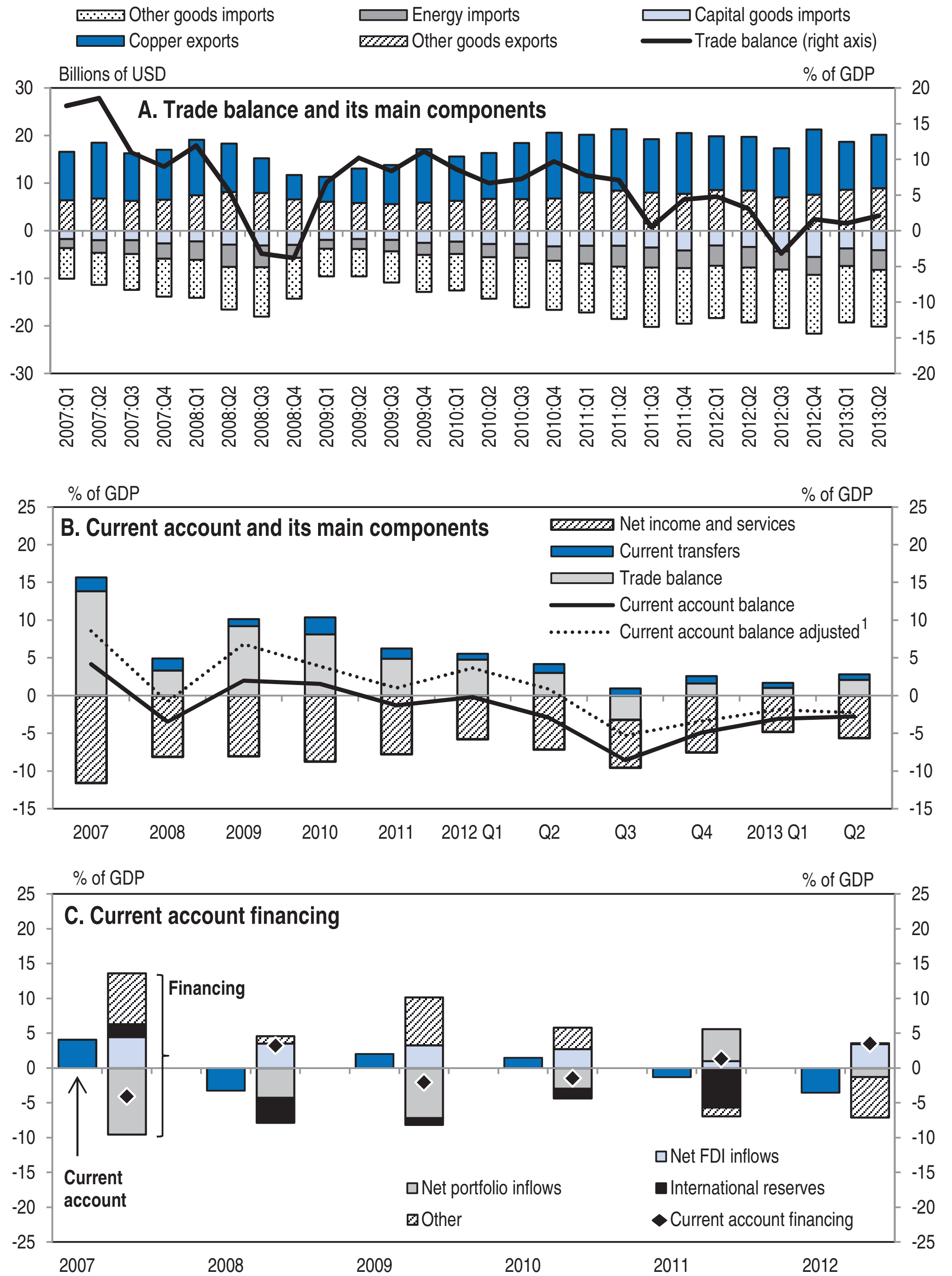
Source: OECD Economic Outlook Database, updated with recent information, and Dirección de Presupuestos – Gobierno de Chile.

Chile's current account balance has been in deficit since 2011, in part reflecting the decline in world copper prices from peak levels – though copper prices remain high by historical standards (see Figure 6, Panel C). In addition, strong domestic demand and pressure on production capacity have sharply boosted imports, notably consumer durable goods and machinery and equipment (Figure 3, Panel A). FDI inflows, mainly to the mining sector, have funded a large part of the current account deficit and if the current account balance is adjusted to exclude reinvested FDI profits, the deficit is reduced (Figure 3, Panels B and C).

Monetary policy, with its well-earned credibility, has played a key role in keeping the Chilean economy on a path of sustainable growth. Monetary policy targets an inflation rate of 3%, with a tolerance band of 1 percentage point around it. The policy rate has remained on hold at 5% since January 2012, which is broadly consistent with a neutral stance.

Despite strong growth and unemployment declining to a thirty-year low level (see Figure 9), there are no obvious signs of excess demand. Indeed, inflation fell below the central bank's target range during mid-2012 to mid-2013, in part reflecting the transitory effects of lower electricity and fuel prices as well as the peso's strong external value

Figure 3. **The current account balance and capital inflows**



1. Current account balance is adjusted by excluding reinvested FDI profits.

Source: OECD, *Analytical Database* and Central Bank of Chile.

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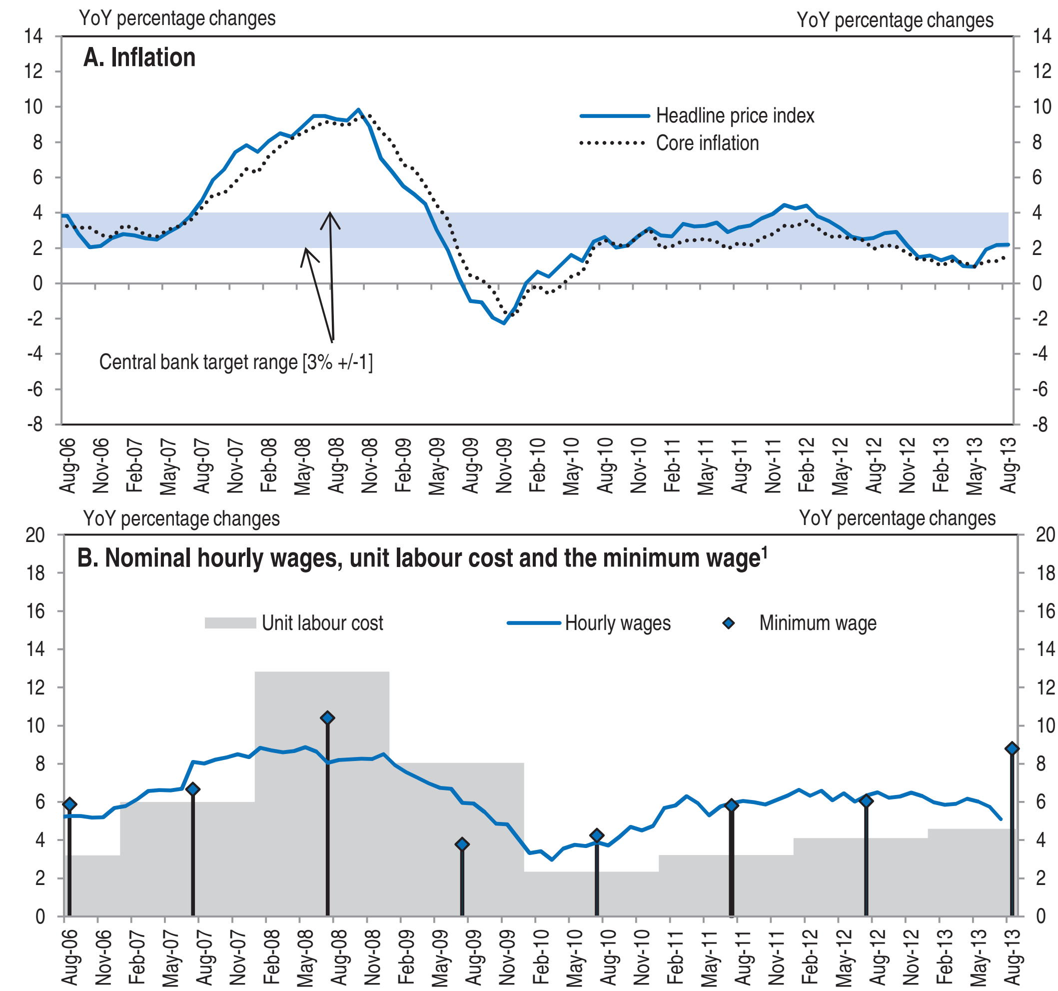
(Figure 4, Panel A). Following recent peso depreciation and the rise in energy prices, inflation has recently returned inside the Central Bank's target range. Unit labour costs have increased at a relatively moderate pace (Figure 4, Panel B), inflation expectations remain well-anchored and inflation is projected to converge towards the 3% mid-point target.

Figure 4. **Inflation and labour costs**



1. The methodology was changed in January 2010 for nominal wages. The minimum wage is for a 45 hour week and workers aged 18 to 65.

Source: OECD, Central Bank of Chile, Instituto Nacional de Estadísticas and Biblioteca del Congreso Nacional de Chile.

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Reflecting strong economic growth, credit has risen at an annual pace close to 10%. Although credit risks are well contained overall, the authorities should continue to watch for possible pockets of risk concentration. Housing market developments need on-going careful monitoring by the Central Bank and the Financial Stability Council because house prices have accelerated in recent years, though the price-to-income ratio has not increased markedly and household indebtedness remains stable (see Table 2). Tensions in the housing market would be best addressed by enhancing the responsiveness of housing supply (see 2012 *Economic Survey*) and by fully implementing the reforms of land planning rules and building permit allocation (Caldera Sánchez, 2012; OECD, 2012a; OECD, 2013a).

The macroeconomic framework has dampened the impact of the copper boom

Although the mining sector represents over half of exports and has accounted for about 14% of GDP in recent years, it contributed fiscal revenues amounting to only 3% of GDP in 2012. The macroeconomic framework (including the fiscal rule and flexible exchange rate) helps to dampen the effects of copper price volatility (Larraín and Parro, 2008). The new investment strategy of the sovereign wealth fund (FEES) should further strengthen the dampening properties of the macroeconomic framework (Ministry of Finance, 2011). Mining remains a highly profitable business and it continues to attract large FDI inflows, making it a relevant sector for the economy. It is thus a concern that it has lost competitiveness, reflecting higher labour and energy costs (Cochilco, 2013). In addition, open-pit copper sites have been largely exploited and the industry is gradually shifting to underground, more expensive exploitation. Mining companies have worked to reduce their pressure on the environment, especially by lowering their use of water and their local air pollution, reflecting government efforts to promote better management (Cochilco, 2009). Water scarcity remains nonetheless an issue in the regions where most of the large mines operate, making further water-saving innovation particularly important.

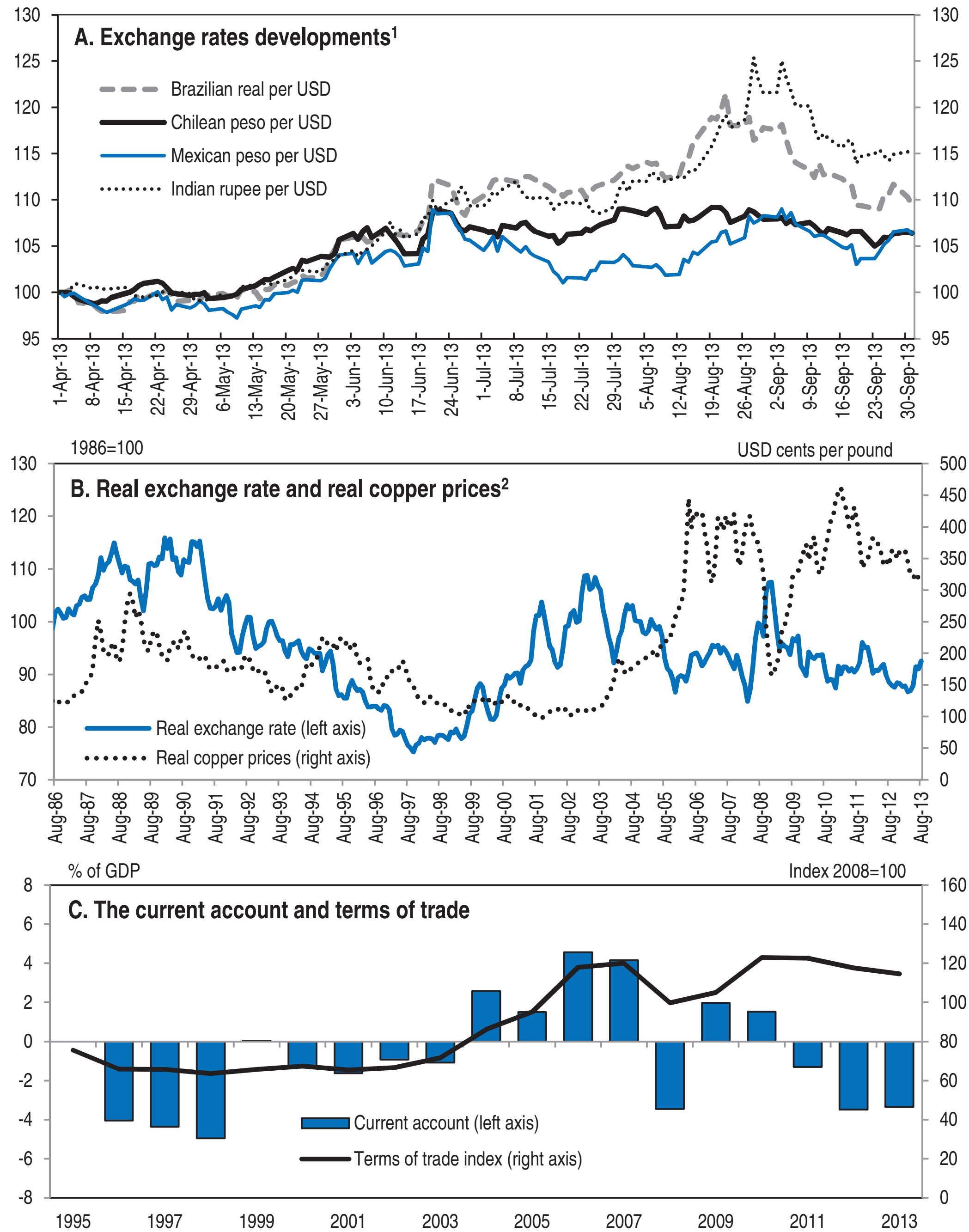
Risks are external as well as internal

Strong growth depends crucially on global demand, especially from China, the main export market of Chile's raw materials. The expectation of an eventual tapering off of monetary easing in the United States and exit from unconventional monetary policies have triggered a reversal of capital flows in some emerging markets and put their currencies under pressure (Figure 5). These developments could affect Chile's economic outlook either indirectly, as emerging-market trading partners are affected, or directly. Chile is less exposed to these risks thanks to its strong policy framework and its reliance on FDI to finance the current account deficit. Should activity weaken, monetary policy has space for easing while the fiscal rule allows the automatic stabilizers to work. If headwinds become even stronger, discretionary fiscal support would be permitted by Chile's low indebtedness and well-earned financial-market reputation. On the other hand, inflationary pressures could emerge from persistently strong domestic demand and a tight labour market, or the recent currency weakening, with a reigniting of the wage-price loop. Energy prices could also push inflation higher, given the electricity grid's vulnerability to weather shocks, such as droughts. Monetary policy and fiscal policy have the tools to address such developments within the existing framework, as was done in the past.

Reforms are strengthening governance of the National Statistics Institute

A reform proposed to Congress earlier this year seeks to further improve Chile's sound statistical system. It would give the National Statistics Institute (INE) institutional autonomy and strengthen its governance. Such steps are welcome because they would enhance the credibility and oversight of the institution and, to ensure high-quality statistics needed for policy making, it will also be necessary to strengthen the institution in terms of budget and qualified staff. In addition, the Institute has taken steps to investigate and correct the deficiencies in the CPI, and upgrade its methodology, with the support of the OECD. Estimates by the Central Bank suggest that these methodological changes have only a small impact on past inflation data, with no consequence on the course of monetary policy (Central Bank of Chile, 2013). Separately, concerns about the 2012 Census appear to be harder to resolve, and an independent domestic panel that assessed its results found it suffered from serious problems and recommended holding a simplified census in 2015. The government has requested an international assessment before taking a final decision.

Figure 5. **Exchange rate developments**



1. Exchange rates are indexed relative to their value on 1 April 2013, which is defined as 100 for each currency.
2. For the real copper price, deflator: US Producer Price Index (PPI, all commodities). Average 2012 = 100.

Source: OECD, *Analytical Database*, Datastream, Central Bank of Chile and Comisión Chilena del Cobre.

How to read this figure: Upward (downward) movements in the figure represent depreciations (appreciations) of a currency relative to the USD.

StatLink http://dx.doi.org/10.1787/888932923412

The financial system remains healthy, reflecting sound financial supervision

Banks have a strong financial position with comfortable liquidity ratios, despite the difficult international context. Strong capital buffers, and low and more diversified external funding (less than 10% of total liabilities) limit vulnerabilities (Table 2). Despite the significant presence of European (notably Spanish) banks, there has been little contagion from the euro-area crisis because subsidiaries are required to hold their capital within the country and to fully comply with the same requirements on solvency, provisions, and market and liquidity risks as local banks do. Supervisory authorities have closely followed these entities to ensure that the management of liquidity and solvency is independent from the parent banks (Central Bank of Chile, 2011).

Table 2. **Financial indicators**

Per cent

	2010	2011	2012	2013-Q2
Consolidated Banking System:				
Credit growth (real annual change)	5.1	12.9	11.6	9.1
Mortgage credit growth (real annual change)	9.0	8.1	8.9	8.9
NPL ratio (non-performing loans/total loans)	2.7	2.4	2.2	2.2
Provisions (provisions/total loans)	2.5	2.3	2.3	2.3
Capital adequacy (regulatory capital/risk-weighted assets)	14.1	13.9	13.3	13.2
Return on equity (ROE)	18.6	17.4	14.5	13.6
External debt (foreign liabilities/assets)	8.2	9.3	8.0	8.1
Corporate and household sector:				
Corporate indebtedness (% GDP)	84.2	89.1	94.7	93.3
Household indebtedness (% Income)	57.3	55.9	54.7	54.6
External sector:				
Gross external debt (% GDP)	40.1	42.3	45.7	44.3
Central Bank international reserves (millions USD)	27 864	41 979	41 650	41 003

Source: Central Bank of Chile.

Regarding the financial framework, a much-needed reform to introduce a consolidated credit register for all credit providers, including retail credit, has been discussed in Congress since 2011. As recommended in the 2012 *Survey*, establishing such a broad credit register is essential to strengthen the risk assessments of regulators and banks. A bill to give legal status to the Financial Stability Council, whose work has proven to be highly valuable, was submitted to Congress. Its rapid approval is crucial because it will improve the co-ordination and exchange of information among financial supervisors, the Central Bank and the Ministry of Finance. This law is relevant also for assessing and managing systemic risks and for the supervision of financial conglomerates. Indeed, the more far-reaching solutions of consolidated supervision should be considered, given the large presence of conglomerates in the financial system.

Other important developments in financial supervision include:

- An amendment to the Consumer Protection Law was passed in 2011, which provides additional powers and resources to the Consumer Protection Agency (SERNAC). Congress is discussing a reform to curb the cost of consumer borrowing by gradually reducing the maximum legal borrowing rate (TMC), currently close to 60% on an annual basis.
- In 2011 the Securities and Insurance Superintendence (SVS) imposed additional disclosure requirements for non-bank credit card issuers.

- In 2013 new Central Bank regulation increased prudential requirements for non-bank credit card issuers and the Superintendency of Banks and Financial Institutions (SBIF) also issued new regulations that apply a stricter supervision to these entities.
- The government has studied a reform to the General Banking Law to incorporate Basel III bank capital adequacy requirements and introduce macro-prudential tools to address systemic risk. Such reforms would be welcome, though a further step should be taken to enhance the independence of the banking supervisor and to review the legal framework for bank resolution (IMF, 2012).
- In the insurance sector, a bill to implement risk-based supervision for insurance companies is before Congress, following OECD recommendations (OECD, 2012d). Rapid approval is important.
- Congress is considering a bill to improve the governance, transparency and independence of the SVS, which also follows OECD recommendations (OECD, 2012e).
- A reform to attract foreign investment in collective investment funds (*Ley Única de Fondos*) is now before Congress. In line with OECD recommendations (OECD, 2012f), this reform seeks to facilitate the further international integration of Chile's financial markets.

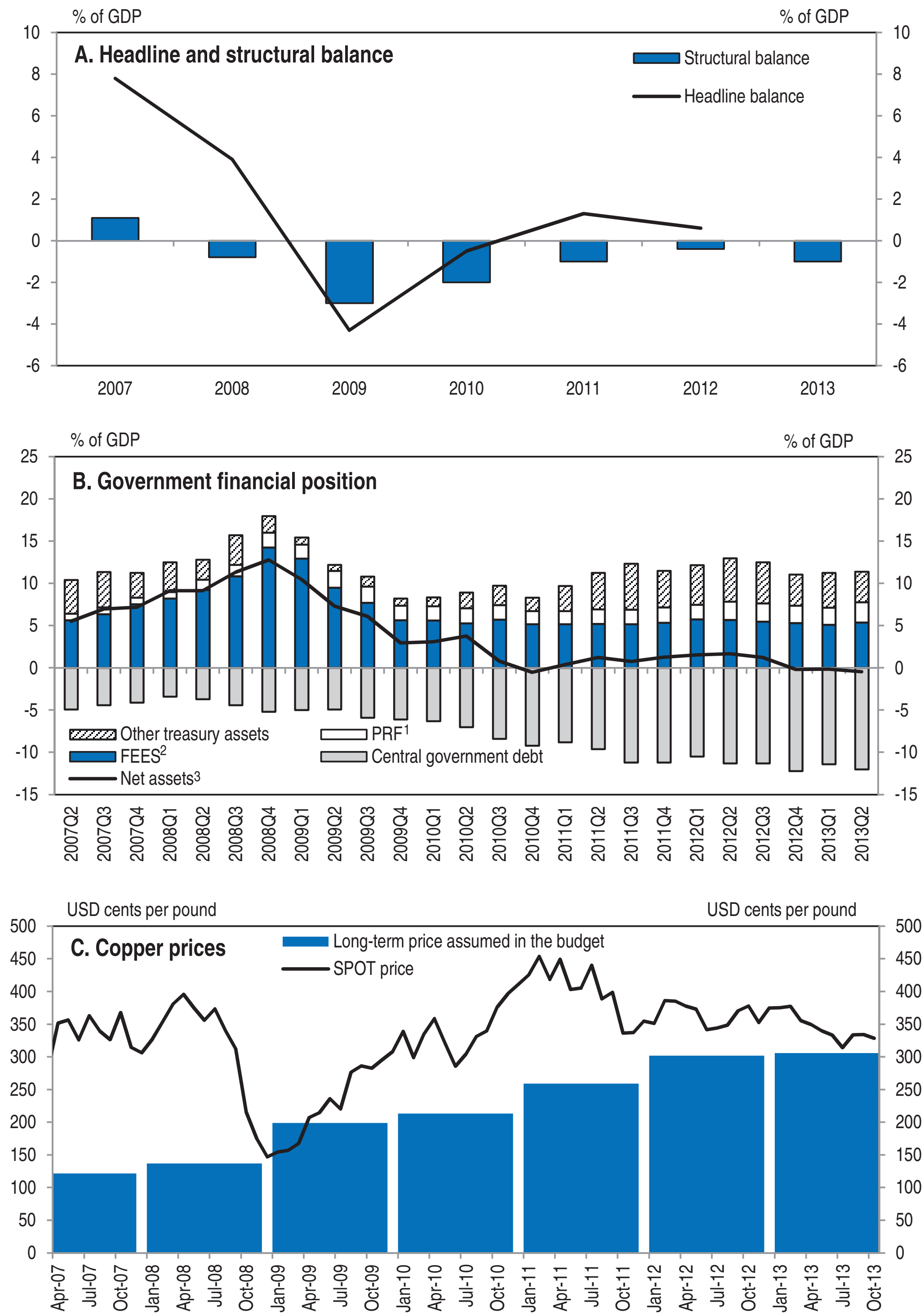
Fiscal policy has contributed to stability

Chile's budget policy is based on a strong fiscal rule that seeks to link public spending to long-term government revenue (see OECD, 2012a). In accordance to the rule, the authorities aim at achieving a budget balance that is corrected for the business cycle and fluctuations in the copper price. Recently, this already strong framework was further enhanced with the establishment of an independent fiscal council, as recommended in previous *Surveys*, and the improvement of several mechanisms. Fiscal policy has been successful in reducing the structural deficit caused by the financial crisis of 2008 and the natural disasters of 2010 (Figure 6, Panel A). Official estimates put the structural deficit at 1% of GDP in 2013, and the Government has submitted to Congress a budget proposal that aims to maintain the deficit at 1% in 2014. The government's financial position deteriorated relative to GDP during 2009-10, reflecting the effects of the financial crisis and reconstruction costs, but it has stabilised since then (Figure 6, Panel B). This strong position has allowed Chile to enjoy the lowest sovereign bond spreads in the region.

In the future, medium-term budget targets should be consistent with maintaining a strong government financial position, as this has bolstered Chile's international reputation for fiscal prudence and provided resources essential to a small open economy subject to substantial shocks. Chile should also maintain its long-standing policy of smoothing the effects of volatile copper prices (Figure 6, Panel C).

Although the fiscal framework has worked very well, several changes were recommended by the *Independent Committee on the Fiscal Rule* in 2011 to improve it further. Many of these changes were implemented during the past two years (Larraín et al., 2011). For instance, the methodology to calculate the cyclically-adjusted balance rule no longer takes into account transitory changes in tax rates. Since 2003, interim reports explain why actual outcomes deviate from projections and assess the implication for the structural deficit. The government has recently published a manual to help outsiders replicate the calculation of the cyclically-adjusted fiscal balance. In addition, information regarding contingent liabilities and medium and long-term projections is being expanded. Space for discretionary fiscal policy actions has been reduced.

Figure 6. **Fiscal policy and copper price**



1. The Pension Reserve fund (PRF) was established on 2006 to help the government meet its future pension liabilities arising from the pension reform and changes in demographics. It supports guaranteeing basic pensions and welfare contributions for low-income pensioners and also serves as a supplementary source for the funding of future pension contingencies.
2. Fondo de Estabilización Económica y Social (FEES), or Economic and Social Stabilization Fund, at market prices.
3. Net asset calculation includes only treasury assets (FEES, PRF and other treasury assets).

Sources: Dirección de Presupuestos – Gobierno de Chile, Datastream and Comisión Chilena del Cobre.

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Further steps would strengthen the fiscal rule framework even more (Marcel, 2013). A Fiscal Advisory Council was created earlier this year, as recommended both by the 2012 *Economic Survey* and Chile's *Independent Committee*. This is a welcome step, but the new Council needs more autonomy. Its members are appointed by the Minister of Finance, and the Budget Director serves as its Secretary. Greater autonomy would allow the Council to provide a more objective and credible assessment of fiscal policy and government's compliance with the rule. The public financial management framework is robust, but could be enhanced to improve transparency and accountability. For instance, the government's public finance reports describe short-term and long-term fiscal policy, including contingent liabilities and growth and spending assumptions. These have proven to be useful to assess the fiscal stance, and should continue. Medium and long-term fiscal projections have room for improvements as suggested by OECD (OECD, 2013e).

Chileans' well-being would benefit from more effective public services

Looking forward, and as the economy advances further, the well-being of Chileans would benefit from expanding access to high-quality education, health care, and efficient social protection programmes. Chileans would benefit from public services and social programmes being regularly evaluated, with the best ones further expanded and the others closed down or adjusted.

Previous *Economic Surveys* emphasised that the quality of Chile's compulsory education was very uneven. In line with past recommendations, Chile has made impressive progress in improving learning outcomes, especially in reading, but the performance of young Chileans in reading, mathematics and science is still low (e.g., Schmidt-Hebbel et al., 2013). In reaction to the inequities in access to the early stages of education, which are at the origin of ability gaps at later stages (OECD, 2010a), the coverage of preschool education was increased and additional funding was provided for the schooling of socio-economically disadvantaged students. A bill recently submitted to Congress seeks to make attendance to kindergarten free and compulsory. In addition, reforms seek to attract better prepared individuals to the teaching profession. The professionalization of the hiring of principals in public schools, and the new institutions for quality assurance and enforcement of laws in schools (*Agencia de Calidad de la Educación* and *Superintendencia de Educación*) should lead to higher quality outcomes. As recommended in the chapter on education in the 2010 *Economic Survey*, better initial training of teachers, including tighter controls on the institutions providing this training, and better selection and evaluation of teachers should also be priorities (Brandt, 2010; OECD, 2010b).

All of these reforms are expected to have a positive impact on the quality and equity of the education system. Although they could have a sizable impact on public spending, they should remain funding priorities, especially reforms to the early stages of education. As recommended in past *OECD Surveys*, a number of steps have been taken to improve access to and quality of higher education such as an increased amount of grants for students from the less privileged families, lower interest rates on student loans and making these loans income contingent. The new Superintendence for higher education has the responsibility of ensuring the efficient use of public funds by higher-education institutions. Such steps will facilitate access to higher education of vulnerable students, without the regressivity that would be implied by making higher education free for all.

The pension system is another potential source of longer-term spending needs. Although Chile benefits from having a well-developed system of individual pension accounts, some groups still suffer from low pension levels, in particular middle-income female and male pensioners who, according to the *Superintendencia de Pensiones*, only receive a median of 37% and 60%, respectively, of their pre-retirement salary. This mainly reflects increases in life expectancy and gaps in contributions due to periods of unemployment, study, self-employment or maternity leave, and informal work. To fight old-age poverty, a minimum guaranteed pension was introduced in 2008 for long-term residents of at least 65 years of age that belong to the poorest 60%; it provides a flat monthly benefit equivalent to 161 USD. In addition, the government decided to subsidize the gaps in pension contributions of women and low-income workers (OECD, 2009). Contributions to individual pension accounts are also becoming gradually mandatory for self-employed workers. In addition, a bill recently submitted to Congress to reform the unemployment insurance scheme would provide funding for the pension contributions of those who receive benefits from *Fondo Solidario*.

These reforms have helped, but more is needed. One option would be to increase the minimum guaranteed pension, although if carried too far this could have undesirable effects on public finances, household savings and participation in the formal labour market. Strengthening the pensions drawn from individual accounts by raising the mandatory contribution rate or the retirement age – currently 60 for women and 65 for men – is another option. Moreover, in light of population ageing, the Chilean authorities could consider linking the retirement age to life expectancy and promote gender equality in this area. Chile has also made significant progress in the modernisation of its state. Recently a bill was sent to Congress formalizing *ChileAtiende*, an institution giving to citizens information on a series of public benefits in one place through a single window.

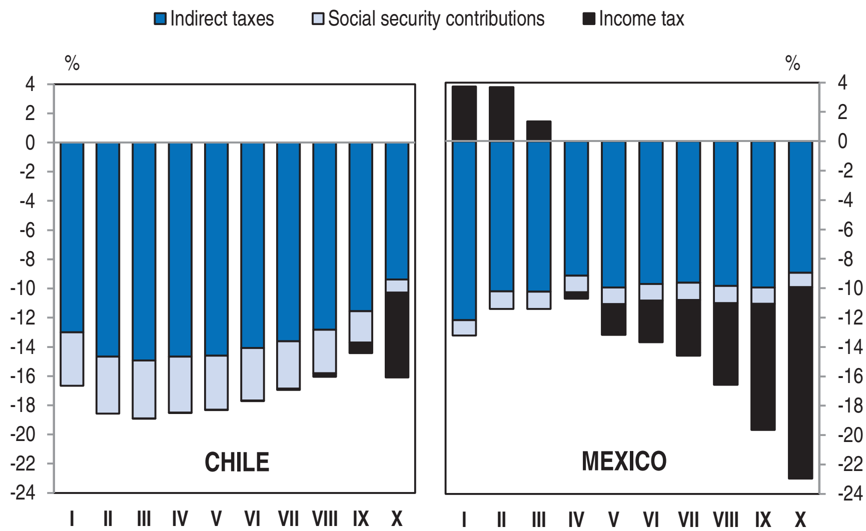
Continue improving the tax system, notably by closing loopholes and fighting tax evasion

The 2012 tax reform improved the tax system and raised additional revenues mainly by closing tax loopholes. Still, more could be done to eliminate distortions and fight tax evasion. New legislation has been submitted to Congress for this purpose, including a bill requiring mandatory electronic invoicing of VAT and another bill intended to close a series of loopholes associated with investment funds that are privately owned (in the *Ley Única de Fondos*). Rapid approval of these measures would be welcome. Beyond this, a broader income tax and higher taxes on housing property and environmental externalities should be considered. Personal income taxes (PIT) yield a low share of overall revenue, in part because tax rules exempt many households from paying personal income taxes (only 17% of individuals pay income taxes). Combined with the incidence of indirect taxes (VAT and excise taxes) and social security contributions, this makes the tax system regressive between the third and ninth income deciles. In addition, the highest income decile faces a lower overall effective tax rate than the lowest income decile (Figure 7). Recent reforms have further reduced PIT rates for all brackets except for the highest marginal rate. Most OECD countries have a greater degree of income tax progressivity, though transfers often have a larger effect on income distribution. Chile's already well-functioning transfer system could be further strengthened in this direction, as advocated in previous OECD Economic Surveys, and steps have been taken in this direction (see Annex A.1).

Chile could further improve the tax system by shifting downward the PIT's bracket structure, for instance by suspending for a period the indexation to inflation of the taxable income brackets (Table 3). In addition, large tax expenditures narrow the tax base (3.6% of

Figure 7. **Tax incidence by household income decile**

Percentage of decile's mean disposable income, mid-2000s



Note: Deciles are based on household per capita disposable income including cash transfers.
Source: Castelletti (2013).

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Table 3. **Personal income tax structure**

Monthly tax unit (UTM)[1]	2013 Tax rate (%)	Percentage of average wage	Share of tax payers (2011)
0-13.5	Exempted	0-107	83.4
13.5-30	4.0	107-238	10.8
30-50	8.0	238-396	3.0
50-70	13.5	396-555	1.3
70-90	23.0	555-713	0.6
90-120	30.4	713-951	0.4
120-150	35.5	951-1 189	0.2
> 150	40.0	> 1 189	0.2

1. As of October 2013, 1 UTM = CHLP 40 528 or USD 81.
Source: Servicios de Impuestos Internos and OECD calculations.

GDP in 2012) (DIPRES, 2012), although more than half of reported tax expenditures (2.1% of GDP) represent deferred taxes, mainly arising from rules that seek to avoid the double taxation of dividends (many OECD countries have provisions to avoid double taxation). Remaining tax exemptions and tax credits should be reduced or eliminated, such as the mortgage interest deduction.

The government has taken some steps to increase corporate tax revenues, as recommended in the previous *Economic Survey*. A 2011 tax amendment raised the specific tax on mining activity from a fixed 4% to a progressive rate of 5% to 14% of net income. The 2012 tax reform, which raised ½ per cent of GDP in additional revenues, made permanent the increase in the corporate tax rate from 17% to 20% and closed tax loopholes. As recommended in the 2012 *Survey,* a law was introduced to fight tax evasion resulting from the establishment of corporations for the sole purpose of paying fewer personal taxes. But more needs to be done. There is room to reform real estate taxation, for which there are many exemptions that make the tax less progressive, including by increasing housing property taxes and allowing greater local discretion (OECD, 2012a, 2013a). There is scope for higher taxation of environmental externalities and resource rents, as discussed in the next section. Other potential loopholes include exemptions for capital gains associated with the sale of most stocks (though some of these rules are designed to avoid double-taxation), mutual funds and residential property, and an ineffective inheritance tax.

Box 1. **Main recommendations on macroeconomic policies**

Key recommendations

- Maintain the sound macroeconomic policy framework. If short-term downside risks materialise, ease monetary policy and, as foreseen in the fiscal rule, allow automatic stabilisers to work.
- In view of Chile's situation as a small open economy subject to substantial external shocks, medium-term budget targets should be consistent with maintaining a strong government net financial position.
- As the Chilean economy advances, equity and well-being more broadly would benefit from the further development of high quality education and efficient, well-evaluated social protection programmes. These should be funded by fighting tax evasion and, if needed, through non-distortionary tax measures.

Other recommendations

- Establish a legal framework for consolidated supervision of financial conglomerates and give legal status to the Financial Stability Council.
- Enhance independence of the banking supervisory authority, and review the legal framework for bank resolution.
- Strengthen the institutional setup of the statistical system with better funding and staffing of the National Statistical Institute and ensure that core methodologies follow OECD best practices.
- Further enhance the transparency and accountability of the fiscal framework by strengthening the independence of the newly constituted Fiscal Advisory Council.

Strengthening green growth

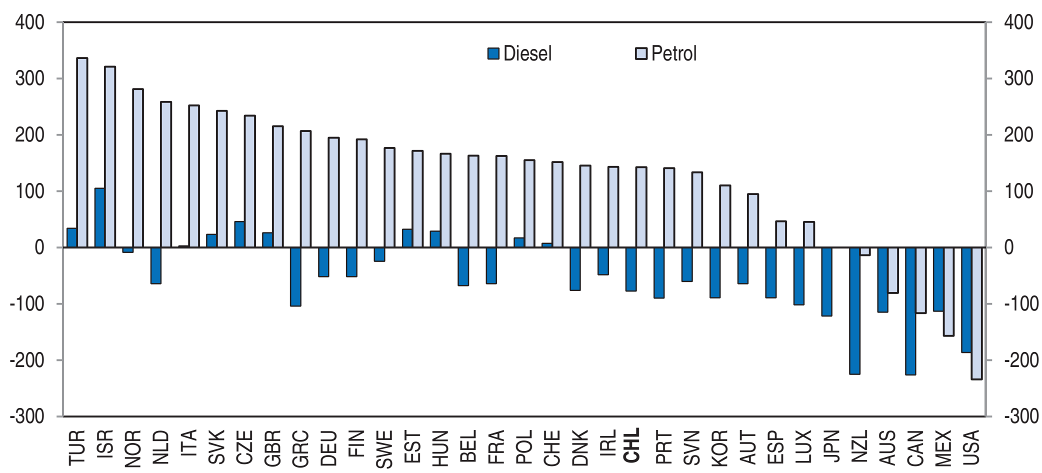
Chile is highly dependent on imported fossil fuels. Greater diversification of energy sources would improve energy security and reduce greenhouse gas and other emissions. The recent formulation of the National Energy Strategy with a strong emphasis on developing non-conventional renewable energy sources (in addition to the existing hydropower capacity), and improving energy efficiency is an important first step. To reach its ambitious renewable target of 20% by 2025 (excluding major hydroelectricity projects), a system of quotas has been introduced which would expand the production of electricity from these sources. The quota obligation is being made more flexible with the help of a market-based mechanism. To further strengthen market-based incentives, the government could consider using tradable green certificates, as in the United Kingdom and Italy. Measures to support innovation and technology adoption should be strengthened and the government should consider expanding its transitional support, financial or otherwise, for deployment of renewable energy technologies that are not yet competitive, but have a substantial potential in Chile, such as wind, geothermal, solar power and wave energy.

The government should use environmental pricing and taxation to efficiently reduce environmental costs, including CO_2 emissions and air pollution. Health-damaging air pollution has declined significantly in greater Santiago (OECD, 2013a), but further pollution reduction is desirable and emission trading could play a role in that regard. Air pollution remains acute in the central and southern parts of the country, mainly as a result of an extensive use of firewood for heating. Over 4 000 people die prematurely each year due to cardiopulmonary diseases associated with exposure to particulate matter smaller than 2.5 microns (PM 2.5), more than double the number of deaths in car accidents (Ministry of the Environment, 2011b). Chile has introduced ambient national air quality standards for particulate matter (PM 2.5), which required action plans not only by the major cities, but also other emission sources such as industries and thermoelectric power plants.

However, increasing the price on emissions would help to reach emission standards in a more cost efficient way. The largest part of energy consumption in Chile, which comes from fuels for heating, electricity and industrial processes, is subject to VAT only (OECD, 2013c). While excise taxes are levied on road fuel use, energy use in aviation and in shipping is largely excise tax free. Diesel taxes are too low to cover externalities created through local air pollution (see Parry and Strand, 2010 for the Santiago Metropolitan Region) (Figure 8) and efforts should be undertaken to evaluate the full cost of local externalities, including particulate matters, noise and congestion. Over time, all fossil fuels should be priced in line with their carbon content and local externalities, while addressing equity

Figure 8. **CO_2 prices implicit in diesel and petrol excise taxes after adjusting for externalities**

EUR/tonne of CO_2, 2013 1st quarter



Note: The implicit CO_2 price for diesel and gasoline is obtained by subtracting the external costs of negative externalities from the carbon price implied by excise tax. The implied carbon price is computed by converting the excise tax per litre to a tax per ton of CO_2 after deducting the estimated cost of a range of externalities associated with burning fuel. The conversion is done based on a CO_2 content of 2.7 kg of CO_2 per litre of diesel (light fuel oil for households and industry), and of 2.24kg of CO_2 for petrol (premium unleaded for households). The external cost contains air pollution, noise, accidents and congestion. The estimates are taken from Persson and Song (2010, "The Land Transport Sector: Policy and Performance", *OECD Economics Department Working Paper*, No. 817, Table 5.9) for noise pollution, accidents and congestion. The cost estimate for air pollution for Germany published in CE DELFT (2008, handbook on Estimation of External Costs in the Transport Sector) is used for all countries.
Source: OECD calculations.

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issues with appropriate tools. This could require withdrawing the tax credit for diesel used in truck cargo transport or as an intermediate input for purposes other than transport. This credit is effectively a subsidy to transport externalities and has given rise to far-reaching avoidance behaviour, such as setting up companies for the sole purpose of avoiding the tax (Arrellano and Corbo, 2013).

Despite abundant water resources in some parts of the country, water demand exceeds supply in the northern and central parts of Chile, where most of the water-intensive mining and agricultural activity takes place. This situation is expected to worsen, in part related to climate change (Ministry of the Environment, 2011a). Following a reform in 2005, the government started to address problems of concentration of water rights and speculative hoarding, but penalties for unused water rights have in many cases not been sufficient to stimulate trading. This continues to hinder the efficient allocation of scarce water resources. Since the reform, sufficient water has to be retained to safeguard the health of ecosystems when new water rights are allocated, but there is no effective mechanism to achieve this in areas where too many water rights were allocated in the past. The government should develop such a mechanism. Buying back water rights would be one option. The equity impact of eventual higher water prices could be limited by market regulation.

The mining sector is still responsible for large amounts of SO_x and arsenic emissions, notwithstanding important reductions. Stricter emission norms for the sector introduced recently should be helpful in this respect. The government should move forward with its plan to improve its information basis about soil contamination due to heavy metals and toxic substances from mining and expand clean-up efforts in co-operation with the private sector, as knowledge is insufficient at the moment. Despite efforts to build up policy, water pollution and the environmental impacts of abandoned sites and tailing dams (waste from mining operations) remain a source of concerns, as negative health impacts can be substantial which could be addressed through secondary water-quality standards. A more stringent use of the polluter pays principle would help to tackle some of these issues. In this context, the recently passed mine closure law, which established remediation liabilities for abandoned mines on a systematic basis, is a step in the right direction. The government should enforce the new remediation liabilities effectively and monitor effects along with those of clean-up projects for abandoned mines.

Chile has improved the institutional set-up of its environmental policies, including with the creation of a Council of Ministers for Sustainable Development. There is work in progress on a green growth strategy that relies on social cost-benefit analysis, which will soon be implemented. The strategy needs to include measures to internalise environmental externalities of economic activity, along with an assessment of the size of natural resource rents. Ensuring that non-renewable resource rents are invested in productive assets through taxation can help to ensure that development is sustainable (see World Bank, 2011). Although hard to measure, natural resource rents are generally thought to be high in Chile (Korinek, 2013), with the World Bank estimating that they are 19% of GDP over 2008-12. Chile has begun work with the IMF and World Bank on assessing these rents using best-practice methods. While a large portion of taxes are paid by the state-owned mining company, overall natural resource taxation appeared, until 2010, to be lower than in a number of other jurisdictions (CENDA, 2010; López and Figueroa, 2011; PwC, 2012). However, since 2011 a new law that raised the royalty tax on large mining operations may have brought taxes on the mining sector closer to the level observed in other resource-rich members of the OECD. Further evaluation of natural resource rents should be used as the basis for decisions on mining taxation. The government needs to retain a sufficient share of natural resource rents so that it can invest in productive long-term assets, while maintaining an attractive environment for investment in the sector.

Box 2. **Main recommendations on green growth**

Key recommendations

- Formulate and adopt a fully-fledged green growth strategy, including policies to achieve recently-introduced emission and renewable energy targets. Fully reflect the social costs of externalities with pricing mechanisms, such as raising excise taxes and removing tax exemptions on fuels.
- Develop effective mechanisms to optimise water use in areas where water rights have been over-allocated, such as through the buying-back or forfeiture of unused water rights.
- Enforce the recently-adopted obligations for owners of mining licenses to clean up polluted sites and reduce emissions. Intensify work with the mining industry to rehabilitate abandoned mining sites.

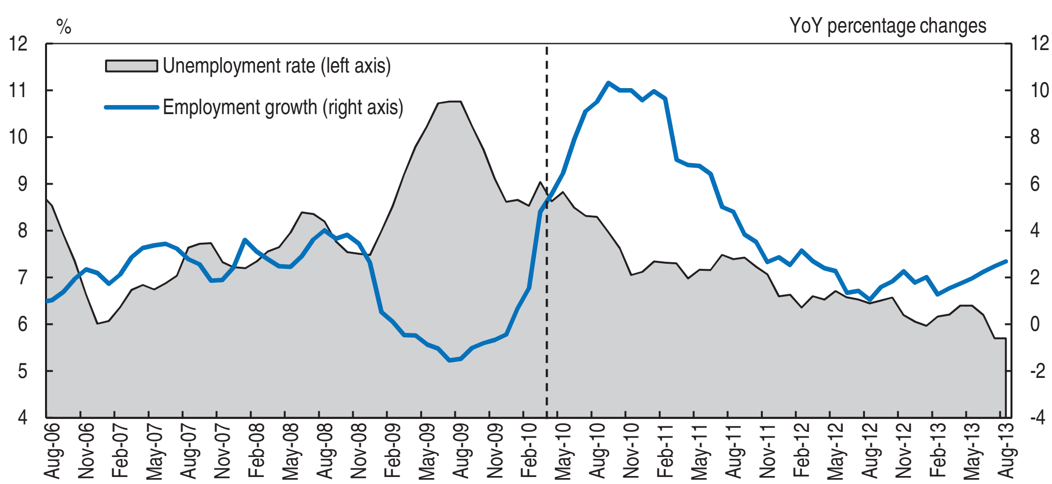
Other recommendations

- Carry out a review of natural resource rents and ensure that they are taxed sufficiently to ensure sustainable development.

Labour market inclusiveness

The job market has been very dynamic recently and unemployment has dropped to its lowest level in 15 years (Figure 9). Yet some groups remain at the margin of the labour market (Figure 10, Panel A). Women are less likely to have paid work than men and, when

Figure 9. **Employment growth and the unemployment rate**



Note: The dashed vertical line indicates a change in methodology for both variables in April 2010. The change in the methodology results in a break in the series which leads to the old and new series not being comparable.
Source: Instituto Nacional de Estadísticas (INE), Encuesta Nacional de Empleo (ENE) and Nueva Encuesta Nacional de Empleo (NENE).

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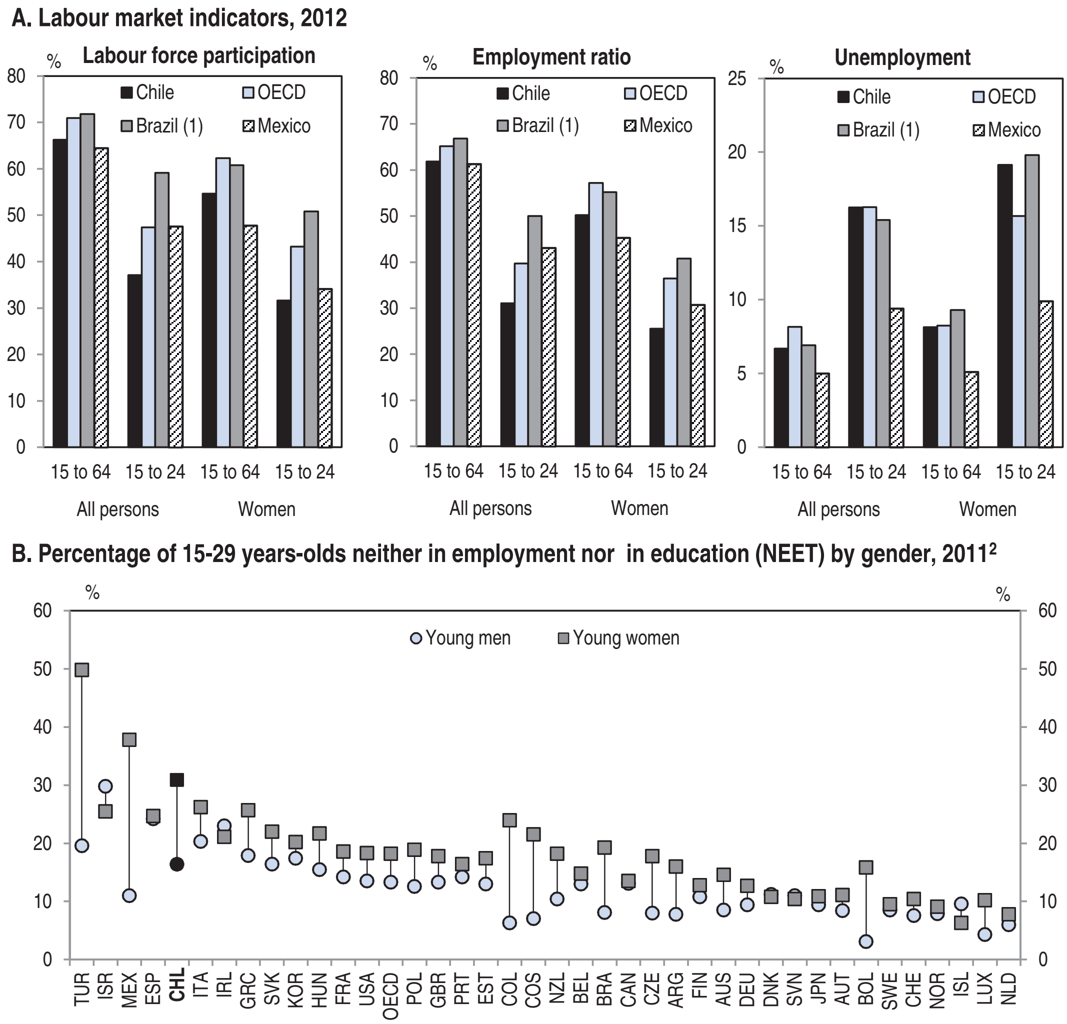
Figure 10. **Young people and women in the labour market**



1. Data for Brazil refer to 2011
2. Countries are ranked in descending order of the proportion of 15-29 year olds NEET in 2011. 2010 for Colombia and Costa Rica.

Source: OECD, *Labour Force Statistics Database*; *Education at a Glance*, 2013; SITEAL.

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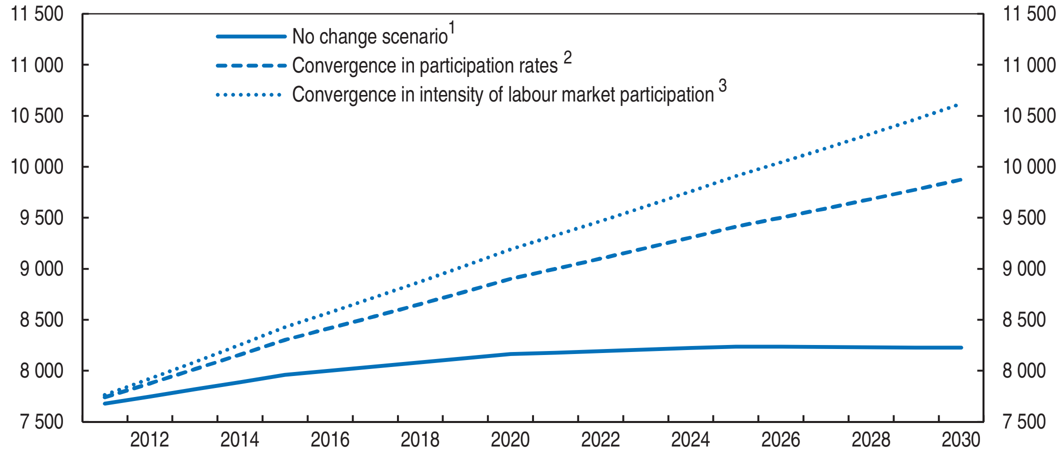
employed, it is often in the informal sector or in low-paid jobs. In addition, women retire with lower pensions than men and, because they live several years longer, they are at a greater risk of old-age poverty. For young people, getting a job remains difficult, as shown by the high share of young men and even higher share of young women who are neither in employment, education or training (NEETs) (Figure 10, Panel B). A third group remaining at the margin of the job market is composed of those with low skills, who are more likely to work informally and therefore do not accrue rights to access pension and other social benefits.

Bringing these groups into the labour market would boost economic growth, in part by counteracting the decline in labour supply growth resulting from population ageing (Figure 11) and help to reduce poverty. Chile has made important progress in reducing poverty, as measured by anchored relative poverty (OECD, 2013b), mainly because recent job creation has benefitted the poorest most, but it is still the most unequal country in the

Figure 11. **Bringing more women into the labour force can help to sustain labour supply in Chile**

Projected number of persons aged 15-64 in the labour force (thousands)



1. Projected size of the labour force, assuming that the participation rates for men and women remain constant at the 2010 rates.
2. Projected size of the labour force, assuming that the participation rate for men remains constant at the 2010 rates, and the rate for women shows a gradual increase reaching the 2010 rate for men by 2030.
3. Projected size of the labour force, assuming that the participation rate for men remains constant at the 2010 rate, and the full-time time equivalent rate for women shows a gradual increase reaching the 2010 full-time equivalent rate for men by 2030.

Source: CELADE, Population division of ECLAC, 2012 Revision; OECD, *Closing the Gender Gap: Act Now*.

StatLink http://dx.doi.org/10.1787/888932923526

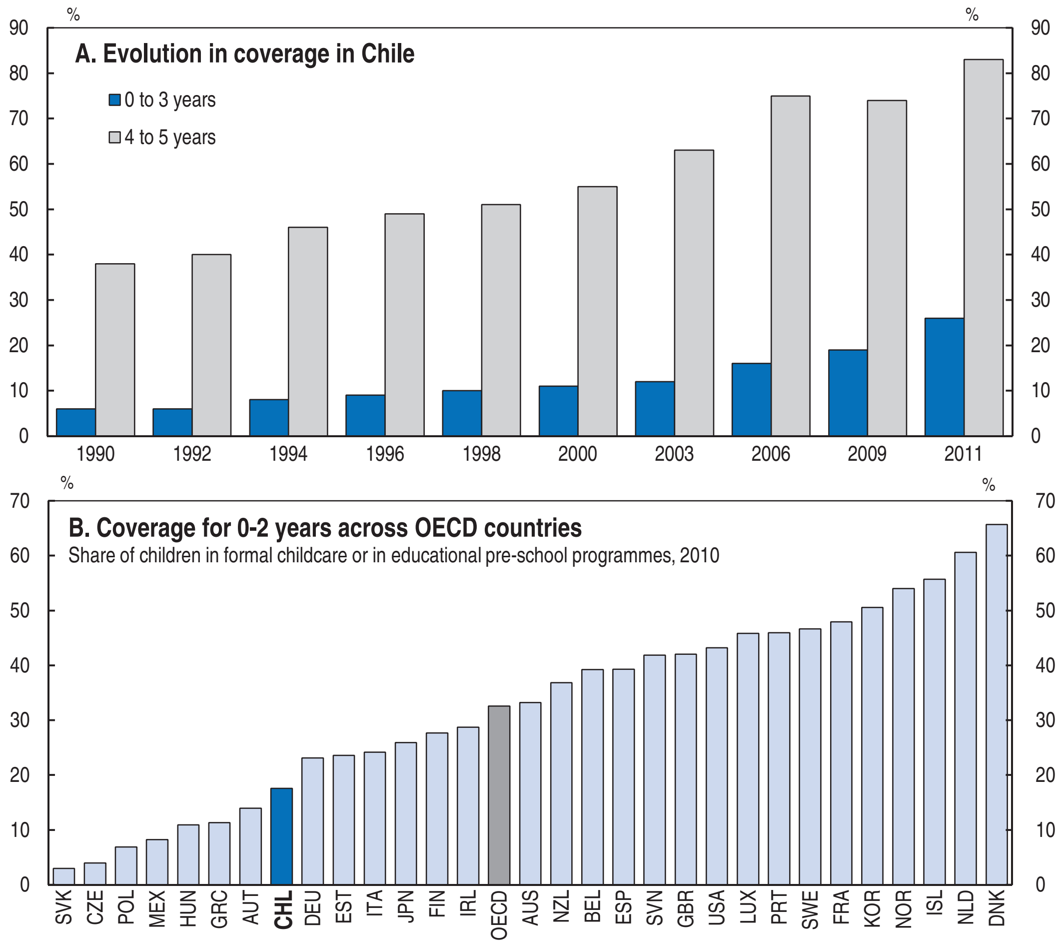
OECD. Although including these groups in the labour market is high priority, there may be other groups that deserve attention, such as older workers and immigrants.

Women and children first

Reforms have been introduced to extend early childhood education and childcare, extend maternity leave and make work pay more with an in-work benefit for low income women (*Bono al Trabajo de la Mujer*). OECD experience suggests that these reforms may bring more women into the labour force (OECD, 2012b). But barriers still discourage many from engaging in paid work. One such barrier is the attitude towards the balance between work and family commitments. Most women who are not in the labour force are engaged in housework and childcare and, when Chilean parents are asked, many think that mothers should stay at home and take care of their children rather than work (Medina and Paredes, 2013). While house work has tangible economic value (Miranda, 2011) it does not contribute to female career opportunities and expected lifetime earnings. OECD experience suggests that a well-designed package of family-friendly policies, including affordable high quality childcare, paternal leave, opportunities to work part-time and flexible workplace arrangements, can facilitate a more balanced sharing of responsibilities and help more women to take up paid work (OECD, 2012c).

Early childhood education and care have expanded rapidly, with universal enrolment for children aged four to six nearly achieved (Figure 12, Panel A). Yet according to household surveys, for some women access to childcare remains a problem. More needs to be done to keep expanding early childhood education, especially for children aged up to 2 years, which is low in international comparison (Figure 12, Panel B). OECD evidence suggests that the availability of affordable, high quality childcare is an important factor

Figure 12. **Coverage of early childhood education and care**



Source: CASEN (2011) and *OECD Family Database*.

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influencing female labour force participation (OECD, 2012c). Access to childcare from a young age is also a good investment, as it has been shown to improve cognitive outcomes for disadvantaged children, especially if education is sustained through mandatory schooling, and can mitigate social inequalities (e.g. Ruhm and Waldfogel, 2011). A bill is in Congress for an ambitious new childcare system for working mothers' children up to three years old. The new system will be financed by redirecting contributions made to the unemployment benefit system, which is overfunded. Every working woman will receive a voucher to cover the childcare costs for their children up to three years old. Such a system would expand access to childcare to more children and encourage greater female participation for those mothers for whom childcare is a barrier to work, which is welcome.

However, take-up of such programmes also needs to rise. Ninety per cent of families that do not send their children to formal childcare say they find it unnecessary because they can be taken care of at home. This may be related to a preference for maternal care or lack of trust in formal childcare, but it also may be due to lack of information. About 24% of mothers qualifying for free access to childcare through the *Chile Crece Contigo* programme had never heard of it, according to the 2012 ELPI survey. The government should keep publicising child-care options, thereby effectively expanding parental choice. It will also be important to ensure high quality as the system expands fast to accommodate new demand. A recent bill plans to improve standards for early childhood education centres.

The government has recently extended state-funded after-birth maternity leave from 3 to 6 months several weeks beyond the OECD average which is welcome. While this can help mothers reconcile work and childcare, longer maternity leave risks reinforcing the traditional role of women as caregivers, perpetuating gender inequality. Mothers can now share leave with fathers, but only 0.6% of eligible fathers have asked for leave. The government should promote greater take-up among fathers by implementing "take-it or lose it" non-transferable leave following births for fathers in addition to maternity leave. Evidence from Norway suggests that such a policy can substantially increase take-up among fathers (OECD, 2011a). Some fathers even choose to take extended leave to raise their children, which can be a first step to greater shared family responsibilities.

Beyond these approaches, OECD experience suggests that opportunities to work part time and in flexible workplace arrangements are also part of a well-designed package of family-friendly policies. Part-time work is possible and common in Chile, and most part-time jobs are taken up by women. But working hours are very strict and families would benefit from a more flexible approach to better balance work and family. A bill was submitted to Congress in 2010 to promote teleworking. It should be rapidly adopted. While this may not be a solution for all families, it may help some to manage childcare and other family commitments alongside work and thereby facilitate the labour force participation of some women.

Finally, regulations regarding childcare provision are a barrier to female employment, but there is recent progress. Companies employing 20 women or more have to cover childcare costs for their employees' children during the child's first two years. This regulation may encourage greater female labour supply; but it also increases the cost of hiring women relative to men and represents a barrier to female employment. The government has sent a bill to remove this mandate on companies, as recommended in the 2012 *Economic Survey*, and replace it by the new childcare system (see above).

Helping young transition from study to work

Youth labour-market participation is lower than in other OECD countries, largely reflecting poor basic skills and difficulties in moving smoothly from study to work. As noted above, improving compulsory education quality and facilitating access to good education for the most vulnerable groups will be important to improve youth employability. OECD experience suggests that, beyond a good quality compulsory education, an effective way to ensure that young people are prepared to enter the labour market is to use the workplace as a place of learning, particularly for vocational education and training, but also for more academically-oriented university programmes. Chile has some training programmes for the young that combine class-room based training and work-training, but there are doubts about their effectiveness. They should be evaluated and expanded or wound up according to the result of the evaluation. Strengthening vocational education, which is currently of poor quality, with weak links to what is demanded in the labour market and with few possibilities for students to move within the vocational system and towards higher education, could also help to improve skills. The government has recently announced plans to update curricula and adapt them to the needs of the industry, which is welcome.

Combining study and work can also facilitate the school-to-work transition, yet very few young Chileans do this, in part because working hour rules are very strict. A bill is in Congress to establish a contract for students (aged 18 to 25 years) through which work can be interrupted several times each day to allow more young people to study and work and will add flexibility.

Youth also face demand- side barriers to employment. Since 2009 Chile has had an in-work benefit (*Subsidio al Empleo Joven*) to encourage both youth labour supply and the hiring of youth. The take-up is however very low among employers, suggesting relatively weak effectiveness in fostering job creation. Possible reasons might include lack of knowledge, incompatibilities with other subsidies or fear of labour inspections (Huneeus and Repetto, 2013). The government should investigate the sources of low employer participation and improve the design to make it more effective. The experience of OECD countries suggests that, although they can be effective in reducing income inequality, in-work benefits have a limited impact on employment; hence, they should not be seen as alternatives to deeper labour market reform, better education and more effective training.

Chile's high minimum wages – at 67% of the median wage compared to an OECD average of 48% in 2011 – could also be a barrier to hiring youth. Many OECD countries have a reduced minimum wage for young workers. Chile does too, but only for workers under 18 years of age, and it may therefore want to extend it to cover more young workers. Expanding coverage also involves risks, as reduced minimum wages for youth can institutionalise the incidence of low-pay jobs among youth and lead to segmented labour markets with youth struggling to move to better-paid jobs. An alternative option would be to expand apprenticeship contracts for low-skilled youth, after an evaluation has been conducted. These contracts are low-cost for employers and, coupled with a voucher for training, are an attractive option for employers and youth as a first job experience. Evaluation should be required to ensure that the training is of high quality.

Strict employment protection legislation also presents a barrier to hiring. There is a large asymmetry between the protection against dismissal for workers with indefinite contracts compared to those on temporary contracts, making firms reluctant to convert temporary contracts into permanent ones and leading to high turnover among temporary workers. This may hinder productivity growth by reducing the incentives of firms and temporary workers to invest in training (Dolado et al., 2012). Chile should lower severance pay for permanent workers considerably and strengthen unemployment insurance, as recommended in the 2012 *Economic Survey* and in *Going for Growth* (OECD, 2013d). Youth are likely to be among the main beneficiaries. Evidence from Chile suggests that high protection of workers on permanent contracts is hurting the youth most, making their labour force participation and employment more difficult (Pagés and Montenegro, 2007).

The low skilled need help to improve their skills and find better jobs

Improved secondary and tertiary education attainment has already made many young Chileans better prepared to enter the labour market. But education and training policy must still reach out to numerous adults not eligible for higher education and who left education with very poor skills, not least those working informally where productivity tends to be lowest. While informality has a range of regulatory and structural causes, weak educational achievement is among the most important (Dougherty and Escobar, 2013).

Chile spends well above the OECD average on training, yet assessments have concluded that Chile's publicly funded training programmes are ineffective and poorly targeted at those who need them most (Larrañaga et al., 2011; OECD, 2012a). The government is working on an ambitious bill to redesign its public training system and reform the national training and employment service. It will establish an independent expert panel to guide training policies, as well as sector specific skill councils to oversee quality and identify sector specific skill needs. Tax breaks on training spending will be confined to low wage workers. The bill will also strengthen the technical capacity of the national training and employment service and confer it with powers to investigate and sanction training providers not fulfilling minimum standards.

Furthermore, the development of a national certification system for vocational skills, which has been underway since 2008, has recently regained momentum with renewed efforts to develop a quality assurance framework for training, including the set-up of vocational standards and curricula for training courses. These measures should be fully implemented to sustainably reduce skill gaps and improve the certification of skills acquired on the job.

As recommended in the 2012 *Economic Survey,* reduced dismissal protection should be accompanied by a better unemployment benefits system. The government has sent a bill to Congress to increase benefit replacement rates, as well as the maximum and minimum benefits. These are positive steps. Yet higher benefits should be accompanied by effective job-search monitoring and assistance, which is currently weak, to ensure higher benefits do not weaken work incentives.

Most of Chile's local employment offices lack the administrative capacity to deliver high quality job-search services, like job counselling and placement for the unemployed, let alone to help inactive workers. Since 2006, a nationwide electronic platform has brought together jobseekers and job vacancies, which can help some to find a job. Besides, the government is allocating additional funds to strengthen local labour offices, which is welcome. To further improve co-ordination and strengthen placement incentives, in the medium term, once the capacity of the public employment service is stronger, Chile could consider integrating the local employment offices into a nationwide network under the responsibility of the national employment agency. The agency can implement a policy of monitoring and enforcing the conditions for individual entitlement to nationally-financed unemployment benefits, which is difficult to ensure when local offices are autonomous or managed by local government.

More recently the government is trying to engage private providers to help hard-to-place jobseekers, like the long-term unemployed and low skilled or first-job seekers, who often need personalised employment counselling. These important efforts should continue. OECD experience suggests that partial outsourcing of job intermediation services to the private sector can be cost effective. But for this approach to work there must be an active government-led management framework that defines the target population, so that the system of fees for private agencies rewards their performance in terms of achieving sustainable job placements for the target population, not a cherry-picked population selected by the agencies themselves. The usefulness of private-sector providers for personalised job counselling to harder-to-place jobseekers should be first investigated through pilot studies, as the government plans. Chilean and broader OECD experience suggests that engaging private providers is not easy and requires careful setting of parameters and incentives.

Box 3. **Main recommendations on labour markets**

Key recommendations

- Increase female workforce participation by expanding high-quality childcare, promoting flexible working hours and providing non-transferable parental leave entitlements to fathers. To increase childcare take-up, continue to publicise the availability of childcare options.
- Boost youth employment by expanding the reduced minimum wage for youth under 18 to those under 25 years old and implementing the reformed apprenticeship contracts. In parallel with extending unemployment benefits, lower the relatively high severance pay for regular workers.
- Strengthen the public training framework through quality standards and performance assessments for training providers, and by better targeting low-skilled workers. Improve job search assistance by strengthening local employment offices.

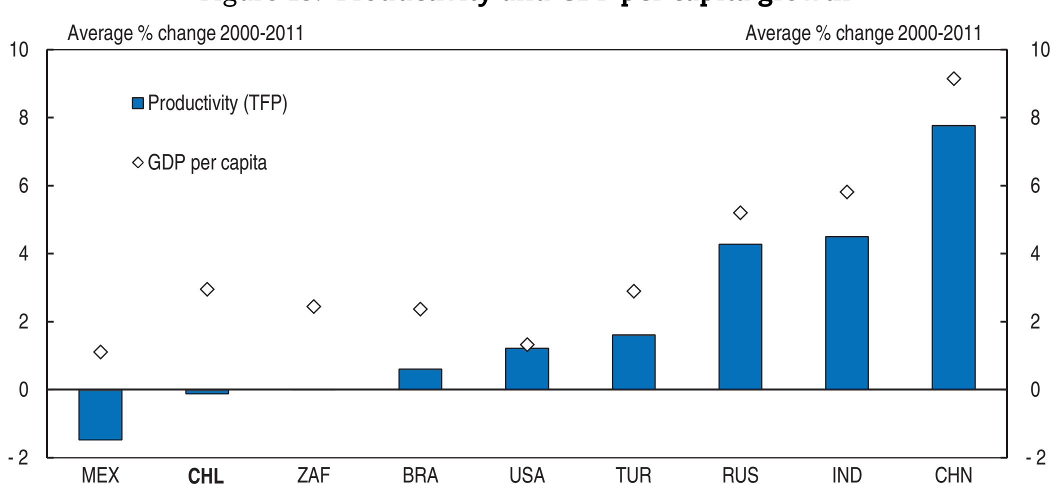
Other recommendations

- Carry out pilot studies using private sector providers for personalised job counselling of harder-to-place jobseekers.
- Strengthen vocational education by updating curricula, further developing work placement and by deepening the on-going standardised qualification framework to boost mobility.

Boosting growth through entrepreneurship and innovation

Chile's growth record has been strong over the past decade, with rapid rates of capital accumulation increasing levels of output per worker. Nevertheless, total factor productivity growth (TFP) was stagnant during the 2000s (Figure 13) (Johansson et al., 2012). This contrasts with the average TFP growth of other large emerging economies, some of which had exceptionally rapid TFP. There are however, some tentative signs that TFP may be

Figure 13. **Productivity and GDP per capita growth**



Source: *OECD Long-term Growth Scenarios Database* (Johansson et al., 2012).

How to read this figure: Total factor productivity growth represents gains in output or GDP beyond the contribution of input growth, measured as changes in employment, human capital and physical capital.

StatLink http://dx.doi.org/10.1787/888932923564

picking up (Magendzo, 2013), and if mining is excluded, TFP growth has been positive since 2010.

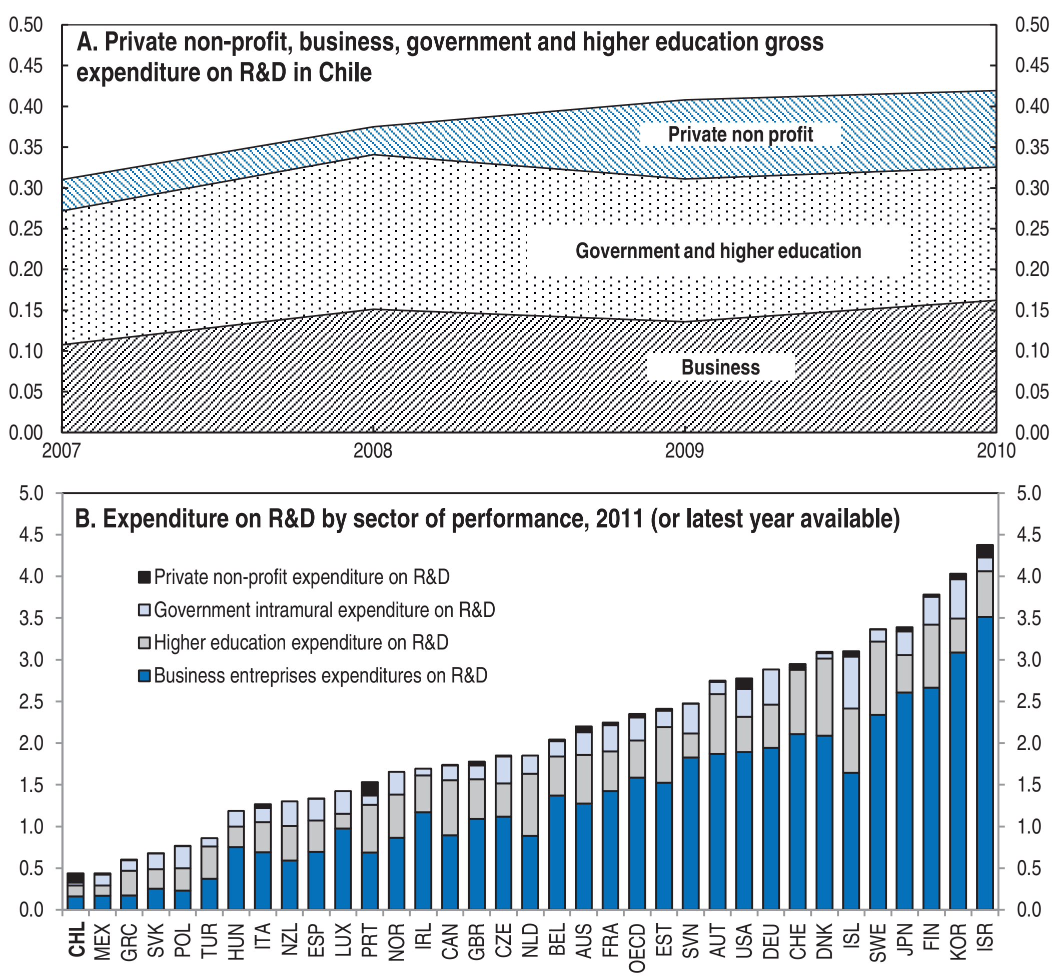
Trend TFP takes time to pick up in response to improved policies, and policy settings for innovation have already become quite good for business. Good framework conditions are an important prerequisite for long-term investments, and Chile's stable macroeconomic policies and trade openness provide useful preconditions. Restrictions on competition could be reduced further, but Chile's policy settings rank well when compared with other Latin American countries. An explicit regulatory policy to ensure the quality of laws would help considerably in this regard. Still, according to the INSEAD/WIPO Global Innovation Index 2013, Chile currently ranks in the top 50 in the World and highest in its region.

Business sector R&D intensity remains low

R&D intensity and innovation spending more broadly are the lowest in the OECD, with the limited R&D expenditure heavily concentrated in the publicly-funded university sector (Figure 14, Panel A). Business sector participation is exceptionally low (Panel B), with

Figure 14. **R&D intensity is low, especially in the business sector**

As a percentage of GDP



Source: OECD, *Main Science and Technology Indicators Database.*

StatLink http://dx.doi.org/10.1787/888932923583

around 350 firms stating that they routinely invest in R&D, a figure which has increased little over time. Production of intellectual property also remains low (OECD, 2013f).To promote private participation in R&D investment, a tax benefit for R&D expenditures was implemented in 2008.

A modification to this tax benefit in 2012 made in-house R&D activities eligible for the tax credit. Other important changes to the Law include: a threefold increase in the annual tax ceiling for the benefit, to USD 1.2 million; and a lifting of the (15%) cap as a share of gross income. After this modification, the flow of new applicants increased five-fold. The existing programme is still most relevant for larger-sized firms, since the credit is only redeemable against profits. Evidence from the OECD's work on new sources of growth (Andrews and Criscuolo, 2013) suggests that refundable credits can help dynamic smaller firms, including start-ups that do not yet have profits to immediately benefit from non-refundable credits. Over time, Chile should monitor the implementation of the scheme closely and consider adopting refundable credits as a complement to its recently revised scheme. To enhance incentives among larger firms in the future, an incremental element could be added to the existing scheme to provide enhanced incentives.

Policy reforms have improved the climate for entrepreneurship

Reforms over the past few years have made starting a business much easier. In May 2013, a new law to allow the opening of a firm in one day took effect. This builds on a reform that went into effect in 2011 which streamlined procedures to start a business from 22 to 7 days. A further reform accelerates the granting of definitive municipal permission to operate, and allows new entrepreneurs to issue electronic invoices immediately. The creation of the Start-Up Chile entrepreneurship programme, an initiative of the Ministry of Economy and CORFO, aims to make Chile the leading innovation hub in Latin America, along with a number of complementary programmes that help to facilitate international technology transfer.

The Start-up Chile Programme has generated more than 700 new start-ups over the last two years, many by foreign entrepreneurs. The programme, which started in 2010, seeks to attract entrepreneurs from abroad by offering USD 40 000 equity-free seed capital and a short term work visa, to entrepreneurs who come to Chile to develop projects over a six month period. To date, the programme has supported projects from over 70 countries. This has helped to boost Chile's attractiveness for developing new firms, and make up for weaknesses in perceptions of innovation capacity and risk readiness.

Other reforms and policies, such as the Seed Capital and the Incubator Programme, aim to ease access to capital for small enterprises and women (Alvarez et al., 2013), and the Entrepreneurial Environment Programme seeks to foster entrepreneurship skills and related competences (OECD, 2012a). Over the past four years, these policies have contributed to a fourfold increase in applications to government-backed seed capital programmes. Chile's policies for venture capital appear to be the best in its region (LAVCA, 2013). Although only a limited number of companies are funded each year, the venture capital industry has started to gain traction. The new funds law currently in Congress would simplify fund formation for foreign venture capital investors and help boost such investment.

Bankruptcy procedures still frequently last five years, whereas in other OECD countries the average is usually less than 1½ years. Better exit policies would improve reallocation of resources and, by reducing uncertainty, stimulate both start-ups and financing. The OECD has recommended such reforms in previous *Economic Surveys*. A bill presented to Congress last year would reduce this period to a maximum of 14 months (7 months for smaller firms). Should the bill eventually become law, it would represent an important step in improving business dynamism.

A shortage of qualified researchers persists

Human capital seems to be another obstacle to productivity improvements for Chilean firms. Innovation and R&D activities are heavily dependent on well trained workers, especially those with certification postgraduate qualifications. Despite some efforts to increase the number of Masters and PhD students domestically and internationally, Chile still lacks sufficient quantities of advanced human capital in key science, technology and engineering management (STEM) fields (OECD, 2013f). Moreover, weaknesses in management practices limit the ability to make efficient use of existing skills in the business sector (Andrews and Criscuolo, 2013). Expand government financial support for advanced degrees containing substantial technological content, and facilitate the business sector integration of graduates. This is relevant for the *Becas Chile* programme (that pays for tuition at top overseas graduate programmes) since less than half of the PhD students benefitting from it are in STEM fields.

Successful innovation promotion programmes need to be expanded

Chile has several well-designed innovation promotion programmes. These have sought to address a long-standing divide between businesses and universities in Chile's innovation system (Crespi and Zuñiga, 2012). But programme scale and take-up has not been large enough yet to make substantial impact. In fact, less than 1% of companies in the formal sector have applied and received support from these programmes, and the low R&D figures and innovating outputs (patents, trademarks and copyrights) reflect their small scale. Regularly review innovation programmes and design them so that they can be adequately evaluated thereby ensuring that they are cost-effective. Those programmes that have been positively evaluated should be enlarged and given an enhanced degree of policy stability, while those that are found to be inefficient should be closed down or revised.

Industry-science co-operation is critical for innovation, and developing such co-operation has been a long-standing recommendation for Chile (see OECD, 2010b). Important efforts have been made to bridge both cultural as well as practical barriers to these linkages. These efforts include a major recent programme to attract international R&D centres of excellence, an applied research programme that helps local researchers connect to industry (*I+D Aplicada*) , as well as an assortment of other instruments.

Greater concentration of support in areas that complement natural advantages could be appropriate if done in a way that emphasises industry-science co-operation (Warwick, 2013). Chile is pursuing a broadly horizontal approach to its innovation policy, which reduces the risk of government failure. The risks of backing the wrong horse can be considerable, and recent OECD reviews suggest that addressing co-ordination problems and focusing on creating networks, such as a framework for dialogue among private firms, may be most effective. Certain natural conditions, notably Chile's copper deposits for mining, waters for fish farming, soils for wine making and clear skies for astronomy, are an important asset for developing science and cross-links that can help generate a local innovation eco-system and impact on technological development. Early efforts have been made to use scientific knowledge to identify the nascent advantages of Chile in positioning itself in these areas, such as through the *Programas de Innovación Sectoriales*. Such efforts should be continued, building on comparative advantage, with caution exercised to avoid creating opportunities for rent-seeking behaviour, through continued strong involvement of the private sector.

More broadly, efforts should be made to address the fragmented institutional set-up for innovation, as identified in multiple external reviews of Chile's innovation system (see OECD, 2007, 2010b, 2011b, 2012a). This objective of greater policy coherence could be realised with the creation of a new Ministry of Science, Technology, Innovation and Higher Education, as proposed by a recent commission and supported by major political parties. Such large-scale institutional changes tend to be initially disruptive, and it may be difficult to fully separate out innovation-only activities from existing ministries. The risk of counter-productive disruption could be reduced by phasing-in the transfer of competences to the new ministry. In this regard, it is worth noting that very few countries have gone as far as transferring the oversight of higher education to a ministry of innovation.

Box 4. **Main recommendations on entrepreneurship and innovation**

Key recommendations

- Co-ordination among the various innovation policymaking agencies could be improved by establishing the Ministry of Innovation recently proposed.
- Further facilitate industry and research linkages, and promote public-private co-ordination to exploit natural endowments, such as copper mining, helping to complement comparative advantages.
- Regularly review innovation programmes, close down or adjust inefficient ones, and expand those that are proven to work.

Other recommendations

- Over time, make the R&D tax credit refundable for smaller firms, so that young innovative start-ups can more easily benefit, and consider adding an element to the scheme that enhances rebates for incremental investments.
- Expand advanced degree financial support on technological fields, especially in the *Becas* Chile programme.
- Further boost access of entrepreneurs to global networks and venture capital, including by simplifying requirements for foreign venture capital funds to operate locally.

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ANNEX A.1

Progress in structural reform

Past recommendations	Actions taken and current assessment
A. Fiscal and financial policies	
Strengthen the fiscal rule by establishing an independent fiscal council, as planned.	An independent fiscal council has been created an annual public document that describes the methodology to calculate the structural balance, including all the required parameters is now published.
Introduce a consolidated credit register for household credit, including on debt from non-banks. Ensure that all credit card issuers are supervised rigorously.	A bill was submitted to Congress in late 2011 to create a public credit bureau consolidating credit information provided by financial institutions, including banks and non-bank credit providers. Improvements in the oversight of credit card issuers have been made, including new regulations for listed retail credit providers to disclose information regarding their credit portfolio.
Take legislative action to establish group-wide financial supervision, among others by designating a "lead supervisor" based on the group's main activity.	The Financial Stability Council has functioned well, and the government has announced a proposal to provide a legal framework to the CEF as well as to introduce other amendments aimed at improving the co-ordination and exchange of relevant information between public regulators in the financial sector.
Gradually replace mandated quantitative restrictions by prudential regulations for pension fund portfolio composition to be issued by the industry regulator	The 2008 pension reform improved investment regulation, moving towards a more flexible investment regime for pension funds. It authorized regime to regulate all matters previously contained in the law and allowed it to introduce new ones if necessary. The limits should be set by the regime on the basis of the investment portfolios' risk, moving towards and risk-based supervision.
B. The tax system	
In the long term, to finance likely increases in spending on education and social services, continue fighting tax evasion and close tax loopholes associated with income and real estate taxes. Consider increasing mining taxes, immovable property and environmental tax rates.	The corporate tax rate increased to 20% and measures were adopted to close loopholes. These will increase fiscal revenue by UDS 881 MM.
Complement reports about the size of tax expenditures with evaluations of their effectiveness and efficiency.	A commission was appointed to evaluate the methodology to measure tax expenditures and recommend changes. Some of its recommendations have already been implemented.
Reduce the stamp duties gradually.	The government has decreased this rate permanently and a draft law is under congressional discussion to further reduce the stamp duties.
Assess the net benefits of reducing the discrepancy between the top marginal rate for the personal income tax (currently at 40%) and the uniform corporate tax rate (currently at 17%).	The corporate tax rate has kept permanently at 20%.The personal income tax rates were reduced for each bracket of global complementary tax and second category tax.
Assess compliance costs for micro- and small enterprises and continue to work to make the tax system more SME-friendly. Expand the ICT training programme for SMEs (MIPYME 10 000-2006). Further simplify procedures to reduce the time it takes to pay taxes, especially by SMEs.	The government has sent to Congress a draft law that requires electronic invoicing from VAT tax payers. SMEs can easily fulfil their tax requirements online. The tax authority plans a web system with free access for SMEs to issue and operate electronic invoices.
Consider abolishing or limiting remaining VAT exemptions.	One VAT-related loophole generated by the application of double tax conventions has been eliminated. No additional action taken.

Past recommendations	Actions taken and current assessment
Consider strengthening subsidies for pension savings supporting low and medium income earners further, while capping tax benefits for high income earners.	No action taken.
Close tax loopholes associated with corporations created for the sole purpose of deferring the payment of personal income taxes.	A law introduced major measures on tax loopholes, including asymmetric treatment to corporations and personal companies regarding rejected expenses and capital gain taxes.
Consider increasing the property tax rate, if needed.	In January 2013, the fiscal valuation of commercial real estate was increased. In January 2014, the fiscal valuation of residential real estate will be also increased.
C. Pensions	
Gauge the willingness of own-account workers to pay for social protection through regular surveys, while strengthening enforcement capabilities when contribution becomes mandatory.	Regular surveys have been carried out focused on social security issues. It has become mandatory for own-account workers to pay for social protection since January 2012, unless the independent employee expressly stated otherwise. The obligation is being rolled in gradually and from January 2015, it will be mandatory for own account workers to contribute 100% of the taxable income, with no exceptions. Information campaigns for own-account workers have continued.
Make health insurance mandatory for own-account workers at the same time and following the same timeframe as in the case of pension contributions, rather than delaying implementation until 10 years after approval of reform.	Health insurance will become mandatory for everyone in 2018, without any timeframe as in the case of pension contributions.
Ensure that options for correcting gender imbalances do not give women a higher retirement income than those accruing to men with the same contribution history, accounting for life-expectancy differentials.	No action taken
Eliminate in a phased manner the gap that currently exists between the retirement age for males (65 years) and females (60 years) for contributory pensions.	No action taken, but it is currently being studied.
Maintain the independence of the AFP regulator in the new proposed institutional setup.	The new Superintendencia de Pensiones kept its independent status.
D. Health care	
Implement the preventive healthcare agenda in full.	No further action taken.
Extend the Solidarity Compensation Fund to FONASA as a means of further improving risk pooling.	In 2012, the government sent a bill to parliament, which seeks the creation of a Solidarity Compensation Fund among private insurers and includes a basic general plan for everyone, to protect against discrimination based on age, gender and pre-existing conditions. This is a second step towards universal risk pooling.
Broaden the range of treatments that can be financed through diagnosis-related and prospective payments (PAD-PPP).	Financial benefits have increased and access for beneficiaries with solidary basic pension in the modality of free election has been facilitated. PAD has been incorporated in several areas, including dental, trauma, ophthalmology, surgery. Additionally, new benefits have been incorporated under PPP modality, including laboratory exams, diagnostic procedures and surgical interventions.
Conduct service satisfaction surveys more frequently and disseminate the results broadly, including through health care insurers.	The satisfaction survey is done yearly by an external company contracted through a competitive bid. Its results are disseminated internally and used as a management tool.
E. Anti-poverty policies	
Continue to increase cash transfers, while further ensuring their effectiveness.	The Ethical Family Income (Ingreso Ético Familiar) program establishes different types of monetary transfers, both conditional and unconditional.
Over time streamline the number of cash transfer programmes, by integrating them with the new Ingreso Ético Familiar.	Currently the Ingreso Ético Familiar program is in the process of implementation and validation. No action has been taken yet on integration.
Keep the design of the new cash transfer simple and limit conditions, perhaps to job search and training requirements. Impose further conditions only if they are of proven effectiveness.	The new cash transfer is conditioned on children between 6 and 17 years assisting education and for children under 6 years old to go to regular health check-ups.

Past recommendations	Actions taken and current assessment
Simplify targeting by relying mainly on household income. Over time make the benefits available to a wider range of beneficiaries, including by withdrawing benefits only gradually as income increases. Further pursue efforts to fight fraud more effectively.	Targeting for the Ingreso Ético Familiar (IEF) program is based largely on household income. Additionally, the delivery of some benefits uses a methodology that measures gaps, providing more resources to those families whose incomes are at a greater distance from the extreme poverty line. Access to the Ingreso Ético Familiar is based on family income information verified by Internal Revenue Service declaration and other administrations.
Once the basis for Ingreso Ético is firmly established, evaluate the effectiveness of the transfer and its different features, such as transfer size and conditionality, as planned, in improving households' ability to overcome poverty. Adjust design accordingly.	An Impact Assessment of the Ingreso Ético program is planned by law and there are current plans to assess its impact as well as that of the Subsidy for Employment for Women and the Effort Bonus.
Enhance fiscal equalisation to ensure that poor municipalities have sufficient resources to provide their citizens with high-quality services and continue efforts to improve these.	The Ingreso Ético Familiar program transfers some resources to municipalities. Additionally, the fund for municipalities (Fondo común municipal) has increased from about USD 1.100 MM in 2009 to about USD 1.687 MM in 2013.
F. Labour market policies	
Extend unemployment benefits further and limit severance pay, while increasing employers' contributions to individual savings accounts or the unemployment insurance fund. Evaluate the effects of longer unemployment benefit duration and/or higher benefit levels to improve the design if needed.	The Government has recently sent to Congress a bill to increase replacement rates as well as maximum and minimum limits of the benefits.
Evaluate the in-work benefit for poor, young workers and – if found successful – consider extending it to other groups.	An impact assessment of the grant was carried out in 2012 which showed that it has been helpful in attracting young people into the formal labour market. The in-work benefit has been extended to low income women (Bono al Trabajo de la Mujer).
Improve possibilities to negotiate more flexible labour arrangements, among others on working time, while putting an end to the practice of employers splitting their enterprise for the purpose of wage negotiations.	A bill has been sent to Congress that would make work arrangements more flexible in tourism, agriculture and dairy sector. Another bill in Congress seeks to stop the practice of breaking up companies for the purposes of wage negotiations through the use of a different tax identification number (RUT) for each subsidiary.
Continue efforts to increase labour market participation of women and youths by reviewing part-time work regulations and strengthening vocational training.	A draft bill would give students between the ages of 18 and 25 more flexible rules for working has been sent to Congress. A number of training programmes are targeted at youth and women to improve their employability (e.g. Program for Job Formation, Youth Apprenticeship Program and Working Woman and Head of Household Program).
G. Education policies	
Apply strict accreditation procedures to initial teacher education programmes and consider using the new external exit exam to license teacher candidates based on minimum standards.	A bill has been sent to Congress that includes a mandatory exit exam for students graduating from initial teacher education programmes, which must be passed in order to teach in schools receiving public funding. Another bill has been sent to Congress to make accreditation of higher-education institutions compulsory, defines accreditation standards and includes a comprehensive assessment of the institutions and its programmes. It would take into account student graduation rates, years of study for different degrees, employment rates after graduation and results on external examinations, when appropriate.
Streamline and extend student loans and scholarship schemes, making them available to every student of accredited institutions on the same terms, while strengthening quality standards for all institutions that enrol students benefitting from subsidies. Introduce income-contingent repayment schemes.	The number of scholarships has more than doubled in the last few years, including the ones given for the first time in 2012 to middle-class students who entered higher-education institutions. The interest rate for student loans was lowered and loans are now income contingent. In addition, the most vulnerable students will face more flexible requirements for accessing grants, including a lower score in the test for admission to higher education (PSU). A bill has also been sent to Congress to provide the same funding conditions for all students.
Build on efforts to improve the quality of publicly-financed secondary education, including by further increasing the special voucher for poor children, and reforming the scholarship and loans system for tertiary education to make access more equitable.	In 2012 a law was passed to increase funding for at-risk children from the first two income quintiles (Subvención Escolar Preferencial, SEP) has increased and high school students have been included within the SEP. The government has sent a bill to the parliament that creates additionally a higher subsidy for the third quintile.

Past recommendations	Actions taken and current assessment
H. Housing policies	
Improve targeting of housing subsidies to low-income households.	The Government is replacing the proxy means test mechanism used to target most subsidies with a new system based almost exclusively on administrative records.
Over time redirect some of the housing subsidies to means-tested rental allowances for low-income tenants.	A rental subsidy program is scheduled for the second semester of 2013.
Better integrate subsidised housing into wealthier neighbourhoods, enforce subsidized housing quotas and invest more in infrastructure, public transport and social services in poorer neighbourhoods.	A pilot program was launched this year which encourages the design of housing projects with social mixture, allowing vulnerable families living in wealthier neighbourhoods. A new programme increased investments in poor neighbourhoods, including the demolition of: ancient subsidised housing units; housing with sub standardised design and dimension; and housing located in areas with poor services.
Upgrade thermal and energy efficiency standards for buildings and extend limits to construction on fault lines and risky coastal areas to the entire country.	Following a pilot subsidy programme to improve energy and thermal standards, a permanent program will be implemented by the end of 2013. The Government is working on a Sustainable Construction Policy to provide construction guidelines and adapt building codes.
Make supply more responsive to demand by encouraging the development of underused land, speeding the reforms of land planning and allocation of building permits, and ensuring the rental market works well, by striking the right balance between regulation that safeguards tenants' and landlords' rights.	Congress is discussing two bills that attempt to foster sustainable urban development, both by reducing uncertainty and rationalizing the building permit allocation process. The new rental subsidy considers some adjustments to level the playing field between tenants and landlords' rights.
Further reduce tax distortions in favour of housing by either increasing real state tax rates or phasing out mortgage interest deductibility. Tax rental income in the same way as investment in other assets, and make all houses subject to inheritance tax.	In January 2013, the fiscal valuation of commercial real estate was increased. In January 2014, the fiscal valuation of residential real estate will also be increased.
I. Competition and innovation	
Reform the bankruptcy law to encourage entrepreneurial risk taking in non-traditional sectors.	A bill presented to Congress in May 2012 would reduce this period up to 12 months in case of liquidation, and up to 4 months to agree the reorganization. The new bankruptcy law was approved by the Senate in June, and it is currently continuing the legislative process in the House of Representatives.
Strengthen the new competition law by linking maximum fines to firms' revenues, establishing legal certainty for participants in leniency programme and turning price fixing into a criminal offense.	A Commission of Experts in Competition appointed by the President of the Republic suggested in June 2012 linking the maximum fines to firms' revenues. The recommendation has not been translated into a bill yet. This Commission also made some suggestions to improve certainty for participants in leniency programme. A Commission of Experts in Competition appointed by the President reviewed the topic of criminalizing cartel conduct but did not reach a consensus on whether is necessary.
Improve product market competition by strengthening the anti-cartel law and the business environment with the Agenda for Competiveness.	The anti-cartel law enacted in 2009 has experienced a successful implementation, as shown by the increase in the number of FNE complaints on cartel cases, and by the amount of fines collected due to these infringements. The FNE reached a co-operation agreement with CORFO in order to enhance information exchange on competition issues.
Strengthen co-ordination among the municipalities, health, safety and other agencies to expedite business registration.	No action taken.
Extend credit support under FOSIS to unregistered businesses, conditional on the recipient enterprise taking the necessary steps to formalise.	FOSIS provides support to micro-enterprises via support programs and provision of microcredits to assist them in their business.
Enhance consumer protection to improve the functioning of product markets through increased price transparency.	The consumer protection agency (SERNAC) is currently working on periodical reviews to prevent misleading and deceptive advertisement on department stores, supermarkets and financial products. In October 2013 the "Price Information System" will be released, which is an inter-institutional project to compare prices of products and services.
Reduce entry barriers in retail and business services to discipline incumbent firms.	The Government through the Ministry of Economy is still incorporating enterprises to the Sello Pro Pyme (labelling of good payment practices). In January 2013 a new regulation was enacted that encourages more businesses to obtain the good payment label.

Past recommendations	Actions taken and current assessment
Reduce "red tape" for start-ups to both strengthen competition and the discovery of new entrepreneurial ideas.	In May 2013, a new law allowing the creation of a firm in one day entered into force.
In innovation policy, continue efforts to strengthen links between universities and firms and continue to move away from the narrow focus on R&D and support all forms of innovation in firms.	The government through CORFO launched in 2011 a new instrument called "Applied R&D". This program supports the commercialization of market opportunities through R&D.

Chapter 1

Making the labour market more inclusive

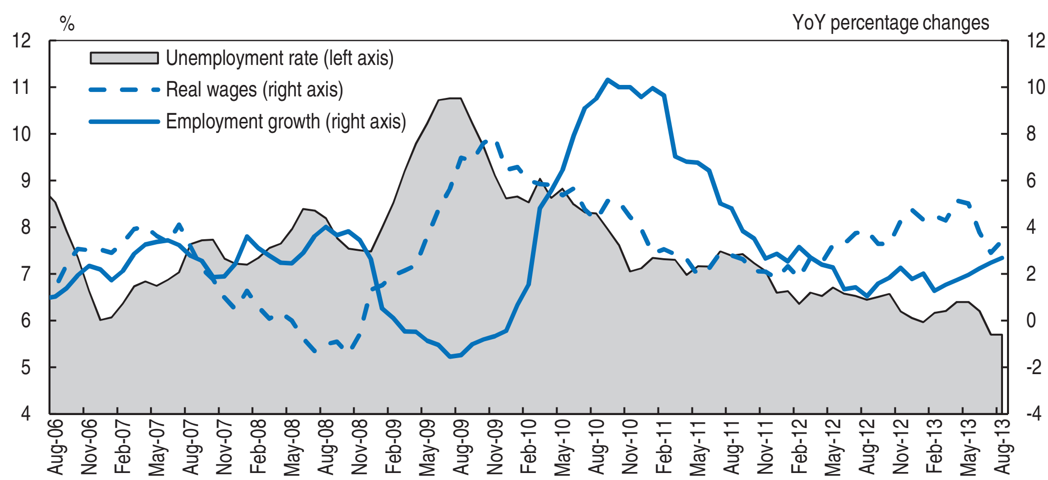
Economic growth and recent policy reforms have increased employment and reduced overall poverty. Women and young people have entered the labour force in greater numbers, but their participation rates remain low compared to most OECD and Latin American countries. Attitudes towards women's work and childcare commitments as well as regulations regarding childcare provision pose a barrier to female employment. Overall education quality and access to higher education have improved, but early stages of compulsory schooling remain the priority and poor linkages between education and job related skills often limit employment prospects. Among low-skilled workers, a high minimum wage and strict employment protection pose a barrier to employment, and the public employment services and training systems are still underdeveloped. Expanding childcare, promoting a more flexible labour market and strengthening education and skills policies, among others, would make the labour market more inclusive.

Overview of recent labour market developments and challenges

Recent labour market performance has been strong overall

Recent labour market performance has been very good. Chile is one of the few OECD countries where unemployment rates are now lower than at the start of the crisis (Figure 1.1). Moreover, unemployment rates have reached record low levels. Since late 2011, the unemployment rate has fluctuated around 6½ per cent, the lowest in the past 15 years. Accordingly, real wages have been rising, though their growth has recently been volatile (Figure 1.1).

Figure 1.1. **Labour market performance**



Note: The methodology was changed in January 2010 for the real wages and in April 2010 for the unemployment and employment rate. The change in the methodology for the employment and unemployment rate results in a break in the series which leads to the old and new series not being comparable.
Source: Instituto Nacional de Estadísticas (INE), Encuesta Nacional de Empleo (ENE), Nueva Encuesta Nacional de Empleo (NENE).

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Job creation has also been strong. More than two million new jobs, accounting for 13% of total employment, have been created since 2000, half of which have been since 2010. Most of these are full-time (82%) and are in the formal sector, with a written contract and with employers making the contributions towards pensions, health care and unemployment insurance (Parro and Reyes, 2013).

A solid economic growth has boosted labour demand. There are other factors that could explain the employment recovery after financial crisis. Fiscal policy provided some support, as part of the 2009 fiscal stimulus was channelled through employment subsidies. When the unemployment rate rose above 10% during the global economic crisis, the government financed temporary emergency programmes. Young workers were a particular target group, with a subsidy for employers hiring workers aged 18 to 24 years (*Subsidio al*

Empleo Jóven). On top of that, the reconstruction temporarily boosted the demand for workers in labour-intensive industries, especially construction. The mining and agriculture sectors, though less intensive in jobs, have also taken advantage of high commodity prices to increase employment. At the same time, important policy reforms, such as extended early-childhood education and maternity leave and the new in-work benefit for low-income women (*Bono al Trabajo de la Mujer*), have aimed at fostering female labour participation.

Methodological changes to the Labour Force Survey are not the main explanation for the solid employment performance. In 2010, the National Institute of Statistics replaced the National Employment Survey (ENE) with the New National Employment Survey (NENE) to align Chile with OECD best practices in the measurement of employment, unemployment and inactivity. This change may have unintentionally upward biased employment figures. The old survey recorded as employed only those people who spent most of the week working, whereas the new survey does it for everybody earning a salary for at least one hour per week. The impact is hard to assess because the old and the new surveys did not overlap. Nonetheless, an employment and unemployment survey conducted by the University of Chile, which covers only Santiago and has not undergone any methodological changes, shows broadly similar positive developments to those shown by the NENE (Parro and Reyes, 2013).

Some groups are still at the margins of the labour market

Women often do not participate in the labour market. They are less likely to have paid work than men, are more frequently unemployed and, when employed, they work more often in the informal sector or in low-paid jobs. As well, access to jobs is difficult for young people. And weak public employment and training systems compound the difficulties for the low skilled to access better jobs and to improve their earnings. Thus supporting policies are needed to ensure that women, youth and low-skilled individuals, can develop their full potential in the labour market. Although including these groups in the labour market is a high priority, there may be other groups that deserve attention, such as older workers and immigrants.

By fostering labour-force participation among these groups, in particular women, policies can contribute to economic growth and higher welfare, in part by increasing labour supply despite population ageing (Figure 1.2). Back in 1990, Chile's fertility rate was 2.6 children per woman. By 2011, that figure had dropped to 1.9, matching Brazil as the lowest fertility rate in South America.

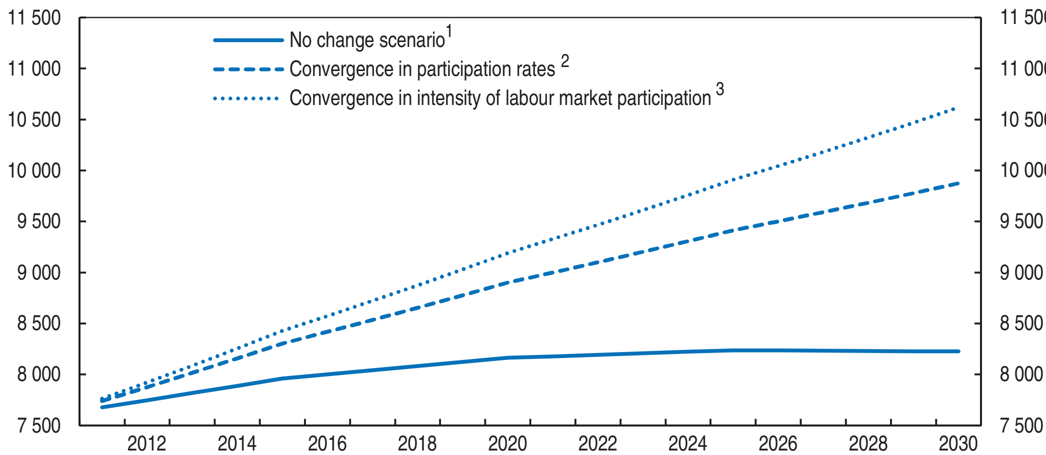
Greater labour-market inclusion of these marginal groups can also reduce poverty. Chile has made important progress in reducing poverty, as measured by anchored relative poverty (See Assessment and Recommendations), although it is still the most unequal country in the OECD (Figure 1.3). Policies that foster greater labour-market participation can help the most vulnerable to move up the wage ladder. These include labour-market policies, but most notably access to good quality education and skills policies, as discussed below.

Women

Female labour-force participation has increased significantly since the mid-1990s, and has been converging toward OECD levels at a faster pace than in other lagging OECD countries, though it remains very low. The situation is most acute for young women, whose

Figure 1.2. **Bringing more women into the labour force could help to sustain labour supply in Chile**

Projected number of persons aged 15-64 in the labour force (thousands)



1. Projected size of the labour force, assuming that the participation rates for men and women remain constant at the 2010 rates.
2. Projected size of the labour force, assuming that the participation rate for men remains constant at the 2010 rates, and the rate for women shows a gradual increase reaching the 2010 rate for men by 2030.
3. Projected size of the labour force, assuming that the participation rate for men remains constant at the 2010 rate, and the full-time time equivalent rate for women shows a gradual increase reaching the 2010 full-time equivalent rate for men by 2030.

Source: CELADE, Population division of ECLAC, 2012 Revision; OECD, *Closing the Gender Gap: Act Now*.

StatLink http://dx.doi.org/10.1787/888932923526

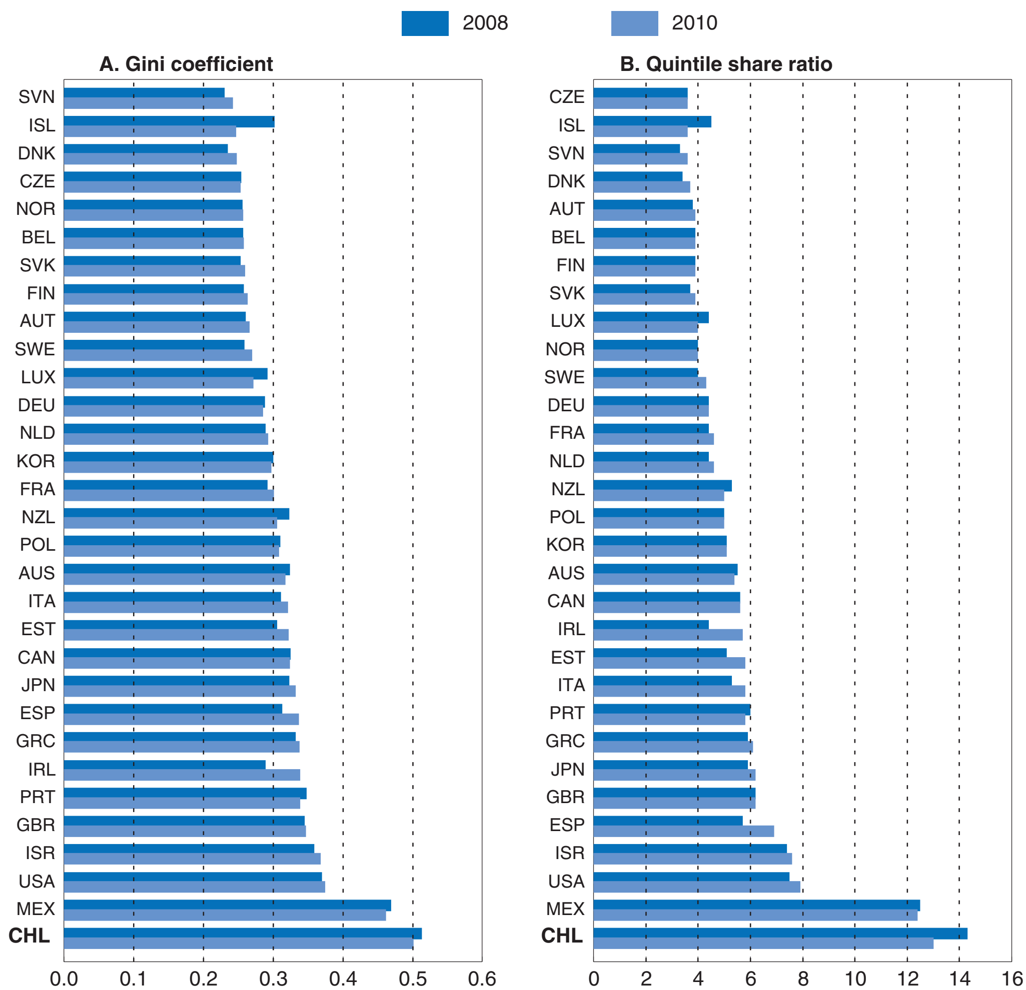
employment rates remain remarkably low by international standards and also as compared to young men in Chile (Figure 1.4). One reason is that Chilean mothers tend to have their first child at a lower age than in other countries, with a significant incidence of teenage pregnancies among those with relatively low education and low household incomes (OECD, 2009). But there are also gender gaps in employment rates for older women.

Female salary workers working full-time earn on average 16% less than their male counterparts in Chile (OECD, 2013a). OECD estimates show that in Chile job characteristics is the main contributor to this gap, although as with all countries there is a large "unexplained" component that may be due to discrimination (OECD, 2012b). Women tend to work in sectors where salaries are lower, as for instance domestic work, or the public sector and are also more likely to work part-time than men (Medina and Paredes, 2013).

Women are also over-represented in informal jobs. About 40% of women in the lowest income quintile do not have a contract, compared to 22% of men, according to household surveys (CASEN 2011). Informality leads to lower salaries and a greater risk of poverty, but can also lead to weak labour market attachment.

Informal jobs imply lower retirement benefits for women, who have incomplete contributory periods and thus cannot claim a full pension. When men retire, they receive a pension equivalent to 70% of their average salary during the last 10 years, while for women it is on average 51%, according to the *Superintendencia de Pensiones*. In addition, women's pensions are based on lower salaries than men's. Hence, women retire with lower pensions and, because they live several years longer than men, they are at a greater risk of poverty.

Figure 1.3. **Disposable income inequality has fallen but is still very high**[1]



1. Population aged 18-64. 2009 and 2011 for Chile, 2006 and 2009 for Japan and 2008 and 2009 for Ireland and New Zealand.

Source: *OECD Income Distribution Database.*

How to read this figure: The Gini coefficient is a measure of income inequality that ranges from 0 (income is shared equally) to 1 (one person has all the income). The quintile share ratio is the ratio of total income received by the 20% of the population with the highest income (top quintile) to that received by the 20% of the population with the lowest income (lowest quintile).

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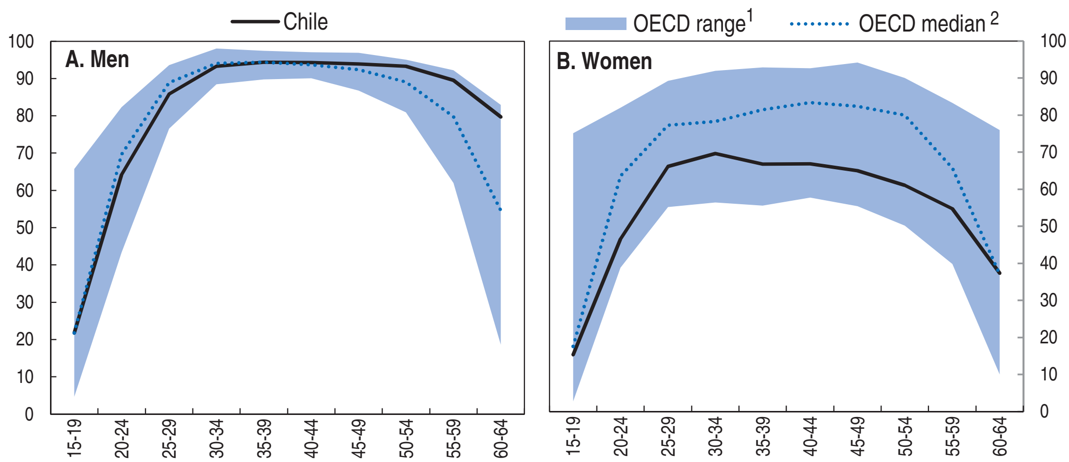
Youth

The fall in unemployment over the past three years has been broad based, benefiting men and women of all age groups. Youth unemployment was historically high in 2009, but has fallen since then thanks to the rapid economic recovery and fiscal measures targeted at the young. Youth unemployment now stands at its lowest level of the past 13 years, and male youth unemployment rates are below those in the average OECD country. But for young women there is still a significant gap compared to the average OECD country (Figure 1.5, Panel A).

Figure 1.4. **Labour force participation rates by age group and gender, 2012**

In percentage



1. Range between the highest and lowest participation rate for each age group among OECD countries, excluding Israel and Turkey.
2. Excluding Israel (no data available) and Turkey (outlier for the participation rate of women).

Source: OECD (2012), *Labour Force Statistics Database*.

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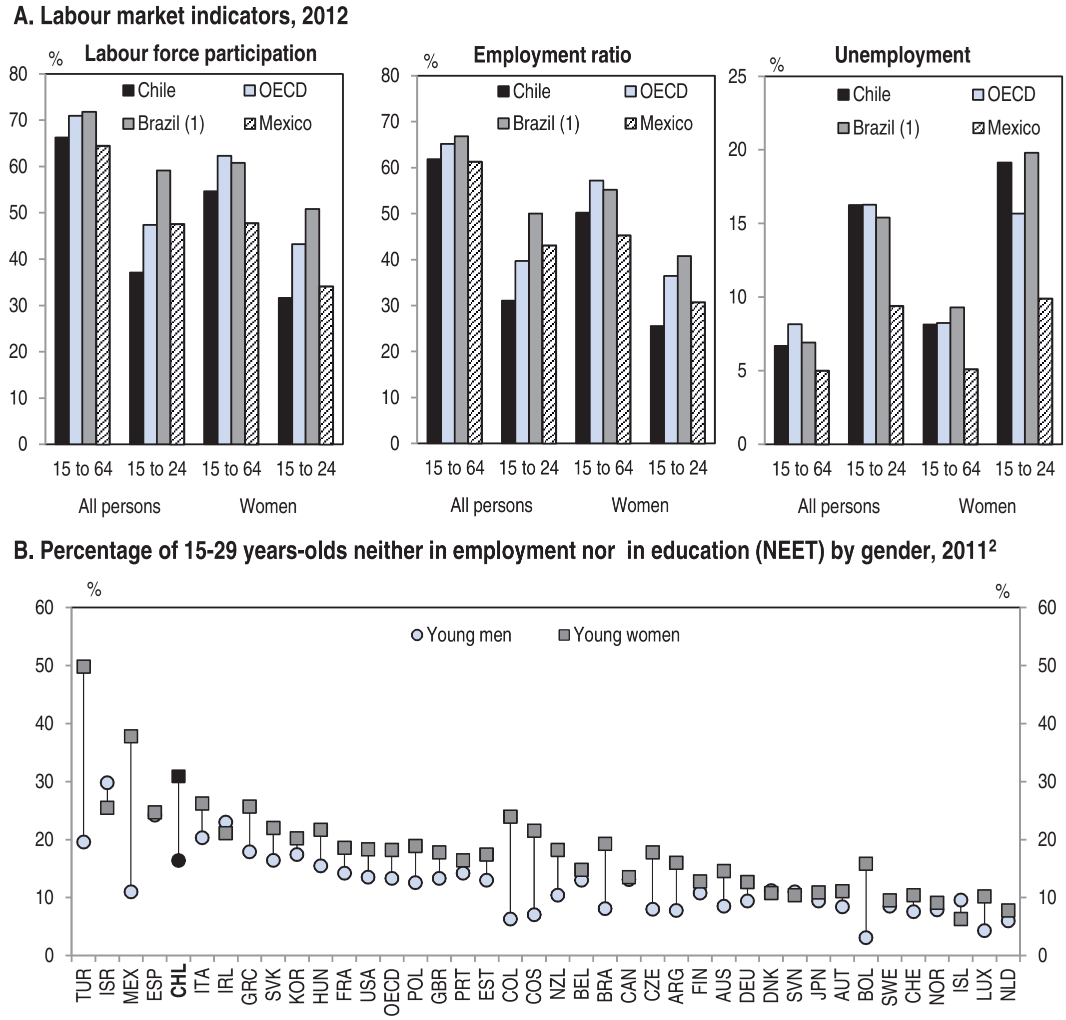
Another worrying feature is the high proportion of young Chileans aged 15-29 who are neither in education, employment or training (24%) – the so-called NEETs. The proportion of NEETs stands above the OECD average (16%) and above that of other countries in the region (Figure 1.5, Panel B). It has surprisingly remained stable over the past five years, despite the good economic environment, according to household surveys (CASEN, 2011).

Household data suggest that most of these young people come from the poorest households (CASEN, 2011). Many of them are women, who are almost three times more likely than young men to be NEETs, either because they do not have anyone to leave their children or elderly family with (33%) or because of housework (36%) (CASEN, 2011). This is a particularly important group to focus on as these individuals often face the greatest risk of economic and social exclusion. Available evidence from individual longitudinal data for the United States and Europe suggests that the NEET status can be very persistent, leading to a vicious circle whereby inactivity feeds into discouragement and that, in turn, to a further detachment from the labour market (Quintini and Manfredi, 2009).

The low skilled

While rapid growth and good labour market performance has benefited many Chileans the low-skilled still have relatively unenviable labour market outcomes. For instance, low skilled workers are much more likely to oscillate between the formal and the informal sector and between inactivity and unemployment than workers with higher skills (OECD, 2012a). Low skilled workers benefit also from lower social protection (e.g. unemployment benefits, sickness coverage, severance pay) than high skilled workers, as they are more likely to work informally (OECD, 2009; Scarpetta and Sonnet, 2012). Informal employment, although has receded during the past three years, remains significant in Chile. About 20% of all Chilean employees did not have a formal contract or did not contribute to social security in 2011 (CASEN, 2011).

Figure 1.5. **Young people and women in the labour market**



1. Data for Brazil refer to 2011.
2. Countries are ranked in descending order of the proportion of 15-29 year olds NEET in 2011. 2010 for Colombia and Costa Rica.

Source: OECD, *Labour Force Statistics Database*; *Education at a Glance*, 2013; SITEAL.

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Supporting greater female labour force participation

The participation of women in the labour market is held down by economic barriers because work often does not pay enough to compensate the cost of childcare. The government has thus recently introduced reforms to extend early childhood education and childcare, extend maternity leave and make work pay more with an in-work benefit for low-income women (*Bono al Trabajo de la Mujer*). OECD experience suggests that these reforms bring more women into the labour force (OECD, 2012b; OECD, 2013b).

Cultural barriers also discourage many Chilean women from engaging in paid work. One such cultural barrier is the attitude towards the balance between work and family commitments. Most women who are not in the labour force are engaged in housework and childcare and, when Chilean parents are asked, many think that mothers should stay at home and take care of their children rather than work (Medina and Paredes, 2013). While house work has tangible economic value (Miranda, 2011) it does not contribute to female career opportunities and expected lifetime earnings. OECD experience suggests that a well-designed package of family-friendly policies, including affordable high-quality childcare, paternal leaves, opportunities to work part-time and flexible workplace arrangements, can reduce these cultural barriers and facilitate a more balanced sharing of responsibilities (OECD, 2012b). The potential for Chile to develop or expand these policies is discussed in what follows along with other recent government initiatives to support greater female labour force participation. Table 1.1 summarises the main recommendations on labour market and training programmes outlined in the chapter.

Table 1.1. **Summary of labour market and training programmes and recommendations**

Programme	Nature of programme	Description	Eligibility	Participation	Recommendation
Bono al Trabajo de la Mujer	In-work benefit	In place since 2012 as part of the new cash transfer programme Ingreso Etico Familiar. The benefit can go up to about 34 000 pesos (67 USD) per month on top of the Ingreso Etico Familiar Transfer. It includes also a subsidy for the employer to encourage labour demand, which is half that given to the employee.	Women aged 25-59, belonging to the 30% poorest households	In 2012, 179 719 women received the benefit out of 409 531 applications.	Evaluate its outcome and expand according to the result of the evaluation. Target the benefit at women's wages only without considering their family income. Consider a higher benefit for women with young children.
Subsidio al Empleo Jóven	In-work benefit	In place since 2009. The benefit depends on monthly income and can go up to a maximum of 30% of gross monthly salary, two-thirds for the worker and one-third for the employer.	Young workers (dependent and independent) aged 18-25 belonging to the poorest 40% of the country's population and with an annual gross income below $4 428 000 (9 129 USD).	In 2012, 282 377 subsidies awarded.	Investigate the sources of low employer participation and improve the design to make it more effective in encouraging labour demand.
Formación en el puesto de trabajo (Aprendices)	Training	Apprenticeship programme lasting twelve months and combining on the work-training with classroom-based training, where the apprentice receives half the minimum wage and the company receives a training voucher as to encourage additional training on the side of the employer.	Young workers aged 15-24	In 2012, 5 623 youth benefited from the programme.	Evaluate its effectiveness and consider expanding the programme to cover more youth according to the result of the evaluation.
Formación para el Trabajo (ex Formación en Oficios)	Training	Training programmes to give beneficiaries basic skills necessary for job readiness (numeracy, basic computer courses, etc.). It may also include internships. The Ministry of Labour is running an impact evaluation with a control and treatment group.	Men and women aged 18-65	To date, 13 593.	Strengthen work-based training components to increase effectiveness.

Table 1.1. **Summary of labour market and training programmes and recommendations** *(cont.)*

Programme	Nature of programme	Description	Eligibility	Participation	Recommendation
Formación para el Trabajo Sectorial	Training	In place since 2013, training programmes based on industry needs. The curricula have been designed by SENCE in co-operation with the industrial sectors.	Men and women aged 18-65. Some industries, as mining, may have different requirements (health, age, technical skills).	To date, 2 895.	Evaluate its effectiveness and consider expanding the programme to cover more youth and/or more sectors according to the result of the evaluation.
Práctica profesional en educación media técnica profesional	Vocational education (post-secondary)	Mandatory traineeship to receive the post-secondary VET degree.	Post-secondary VET students.	60% of VET students (MINEDUC, 2010).	Integrate workplace training into the body of upper secondary vocational programmes, rather than as a separate part, as it is today.
Student contract	Student contract	The government has sent a draft bill to congress that gives students aged 18 to 25 years old more flexible rules for working by establishing a contract through which the working day can be interrupted several times every day.	Students aged 18 to 25 years old.	Not yet implemented.	Evaluate its effectiveness and monitor that these jobs become a stepping stone for youth towards the labour market rather than a dead end.
Franquicia Tributaria	Training	Tax credit for firms sending their workers to training.	All workers.	In 2012, 1 660 071 workers benefited from the programme.	Improve training quality by setting up standards, establishing regular performance assessments and disseminating information about providers. Improve targeting by limiting training to low skilled workers. Consider second-chance education options for low-skilled adults.
Other programmes from the Fondo Nacional de Capacitación (e.g. Mujeres Jefas del Hogar, Bono al Trabajador Activo)	Training	Different training programmes for the most vulnerable taught by training institutions (OTEC).	Most vulnerable workers, including women, youth and low skilled workers.	Not available.	Improve training quality by setting up standards, establishing regular performance assessments and disseminating information about providers.

Making work pay for women

A key reason why many low-income women do not work is because their salaries would be so low that it simply does not pay for them to work. To encourage more of these women to take up paid work, the government introduced an in-work benefit (*Bono al Trabajo de la Mujer*) in 2012, as part of the new cash transfer programme, *Ingreso Etico Familiar*. It builds on the successful experience of the in-work benefit for youth (*Subsidio al Empleo Jóven*) (Centro de Microdatos, 2012), and targets women among the 30% poorest households aged 25-59. The benefit can go up to about 34000 pesos (67 USD) per month on top of the *Ingreso Etico Familiar* transfer. It also includes a subsidy for the employer to encourage labour demand, which is half that given to the employee. In 2012, about 180 000 women received the subsidy.

While the scheme has not been long enough in place to be thoroughly evaluated, OECD experience with in-work benefits and the Chilean experience with the youth subsidy

(Centro de Microdatos, 2012) suggest that such benefits can encourage labour supply, though they usually have only a small effect on employment. As such, in-work benefits should not be seen as alternatives to deeper labour market reform, better education and effective training. In addition, work incentives of women and their family could be further enhanced if the in-work benefit was targeted at women's wages only, without considering family income. The benefit is now targeted on the *Ficha de Protección Social* score of the household (75%), on the one hand, and on the annual household income (25%), on the other. Such targeting makes sense when women are lone parents or the only breadwinner in the household. But OECD experience with these instruments suggests that targeting the subsidy on household earnings can have a negative effect on second earners incentives' to work (Immervol and Pearson, 2009).

There are other barriers that might limit the effectiveness of the in-work benefit for women with children, whose labour force participation is typically lower. The programme *Chile Crece Contigo* provides free access to childcare for kids belonging to the 60% poorest households, but sometimes high transport costs, opening hours not compatible with working hours, or simply a cultural preference for maternal care over formal care means that some mothers do not wish to make use of this service. One solution put forward by Huneeus and Repetto (2013) is that the subsidy could be higher for women with young children so as to recognise these additional costs, as is the case in the United States with the earned income tax credit.

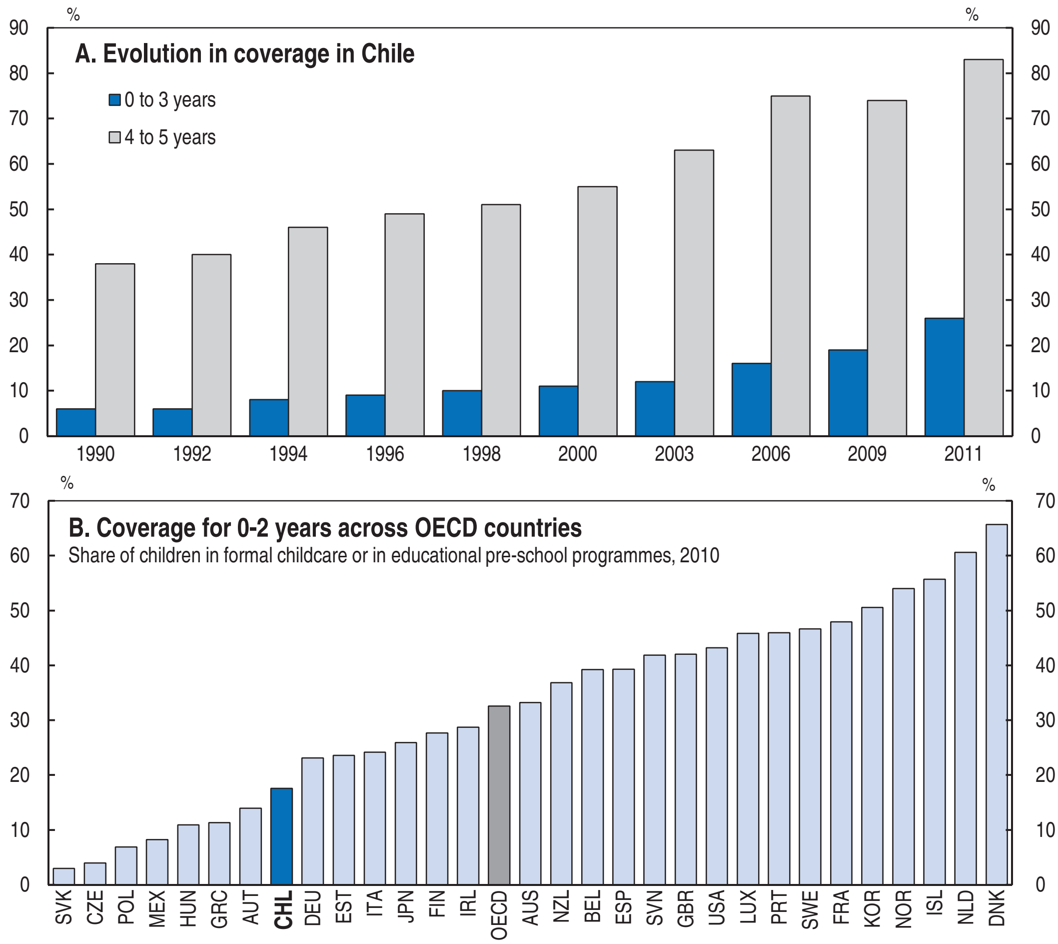
Early childhood education and care

OECD evidence suggests that the availability of affordable, high-quality childcare is a key factor explaining cross-country differences in women's labour market participation (OECD, 2012b). In Sweden, for example, the expansion of child care services during the 1970s is thought to have helped increase women's employment rates from 60% to over 80% (OECD, 2012c). Facilitating access to good quality child care is important not only to encourage greater female labour supply, but also because international experience suggests that access to early childhood education can improve school outcomes later in life for disadvantaged children and mitigate social inequalities (e.g. Contreras et al., 2008, Ruhm and Waldfogel, 2011).

Besides, the availability of good and affordable childcare can increase the participation not only of mothers, but also of other household members who take care of children, like the elderly. For instance, earlier (Contreras et al., 2008) and new OECD analysis (Box 1.1) finds that the presence of older household members increased the probability of the mother entering the labour market, as did the presence of a young woman in the household. This suggests that other household members contribute to childcare and caution should be taken so that childcare does not impede the employment and career opportunities of other household members, in particular young women.

Since 1990 Chile has seen remarkable progress in increasing enrolments in early childhood education and care. Enrolment rates for children aged 4-5 (*pre-kinder*) have more than doubled, from 38% to 83% (Figure 1.6, Panel A) and the government seeks to achieve universal coverage for children in the three lowest income deciles by 2014. There has been much progress also in enrolment for children aged 5-6 (*kinder*), with 90% enrolled. A bill is before Congress for a constitutional reform that will make their enrolment compulsory. Advancing towards the universal coverage of early childhood education for children aged 4-6 is an important goal that seems feasible and should be pursued. Investing in good

Figure 1.6. **Coverage of early childhood education and care**



Source: CASEN (2011) and *OECD Family Database*.

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quality education since the earliest years is the most effective way of reducing inequalities later in life because ability gaps open up in the first stages of life (Heckman, 2008).

Enrolment rates for children aged 3 years old or less, despite having quadrupled since 1990, are still low, with only 18% of children aged 0-2 attending childcare, far below the OECD average of 33% (Figure 1.6, Panel B). A bill is before Congress to make universal and free access to education for children from 3 years old. OECD evidence suggests that the availability of affordable, high quality childcare is an important factor influencing female labour force participation, and it is during children's early years that it matters most, as the longer that mothers stay out of the labour force to take care of their children, the more difficult it is for them to get back to work (OECD, 2012b; Thévenon, 2013). International evidence suggests that access to childcare from a young age is also a good investment to improve cognitive outcomes of disadvantaged children, especially if education is sustained through mandatory schooling, and can mitigate social inequalities (e.g. Ruhm and Waldfogel, 2011).

Companies employing 20 or more women have to cover childcare costs for employees' children during the child's first two years. This regulation can encourage greater female labour supply; but it also increases the cost of hiring women relative to men and represents a barrier to employment.

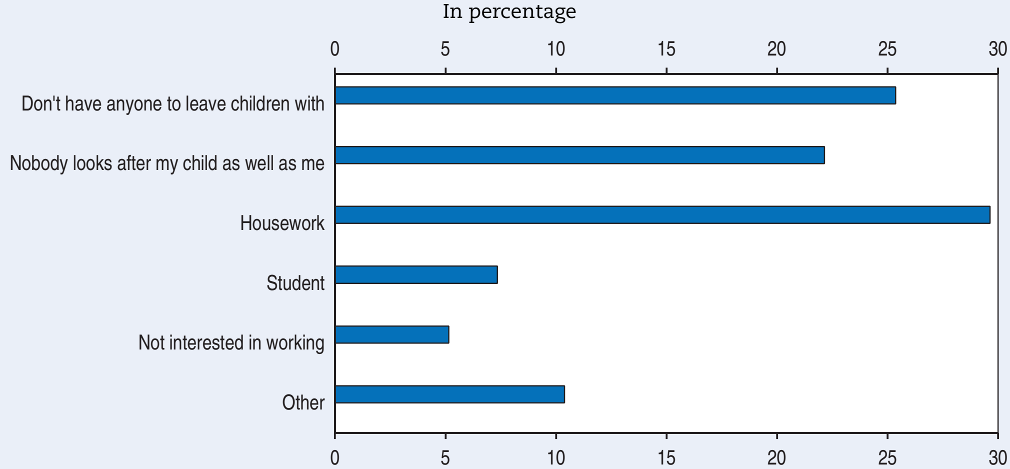
The government has sent a bill to amend this regulation, as recommended in the 2012 *Survey* (Brandt, 2012), which is welcome. The bill plans to give access to childcare to children up to 3 years old of all working mothers regardless of firm size. The new system will be financed with a planned reduction in unemployment benefit contributions to the individual accounts by the employer. Such a system would expand access to childcare to more children and encourage greater female participation for those mothers for who childcare is a barrier to work, which is welcome. New survey data suggests that many inactive women would work if they had someone with whom to leave their children and new empirical evidence shows that having childcare establishments close to home increases the probability that the mother participates in the labour market (Box 1.1).

Box 1.1. **Insights from Chile's ELPI Survey**

Under the auspices of the Ministry of Labour, the Centro de Microdatos at the Universidad de Chile has developed the Encuesta Longitudinal de Primera Infancia (ELPI) survey to enable analysis that will inform public policy relating to young children and their primary caregivers. The survey is nationally representative and respondents are chosen based on their child being selected. The first round was conducted in 2010 and the second one in 2012. These data shed new light on the reasons why mothers are not in the labour force in Chile. Access to childcare and housework are important constraints (Figure 1.7) and many non-working mothers would work if they could find somebody to leave their children with.

Figure 1.7. **Reasons for not being in the labour force among surveyed mothers**

In percentage



Source: OECD analysis based on 2012 ELPI data.

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Econometric analysis of the determinants of the labour supply of mothers based on the 2012 ELPI data (Table 1.2), finds that the probability of a mother participating in the labour force increases with age, education, being head of the household and the presence of older or younger women in the household. Having childcare establishments close to home increases the probability of participating in the labour market emphasising the importance of childcare for female labour participation. Mothers who are more favourable towards gender equality are also more likely to be in the labour force. This indicates that cultural perceptions of gender

Box 1.1. **Insights from Chile's ELPI Survey** *(cont.)*

roles play a role in Chile's labour market, as has been suggested by Contreras and Plaza (2010). On the other hand, having children younger than 13 in the household lowers the probability of participating, but mothers with children under 2 years are the least likely to participate in the labour market. The income of other household members is not significant in determining the mother's labour market participation, but mothers in a relationship have a lower probability of participation. Living in a rural area lowers the probability of being in the labour market. Mothers who gave birth to their eldest child before the age of 20 are less likely to be in the labour market. This persistent effect highlights the importance of educating teenage girls about relationships, the benefits of studying and finding a job.

Table 1.2. **Estimates of the determinants of mothers' labour force participation in Chile**

Variable	Probit ELPI 2012
Age	0.0781***
	(0.00720)
Age squared	-0.00113***
	(0.000107)
Teenager at birth of oldest child (binary)	-0.0266**
	(0.0125)
Secondary education (binary)	0.161***
	(0.0137)
University education (binary)	0.398***
	(0.0160)
Student (binary)	-0.192***
	(0.0186)
Income of other household members (100 000 CLP)	-0.00162
	(0.00123)
Household head (binary)	0.170***
	(0.0138)
In couple (binary)	-0.130***
	(0.0131)
Rural (binary)	-0.0875***
	(0.0162)
Children 0-2 years in hh (binary)	-0.0764***
	(0.0118)
Children 3-5 years in hh (binary)	-0.0378***
	(0.0126)
Children 6-13 years in hh (binary)	-0.0530***
	(0.0110)
Required educational establishments near to home (binary)	0.129***
	(0.0103)
Young women 18-24 years in hh (binary)	0.0353**
	(0.0142)
Women 45-60 years in hh (binary)	0.0496***
	(0.0135)
Women over 60 in hh (binary)	0.0481***
	(0.0167)
Index of gender equality perception	0.0939***
	(0.00376)
Observations	15,713

Note: Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Marginal effects shown evaluated at mean of each variable. For binary variables marginal effect is for a discrete change in the variable from 0 to 1.
Source: OECD estimates based on ELPI (2012) data.

Still, it may not be enough to increase the number of childcare places. Take-up of such programmes also needs to rise. More than 90% of families that do not send their children to formal childcare say they find it unnecessary because they can be taken care at home (CASEN, 2011). This may be related to a preference for maternal care or lack of trust on formal childcare, but it may also be due to information barriers. About 24% of mothers qualifying for free access to childcare for their children through the well regarded programme *Chile Crece Contigo* had never heard of it, according to the 2012 ELPI survey. The government should keep publicising childcare options, thereby effectively expanding parental choice. It will also be important to ensure that quality does not deteriorate as the system expands fast to accommodate new demand. A recent bill plans to improve standards for early childhood education centers.

The government could also strengthen trust in formal childcare to promote greater take-up. International evidence shows that other factors – such as parental education, participation in formal childcare and the quality of interaction between parents and children – have greater influence on a child's early development than maternal employment per se (Brooks-Gunn et al., 2010; Huerta et al., 2011). Furthermore, existing evidence suggests that there are benefits of attending formal childcare for disadvantaged children also for younger children, but of course the quality of childcare services is crucial in this respect (e.g. Melhuish, 2004).

Parental leaves

The government extended in 2012 state-funded maternity leave after birth from 12 to 24 weeks, several weeks beyond the OECD average, which is welcome. Existing studies suggest that relatively short periods of leave (below one year) can increase job continuity (Baker and Milligan, 2008) and mitigate the negative effect of leave on women's wages by shortening the return time to work (Berger and Waldfogel, 2004; Thévenon and Solaz, 2012).

As of 2012, mothers can also share leave with fathers, for 6 weeks or 12 weeks if the parents take the leave on a part-time basis. Even though only 0.6% of eligible fathers have asked for leave, the initiative is a welcomed first step. The government should promote greater take-up among fathers though. Fathers' greater involvement in childcare has beneficial effects on their children's cognitive and behavioural development (Baxter and Smart, 2011; Huerta et al., 2011 and 2013). It can also help to reduce the time mothers dedicate to childcare and contribute to breaking what seems to be a vicious cycle: the more leave and/or reduced working hours women take to take care of their children compared with men, the more difficult it is for them to advance in their careers. OECD experience suggests that greater take up of paternity leave can be encouraged by implementing "take-it or lose it" non-transferable leave following births for fathers in addition to maternity leave (OECD, 2012b). Evidence from Norway suggests that such a policy can substantially increase take-up among fathers. Some fathers even choose to take extended leave to raise their children, which can be a first step to greater shared family responsibilities.

Flexible work arrangements

Opportunities to work part time and in flexible workplace arrangements are also part of a well-designed package of family-friendly policies. Part-time work is possible and common in Chile, and most part-time jobs are taken up by women. However, it is important to facilitate a smooth transition between part-time work and full time work for those that want to work more hours to minimise the possible negative consequences of part-time work. In some cases part-time jobs can marginalise women in the labour market, especially if they are characterised by poor wages, short tenure and low training (OECD, 2009). These factors can reduce women's prospects of promotion or put them at higher risk of dropping out the labour force.

OECD experience shows that the combination of more flexible working hours with the provision of affordable childcare and longer hours of care and out-of-school care services can facilitate the increase in working hours among mothers (OECD, 2011a). In this respect, families would benefit from a more flexible approach to working hours, which are very strict in Chile. A bill is before Congress since 2010 to promote teleworking. It should be adopted. While this may not be a solution for all families, it may help some to manage childcare and other family commitments alongside work and thereby facilitate the labour force participation of some women.

Helping the young transition from study to work

Youth labour-market participation is lower than in other OECD and Latin American countries, largely reflecting poor basic skills and difficulties in going smoothly from study to work. In particular, relatively low PISA scores in reading, math and science suggest that many students leave compulsory education with a poor command of basic skills that feeds into poor workplace learning capacity. At the same time the high share of NEETs (Figure 1.5, Panel B) suggests that many young people have problems going from study to work, in part because of poor linkages between education and skills needed at work, as well as undeveloped networks.

General education

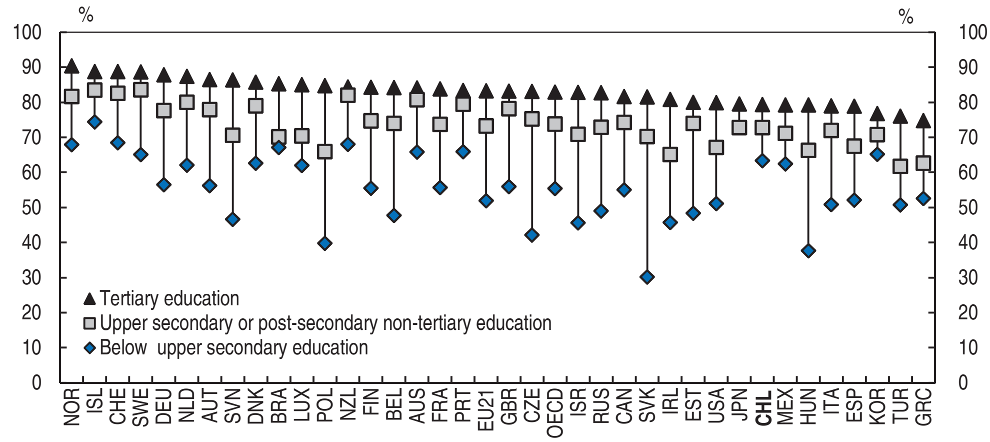
Improving the quality of compulsory education and facilitating access to good education for the most vulnerable groups will be important to improve youth employability. Education increases the chances of being employed and earning higher wages in the labor market. Individuals with tertiary education are more likely to be employed than those with an upper secondary education who in turn have a greater chance of being employed than those without an upper secondary education (Figure 1.8).

Chile has made impressive progress in educational attainment. The proportion of the population that has attained at least upper secondary education grew from 56% for the generation aged 55-64 in 2011 to 88% for the generation aged 25-34 in the same year. Lower secondary education is now virtually universal and enrolment rates for 15 to 19 year olds grew from 64% in 1995 to 76% in 2011 (OECD, 2011b).

It has also managed to significantly improve the quality of its education. Student learning outcomes in Chile, as measured by PISA, while still considerably below the OECD average, have remarkably improved over the past decade. For instance, Chile has the largest improvement between 2000 and 2009 in reading (OECD, 2010a). Yet, Chilean students' results in reading, mathematics and science were among the lowest in the OECD area (OECD, 2010a). Moreover, the impact of socio-economic background on learning outcomes is well above the OECD average, although this indicator has also improved significantly between 2000 and 2009.

In reaction to the inequities in access to the early stages of education, which are at the origin of ability gaps at later stages (OECD, 2010a), the government has increased the

Figure 1.8. **Percentage of 25-64 year-olds in employment, by educational attainment level (2011)**



Source: OECD, *Education at a Glance* (2013), Table A5.3b.

StatLink http://dx.doi.org/10.1787/888932923678

coverage of preschool education, made attendance to kindergarten free and compulsory, and provided additional funding for the schooling of socio-economically disadvantaged students. In addition, reforms seek to attract better prepared individuals to the teaching profession by granting scholarships to top students and giving bonuses to teachers and principals with excellent evaluations (OECD, 2013c). A draft law is in Congress proposing major changes in the organisation of the teaching profession including the introduction of a certification process to access the different levels of the teaching career (Santiago et al., 2013). The hiring of principals in public schools has also been professionalised and principals now have more liberty to select their management team and to dismiss teachers with bad evaluations. A new Quality of Education Agency (*Agencia de Calidad de la Educación*) has been set-up in 2013 to evaluate the quality of learning provided by Chilean schools, including the evaluation of teachers, school principals and school providers. A complementary institution, the Education Superintendence (*Superintendencia de Educación*), will audit the use of public resources by school providers, supervise the compliance of school providers with standards, investigate complaints against schools and apply pertinent penalties. As recommended in the 2010 *Economic Survey*, better initial training of teachers, including tighter controls on the institutions providing the training, and better selection and evaluation of teachers, should also be a priority (Brandt, 2010; OECD, 2010b; Santiago et al., 2013). Indeed, evidence suggests that teacher quality has one of the most significant effects on educational achievement (OECD, 2011c). All of these reforms are expected to have a positive impact on the quality and equity of the education system, though they could have a sizable impact on public spending, and should remain funding priorities, especially in the early stages of education.

As recommended in past *OECD Surveys,* the government has also taken a number of steps to improve access and quality of tertiary education. In 2011, the government created a new agency responsible for quality assurance and enforcement of laws in higher education (*Superintendencia de Educación Superior*) (Annex A.1).The government has also broadened scholarships and credits for low-income students attending tertiary education. The number of scholarships for the most vulnerable 60% of the population has doubled, benefitting 220 000 students in 2012. Interests on the guaranteed student loan (*Crédito con Aval del Estado*), which benefits mostly poorer students, including vocational training ones, were reduced from an annual 6% to 2% in 2012. This lowers by 40% the monthly payments students need to make after they graduate from higher education, according to government figures. Congress has passed a bill that makes repayments to the guaranteed student loan (*Crédito con Aval del Estado*) income-contingent. Introducing income-contingent loans was recommended in the 2012 *Economic Survey*, and is welcome as it will improve access to tertiary education for low-income students. These measures will facilitate access to higher-education of vulnerable students, without the regressivity that would be implied by making higher education free for all.

Vocational education

Investing in vocational education and training (VET) can yield economic returns, and countries with strong VET systems, like Germany or Australia, have been relatively successful at tackling youth unemployment (OECD, 2012c). This may be due to the fact that vocational education gives students skills that are immediately needed in the labour market. In Chile, however, vocational education is underdeveloped. While many students enrol in upper vocational education (around 40% of all students), the share of spending on vocational education is low compared with most OECD countries (OECD, 2009).

Curricula are outdated and the government has recently announced plans to update them and adapt them to the needs of the industry, which is welcome. The mechanisms to assure quality are often weak (MINEDUC, 2010). Poor quality assurance is particularly a problem in post-secondary education, where there is no mechanism to ensure basic standards on training or ex-post quality assessments. For tertiary vocational education, the same quality assurance framework as in university education applies, yet many institutions are not accredited, which suggests more needs to be done to enforce standards. Improving quality is the more important given the relatively poor educational background of students attending VET, and the poor qualification of teachers and trainers relative to the general education track (MINEDUC, 2010). Strengthening quality standards, attracting well-qualified teachers and trainers to vocational education and updating curricula could help to improve quality. Involving employers more closely in curricula design and strengthening the links between individual schools and employers could also be a way to ensure vocational education responds adequately to labour market needs.

It will also be important to reduce barriers to access and to moving within the VET system, and between different levels of the educational system. Scholarships (e.g. *Beca Nuevo Milenio*) and credits (*Crédito con Aval del Estado*) are available for tertiary vocational education, but they are small and few compared to those available for university education (MINEDUC, 2010). They may therefore need to be expanded. Once they are inside the VET system it is hard for students to move from upper secondary to tertiary VET education, as curricula and institutions are poorly interlinked. Renewed government efforts to develop a standardised qualification framework, discussed below, are a welcome attempt to improve mobility within the VET system and to develop pathways to university education.

Stronger emphasis on on-the-job training would also improve the skills and labour market prospects of VET graduates. As noted in an OECD review of Chile's vocational education (Kis and Field, 2009) workplace training, as part of VET programmes, is poorly developed and the mechanisms to assure its quality are weak. Furthermore, another assessment suggest that as many as 40% of upper secondary VET students do not do the mandatory traineeship to receive their degree (MINEDUC, 2010). In tertiary education, some institutions include practical workplace training in their programmes while others do not. The OECD review of vocational training recommended that one option to encourage more students to acquire job experience would be to integrate the workplace training element into the body of upper secondary vocational programmes, rather than a separate part, as it is today. This recommendation is still valid.

Strengthening co-operation and establishing effective partnerships with the private sector, as is planned, could also help to improve workplace training in vocational education. Other OECD countries' experience provides useful guidance on how to best achieve this objective. Experience from Austria, Australia, Germany and the United Kingdom suggests employers can be best engaged if there are broader institutional frameworks for them to participate in the design and provision of VET policy (Field et al., 2009; Kis and Field, 2009). These can be at the national level (as the UK Commission for Employment and Skills) or at the sectoral one (as the Australian Industry Skills Councils). Plans are in place to create "sector specific skills councils" to oversee the quality of publicly funded training and to identify sector specific skill needs, as described below. The role of these councils could be expanded beyond public training to cover VET. These councils could not only help to ensure there is a tight link between vocational education and the skills needed in the labour market, but also help to develop a stronger focus on workplace training in vocational education through the expansion of apprenticeships or internships.

Youth training and apprenticeships

Active labour market programmes, such as apprenticeships and training programmes, can also improve youth labour market outcomes, in particular for disadvantaged youth (OECD, 2010c; OECD, 2008). Chile has an apprentice programme targeted at workers aged 15-24 (*Formación en el Puesto de Trabajo, Aprendices*), as part of its public training programmes. The programme lasts twelve months and combines on the work-training with classroom-based training, where the apprentice receives half the minimum wage and the employer receives a training voucher to encourage it to provide additional training. The programme is now being evaluated; if successful it should be expanded to cover more youth.

Chile also has other training programmes (e.g. *Formación para el Trabajo*) which are designed to give youth basic skills necessary for job readiness (numeracy, basic computer courses etc) and which may also include internships. Given the large number of such programmes, it may be worthwhile to evaluate their effectiveness and eliminate those that do not work well and generate savings to expand those that do work well. Finally, evidence from other Latin American countries suggests that classroom-based courses do not have much impact, but that internship components generally do (OECD, 2013d). This suggests that the work-based training components should be strengthened, as was recently done with the programme *Formación para el Trabajo Sectorial* that focuses on transversal and technical skills and includes scholarships

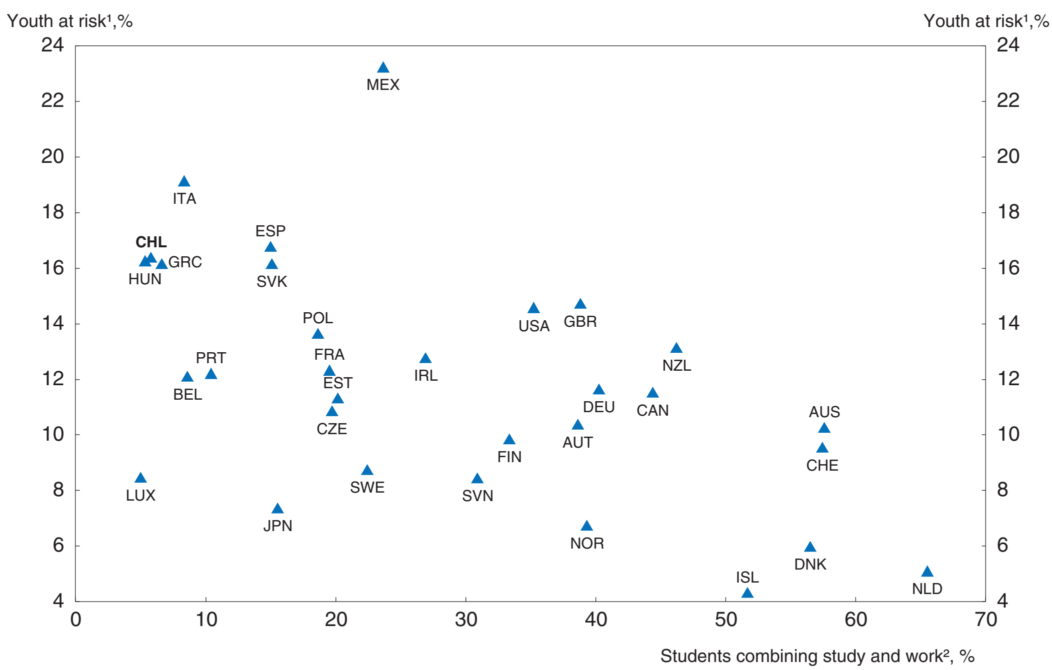
While these training programmes can help to improve the labour market outcomes of disadvantaged youth, OECD experience suggests that positive results are difficult to sustain (OECD, 2009). If more large-scale training schemes are found necessary to improve the skills of youth, the objectives are more likely to be achieved by improving the quality of the education system and its connections with the needs of industries, as discussed above.

Working while studying

To the extent that working hours are not too long (no more than 15-20 hours a week) during the school year, combining study and work, including apprenticeships, can facilitate the school-to-work transition (Figure 1.9 and OECD, 2010c, Scarpetta and Sonett, 2010). Yet, according to household surveys, in Chile, the percentage of students aged 15-29 who combine study and work is extremely low (below 6% in 2009). A draft bill is before Congress that gives students aged 18 to 25 years old more flexible rules for working by establishing a contract through which the working day can be interrupted several times every day. This is welcome.

Figure 1.9. **Combining study and work can be an effective pathway to enter the labour market**

Age 15-29, 2008



1. Youth who are not in education and are either unemployed or out of the labour force, in per cent of the population of the age group. For Chile, youth who are neither in education nor employed (2009).
2. Youth who are in education and are either employed or following in-work study programmes (including those on apprenticeships), in per cent of the age group in education. For Chile, youth who are studying and employed (2009).

Source: OECD, *Education at a Glance 2010* and *Off to a Good Start? Jobs for Youth*; CASEN 2009.

StatLink http://dx.doi.org/10.1787/888932923697

Reducing demand side barriers for hiring youth

Youth also face demand-side barriers to employment. Since 2009, Chile has had an in-work benefit (*Subsidio al Empleo Jóven*) to increase youth employment. Employers receive one third of the benefit if they hire workers aged 18-25 whose family belongs to the 40% poorest in the country, so as to encourage labour demand and as a means to reduce the minimum wage. The rest tops up employees' salaries (Consejo Trabajo y Equidad, 2008). The subsidy can reach up to 30% of wage income for those workers with the lowest wages and is withdrawn gradually with rising wages, complementing wage incomes and encouraging more people to work.

A recent evaluation of the benefit by the Centro de Microdatos (2012) shows the subsidy has been successful in increasing youth employment by about 3 percentage points. The take-up is however very low among employers (about 4%), suggesting a relatively weak effectiveness in fostering labour demand. Possible reasons might include lack of information, incompatibilities with other subsidies or fear of labour inspections (Huneeus and Repetto, 2013). The government should investigate the sources of low employer participation and improve the design accordingly.

Chile has a high minimum wage of 67% of the median wage compared to an OECD average of 48% in 2011. While no evidence on the effect of the minimum wage on the employment of young workers exists for Chile, international evidence suggests that such a high minimum wage can dampen the demand for young workers or encourage informality (OECD, 2010c). This could be the case in Chile, where the minimum wage mainly affects the young and low-skilled workers (Castex, 2013). About 19% of those aged 18 to 24 and 31% of low-skilled workers receive the minimum wage (210 000 pesos or 412 USD in 2013), compared to an average of 4% of all workers (CASEN, 2011).

Out of 25 OECD countries which have a statutory minimum wage, 13 have a lower one for youth, set at approximately around 70% of the adult minimum wage (OECD, 2013c). Chile does too, but only for workers under 18 years old, and consideration should be given to extending it to cover more young workers. Expanding coverage also involves risks, as reduced minimum wages for youth can institutionalise the incidence of low-pay jobs and lead to segmented labour markets with youth struggling to move to better paid jobs. Another option would be to expand apprenticeship contracts for low-skilled youth (*Formación en el Puesto de Trabajo, Aprendices*) to more young workers. These contracts are low-cost for employers and as they come with a voucher for training they can yield a double dividend if training is of good quality.

Strict employment protection also represents a barrier for hiring in Chile. There is a large asymmetry between the protection against dismissal for workers with indefinite contracts compared to those on temporary contracts, making firms reluctant to convert temporary contracts into permanent ones and leading to high turnover among temporary workers. Such high turnover can result in high costs for the individual in terms of lost income, high uncertainty, and lower possibilities for training. This may hinder productivity by reducing the incentives of firms and temporary workers to invest in training (e.g. Dolado et al., 2012). It has also been argued that such asymmetry will reduce the conversion rate of fixed-term contracts into permanent ones, thereby transforming fixed-term contracts into a trap rather than a stepping stone into more stable jobs (Boeri, 2011).

In parallel to the planned expansion of unemployment benefits described below, Chile should lower severance pay for permanent workers considerably, as recommended in the 2012 *Economic Survey* and in *Going for Growth (OECD, 2013e)*. Youth are likely to be among the main beneficiaries. Evidence from Chile suggests that high protection of workers on permanent contracts is hurting the youth most, making their labour force participation and employment more difficult (Pagés and Montenegro, 2009).

The low skilled need help to improve their skills and find better jobs

Improved secondary and tertiary education attainment has already made many young Chileans better prepared for entering the labour market. But education and training policy must still reach out to numerous adults not eligible for higher education and who left education with poor skills, not least those working informally, where productivity tends to be lowest. While informality has a range of regulatory and structural causes, weak educational achievement is among the most important (Dougherty and Escobar, 2013). Good training and second-chance options for education can provide many of these workers a way out of low-skills poor-wage traps.

In-work training

Chile spends well above the OECD average on training, yet several assessments, including some commissioned by the government, have concluded that Chile's publicly funded training programmes are ineffective and poorly targeted at those who need it most (Larrañaga et al., 2011; OECD, 2012a, 2009). Around 75% of total public spending on training is allocated through tax credits to firms who send their workers on training with certified institutions (*Franquicia Tributaria para la Capacitación*). This programme benefits mostly large firms, which tend to already have highly educated workers (Castro and Viñaspre, 2011; Larrañaga et al., 2011). The programme has no measurable effect on salaries or employment in the long run, possibly because of the short duration of courses (Larrañaga et al., 2011). One fifth of total spending is targeted to the most vulnerable, including women, youth and low-skilled workers through the National Training Fund (*Fondo Nacional de Capacitación*, FONCAP). While some of these programmes have significant positive impacts on employment and wages (Larrañaga et al., 2011), they are uneven.

The national training and employment service (SENCE) is undertaking reforms of the training system (Box 1.2) to establish an expert panel to guide training policies, as well as sector specific skill councils involving employers and unions to oversee the quality of publicly funded training and to identify sector specific skill needs. The reform will also strengthen the SENCE's technical capacity and allow it to investigate and sanction training providers not fulfilling minimum standards. A Qualification Framework is also under way to develop, classify and recognise skills and competencies along a continuum of levels, which ensures a clear training pathway.

In addition, the set-up of a national certification system for vocational skills, which has been under way since 2008, under the *ChileValora* programme, has recently regained momentum with renewed efforts to develop a quality assurance framework for training, including the setting up of vocational standards, occupational profiles and curricula for training courses based on industry standards.

These efforts go in the right direction. OECD experience suggests that all these elements are needed to develop successful skill strategies (OECD, 2012d). First, close collaboration between the private sector, government and unions in defining training policies can help to strike a balance between short-term firm-specific skills and broader and transferable skills needed across multiple sectors. Second, involving unions is a good way to ensure that workers' interests are protected and their skills are effectively used to improve job quality and salaries. Finally, widely recognised vocational skill certifications can improve employability and productivity by incentivising training and certifying skills

Box 1.2. **Chile's plans to reform its public training system**

The national training and employment service (SENCE), which is in charge of training policies and administers training and job subsidy programmes, is working on a reform of the Training Act.

The reform aims at strengthening the role of the SENCE and ensuring better training policy design, implementation and evaluation. The main features of the reform are:

- Create an independent expert panel to evaluate the national training system. The members of the Expert Panel will be selected among well-renowned experts in the training and social policy fields.
- Set-up a new institutional framework to approve training packages, including the creation of Sector Skill Councils. These organisations will be in charge of identifying the occupational profiles that the industry will need in the short and medium-term, and proposing the relevant training packages. This will shift SENCE's expenditure from firm-specific training to more general skills, as demanded by companies and employees. The core functions of the Sector Skill Councils, which also include labour market intelligence reports in order to identify skill shortages throughout the industry, will be funded by the Ministry of Labour through performance-based agreements. Pilot projects have been set up in five sectors (mining, construction, forestry, agriculture and fisheries) to assess their feasibility.
- The new Training Act will improve the targeting of the tax-credit for training purposes (*Franquicia Tributaria para la Capacitación*) allowing only low-wage workers to benefit from it. Franquicia Tributaria will also become more flexible and market-oriented by introducing a price menu which will recognise different thresholds for this benefit according to real training costs, which differ among sectors and training methodologies.
- The reform will also improve the oversight of the processes and quality of the training national system. Fines and sanctions will substantially increase, and inspections will become more common. Simpler and faster cancellation procedures for those training providers charged with serious irregularities will be set-up. Moreover, regarding the quality of the system, a stricter accreditation system for training providers will be set-up based on performance in terms of salaries and employability of training programmes' students.

This will be complemented by further measures to strengthen SENCE's technical capacity, by the means of technical assistance financed and supported by the Inter-American Development Bank. The technical assistance aims at:

- Increasing the quality of the training national system, particularly in the areas of program design, monitoring and evaluation.
- Reviewing SENCE's programs to ensure sound beneficiaries' targeting, early diagnoses and co-ordination between public services. It will also review and improve the relevance of training courses by the means of increasing private sector involvement.
- Enhancing SENCE's management capacity by re-designing management procedures, reviewing the role and scope of SENCE's regional units (*Direcciones Regionales*), and improving database management with the implementation of business intelligence software and a data warehouse.

gained informally through experience in the workplace, as for instance on-the-job training provided by small and medium enterprises (SMEs) that is often not formalised.

To ensure good training quality establishing regular performance assessments and disseminating information about providers can help. For training to be effective it will be important to set up mechanisms to ensure that providers supply courses that are relevant for the labour market. One way to achieve this could be to include students' employability as one of the performance measures for training institutions. Collecting such information could also help to build a database about how demand for skills changes over time that can help to guide training policies and complement the labour market intelligence reports planned by reform.

Training needs to be focused more on those who need it most (OECD, 2012a), including individuals who leave education with very weak skills. The government plans to confine tax breaks on training spending to low-wage workers, which is welcome, as it can provide an incentive for employers to send their low-skilled employees to training. Beyond this, OECD experience suggests that second-chance options for education can also help. For instance, some OECD countries have developed successful strategies to reach low-skill adults by combining different modes and purposes of learning, often in non-school environments (OECD, 2012d). A good example is Australia, which provides second-chance programmes that focus on combining school-based learning with on-the-job training, in a dual apprenticeship system for adults (OECD, 2012e). The programmes are short and intensive, and lead to a qualification similar to the conventional apprenticeship system for youth.

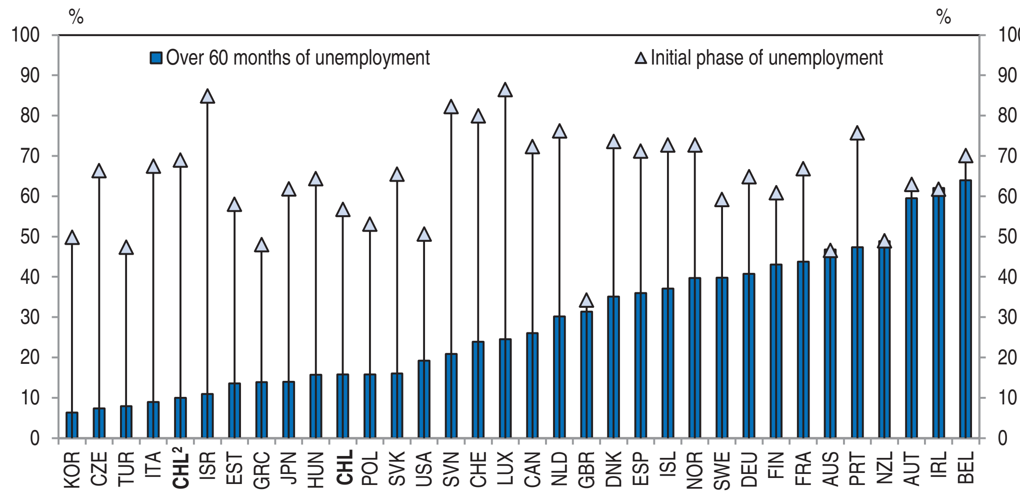
Skills strategies also need to be flexible enough to adapt to changing labour-market needs (OECD, 2012d). This can be achieved, for instance, through rapid-approval procedures for new training programmes and through systems that allow individuals to move easily between pathways, for example between vocational and academic tracks. An integrated government approach towards skills policies, covering training, vocational education and tertiary education can also help. This can be achieved by setting up a specialised agency co-ordinating national skill policies across several government areas to identify priorities, design strategies and support their implementation. It can also promote cost effectiveness by helping to determine how limited resources should be shared across different education and training needs.

Unemployment insurance

Strengthening unemployment insurance can better protect workers and improve economic efficiency (OECD 2012a, OECD 2013a). Unemployment insurance coverage has increased, but remains low for some groups. For instance, only half of all young workers are covered (ENCLA, 2011). Yet young people often need more help than others to find jobs, given their limited work experience and networks.

In the Chilean context, the 2012 *Economic Survey* recommended that reduced dismissal protection be accompanied by a more extensive unemployment benefit system, which is based on individual accounts with complements from an insurance fund (*Fondo Solidario*). Despite past reforms that extended access to benefits and prolonged benefit duration, funds accumulated in the individual savings accounts and the solidarity fund have kept growing providing an opportunity to increase benefits. The authorities have sent a bill to balance the fund by reducing contributions to the individual accounts by the employer by 1% and raising benefit initial replacement rates. As a result the replacement rates would increase from 57% to 70% (Figure 1.10).

Figure 1.10. **The effect of the proposed unemployment benefit reform on replacement rates (net of taxes), 2011**[1]



1. Unweighted averages (single and one-earner married couple with no children and lone parent and one earner married couple with two children) for earnings levels of 67% and 100% of average worker income, without social assistance.
2. Based on the proposed reform to the unemployment benefit system announced on 1 May 2013.

Source: OECD, *Tax Benefits Models*.

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Job search assistance

To capitalise on the higher unemployment benefits, job-search monitoring and assistance, which is currently weak, should be made more effective. One advantage of the Chilean unemployment savings account system is that it tends to promote active job search among its recipients, as the unemployed first draw from their own savings before accessing the publicly funded benefits. Nevertheless public employment services can play an important role in matching labour demand and supply through the provision of information, placement and active support services for the unemployed and getting inactive workers into employment.

In practice, however, only a small fraction of Chilean workers find employment through the public employment system and many find jobs through personal contacts and social networks (Schmidt-Hebbel et al., 2013). Most of Chile's local employment offices (*Oficinas Municipales de Intermediación Laboral*, OMILs) lack the administrative capacity to monitor search efforts, deliver appropriate job-search services, like basic job counselling and placement for the unemployed, let alone to help inactive workers. Those local offices that do perform well are located in relatively rich communes with high tax revenues, fewer hard to place clients or low unemployment.

Since 2006 a nationwide electronic platform (*Bolsa Nacional de Empleo*) brings together jobseekers and job vacancies, which can help some people find a job. According to official records, the annual flows of registered jobseekers and new vacancies are substantial compared with the size of the labour force. In 2012 there were 570 000 registered jobseekers (8% of the labour force) and 728 000 posted new vacancies. But the platform is not adequate for harder-to-place jobseekers, such as the long-term unemployed or first-time job seekers, who often need personalised employment counselling. Also as it is funded by the unemployment insurance system, only unemployed workers that are affiliated with the unemployed benefit system (about 60% of all workers) can use the electronic platform. The rest need to visit a local employment office.

Disadvantaged workers, such as women and older workers are likely to benefit the most from strengthened job assistance. They have a harder time finding jobs when unemployed and longer unemployment spells, with significant wage losses once they are reemployed and worse employment outcomes (Box 1.3).

Box 1.3. **Displaced workers needing help to get back to work**

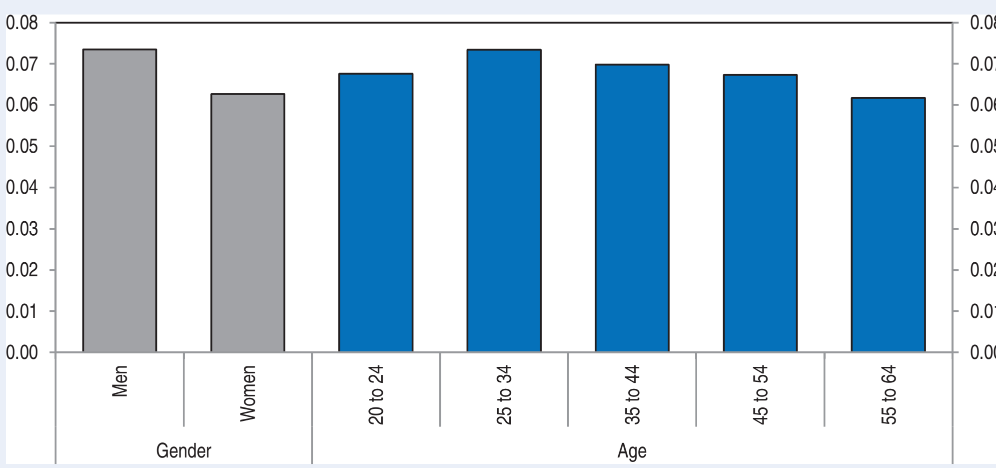
Information from Chile's unemployment benefit system sheds light on the characteristics of workers that need more help to get back to work. One way to identify them is by looking at workers who lose their job involuntarily due to economic reasons, such as firm closure, downsizing or structural change. Such "displaced workers" typically represent an important proportion of job flows and they are often at risk of being out of work for long time, leading to skill depreciation and wage losses (OECD, 2013a). OECD advice suggests that job search assistance and active labour market programmes should place a special emphasis on helping these workers so as to prevent large costs from job turnover.

The following findings emerge from the analysis (Granados, 2013):

- **What is the extent of such displacement?** Between 5% and 8% of all employees aged 20-64 years were displaced each year over 2004-2010. Displacement increased by a couple of percentage points during the 2008 and 2009 financial crisis, but reverted to average levels in 2010.
- **Who are the workers likely to be more affected?** Men have higher average displacement rates (7.3%) than women (6.3%) (Figure 1.11). The risk of displacement is on average slightly higher for younger workers (aged 20-44) than for older workers (aged 45-64).

Figure 1.11. **Displacement rates by workers' characteristics**

Average 2004-2010



Note: Rates calculated as the share of workers aged 20-64 who have lost their job for economic reasons during the past year, including needs of the firm, employer or alleged contract termination, relative to the total number of workers at the beginning of the reference period.
Source: OECD analysis based on Chile's unemployment insurance data.

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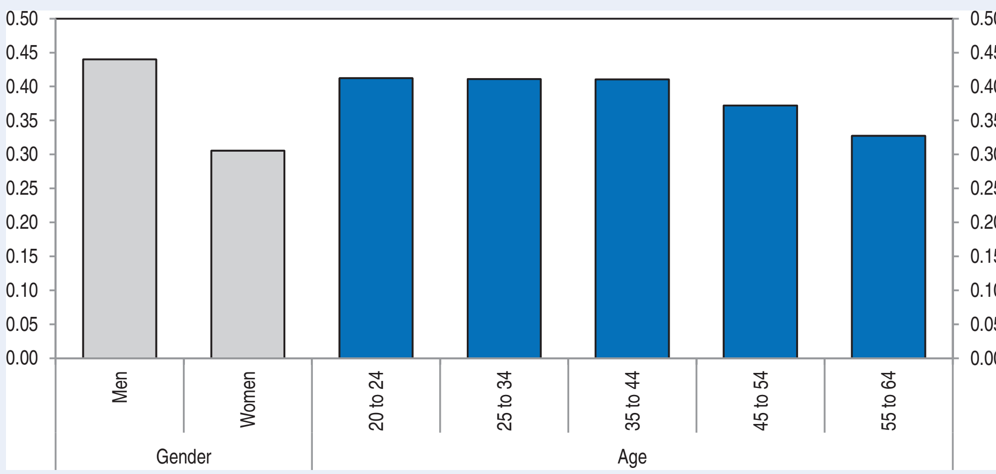
Box 1.3. **Displaced workers needing help to get back to work** *(cont.)*

- **What are the consequences of displacement for employment?** About half of these workers are re-employed within one year after they lost their job, and 60% within two years. Some workers have more trouble getting back into work than others (Figure 1.12). For instance, women are less likely to be re-employed than men within their first year out of work. Similarly, older workers (aged 55-64) are also less likely to be reemployed than young ones.

Figure 1.12. **Reemployment rates within a year after displacement by workers' characteristics**

Average 2004-2010



Note: Share of displaced workers reemployed within one year after losing their jobs.
Source: OECD analysis based on Chile's unemployment insurance data.

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- **What are the consequences for wages?** Among those that found a job within a year after they lost their previous job, (real monthly) wages tend to be lower in the new job by 8%. One possible reason for such wage losses is that the skills used and developed in their previous job are lost, either because they depreciated while out of work or because they were specific to the previous job and cannot be re-used in the new one. Another reason is that firms tend to lay off their worse workers. The unemployed are also often stigmatised.
- **What are the consequences for job quality?** New jobs tend to be often temporary rather than indefinite contracts.

Since 2009, additional funding has been directed to local offices (*Programa de Fortalecimiento OMIL*) to hire staff or buy equipment. Successful job placement and retention of vulnerable beneficiaries is rewarded with additional funding. OECD experience suggests that the effectiveness of public, as well as private employment services can be improved through effective performance management (OECD, 2013c).

More recently, attempts have been made to engage private providers' job intermediation services. In 2012, a pilot programme was implemented to develop a network of private providers through a publicly- funded voucher (*Bono de Intermediación*

Laboral), which paid private sector job intermediation agencies for placing vulnerable jobseekers. But the programme failed, most of the providers lacked the technical expertise to successfully assist vulnerable clients.

A new pilot programme is to be launched in 2014. Following the UK system, two specialised intermediation offices will be tendered to private providers, which will act as monopolistic providers for 12 months within a geographical area, in partnership with several local employment offices. Private providers will deal with the "most hard to place clients", while local employment offices will focus on clients needing less help to find jobs. Local offices will act as gatekeepers and send clients that they assess as being too complex to successfully intermediate by themselves to private providers, whose payment will be based on performance based indicators of job placement and retention. At the same time, to strengthen the capacities of the local employment offices funding will be targeted to the most successful and promising local offices.

The pilot programme will also seek to improve co-ordination and strengthen the performance of the public employment services. Private providers will also be in charge of co-ordinating local employment offices and other related social services and provide them with technical assistance to improve their performance. In the medium term, once the planned reforms strengthen the national employment agency's capacity and the local employment offices, Chile could consider integrating the local employment offices into a nationwide network under the national employment agency responsibility. This way the agency could implement a policy of monitoring and enforcing the conditions for individual entitlement to nationally-financed unemployment benefits, which is difficult to ensure when local offices are autonomous or managed by local governments.

For private provision to work, there must be an active government-led management framework in charge of defining the target population, so that the system of fees for private agencies rewards their performance in terms of achieving sustainable job placements primarily for this target population, not a target population selected by the agencies themselves. For instance, in Australia, which has relatively low unemployment and high employment, and where employment services are delivered by contracted employment service providers, the department of employment successfully plays that role (OECD, 2013a). It defines complex contracts with employment service providers, including target population, maintains a national database of jobseeker characteristics, monitors and estimates comparative measures of employment service provider performance as the basis for renewing or terminating contracts. As the Australian and previous Chilean experiences show, involving private providers is not simple, hence the importance of testing the usefulness of private sector providers through pilot studies. This approach may not be cheap. Australia spends a bit above the average OECD country in job intermediation (0.17% of GDP), and over ten times more than Chile, but its system tends to reward the right outcomes and ensure that only high-performing providers remain in the market leading to low unemployment.

Box 1.4. **Recommendations to improve labour market inclusiveness**

Key recommendations

- Increase female workforce participation by expanding high-quality childcare, promoting flexible working hours and providing non-transferable parental leave entitlements to fathers. To increase childcare take-up, continue to publicise the availability of childcare options.
- Boost youth employment by expanding the reduced minimum wage for youth under 18 to those under 25 years old and implementing the reformed apprenticeship contracts. In parallel with extending unemployment benefits, lower the relatively high severance pay for regular workers.
- Strengthen the public training framework through quality standards and performance assessments for training providers, and by better targeting low-skilled workers. Improve job search assistance by strengthening local employment offices.

Other recommendations

- Carry out pilot studies using private-sector providers for personalised job counselling of harder-to-place jobseekers.
- Strengthen vocational education by updating curricula, further developing work placement and by deepening the on-going standardised qualification framework to boost mobility.
- Extend unemployment benefits further, as planned, and exploit this by monitoring job search efforts and improving job search assistance.
- Eliminate the requirement for firms to finance childcare once they employ 20 women or more.

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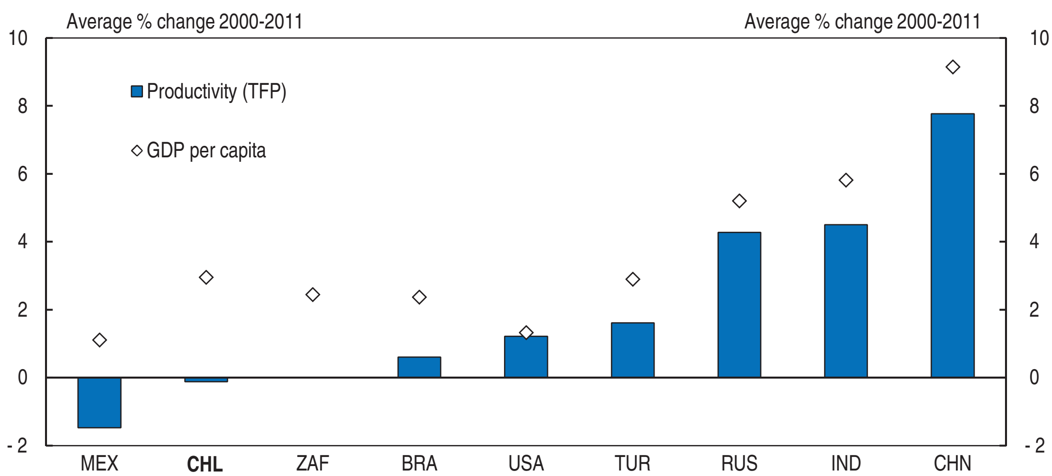
Chapter 2

Boosting growth through innovation and entrepreneurship

Catching up toward higher living standards will depend crucially on the Chilean economy becoming more innovative and productive. However, business R&D intensity has been low in the past and innovation has suffered from a variety of bottlenecks, including a shortage of qualified STEM graduates. Policy settings have become more supportive of innovation recently, with reforms encouraging firms to invest in R&D assets and to access financing. Chilean firms have become more innovative, including in traditional sectors centred on comparative advantages and natural resources. Start-up Chile has attracted international attention as a way to foster entrepreneurship, and entry barriers to open a business have been reduced. The underused R&D tax credit has been made easier to claim, with its take-up now increasing. Still, there is scope to further develop the innovation system, improve existing programmes and strengthen institutional coherence.

Chile's growth record has been strong over the past decade, with rates of human and physical capital accumulation sufficient to reduce the gap in the level of output per worker *vis-à-vis* more advanced economies. Nevertheless, according to OECD estimates (Johansson et al., 2012) total factor productivity (TFP) growth has remained flat (Figure 2.1). This stagnation contrasts with the average TFP growth of other large emerging economies, some of which had exceptionally rapid TFP growth over this period.

Figure 2.1. **Productivity and GDP per capita growth**



Source: *OECD Long-term Growth Scenarios Database* (Johansson et al., 2012).

How to read this figure: Total factor productivity growth represents gains in output or GDP beyond the contribution of input growth, measured as changes in employment, human capital and physical capital.

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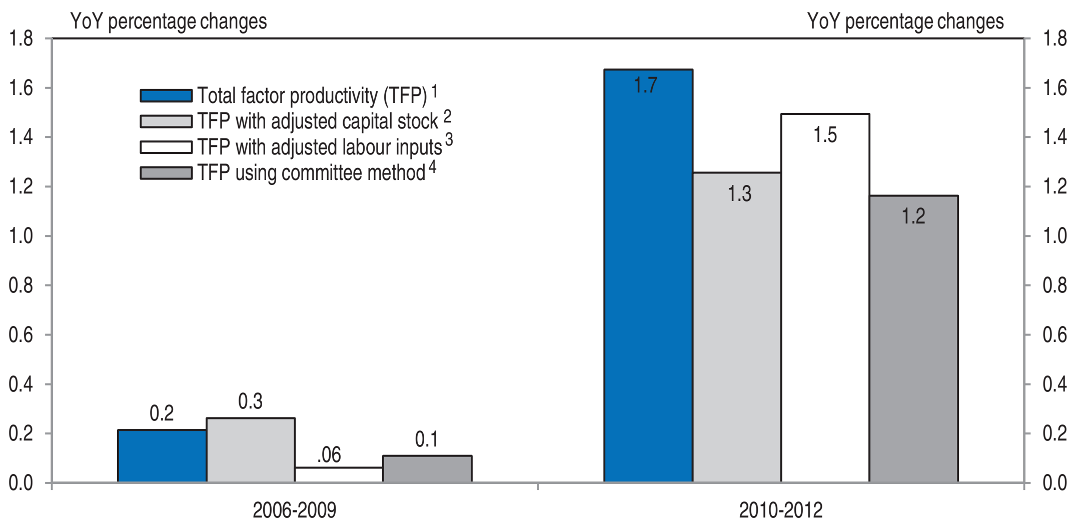
Chile's trend TFP growth slowed sharply in the last decade, according to several studies, raising worries about the sustainability of its growth pattern (Fuentes et al., 2008). For instance, Magendzo and Villena (2012) showed that TFP annual growth slowed from an average of 2.8% between 1992 and 1997 to approximately zero over the period 1998-2010. Though this evolution may have stemmed in part from the impact of a global economic slowdown and a devastating earthquake, it raises concerns about the feasibility of long-term income convergence towards higher living standards.

Raising trend TFP growth is a nontrivial challenge, in part because of uncertainties around its driving forces, but also because existing evidence for Chile indicates that the earlier TFP improvements in a number of industries can be tied to reforms in financial and product markets from two decades earlier (Crespi, 2006; Bergoeing et al., 2006; Schwellnus, 2010). These reforms changed relative prices and motivated considerable structural change that reallocated productive factors to more dynamic sectors and allowed the expansion of more efficient firms. But the gains from those "low-hanging fruit" reforms may have been substantially realised. Moreover, other evidence suggests that there was at the same time limited entry of new, more efficient firms through the early 2000s (Benavente, 2004).

There are signs that TFP growth may have picked up recently. Estimates by the Ministry of Finance imply that TFP growth was low on average, but highly volatile in the decade to 2010, whereupon it picked up to a growth rate of about 1½ per cent per year, if the highly capital-intensive mining sector is excluded (Figure 2.2).

Figure 2.2. **Total factor productivity (TFP) estimates excluding the mining sector**



1. TFP estimated using the Solow residual growth accounting method, with GDP and labour data excluding the mining sector.
2. Using the Solow method but with capital stock adjusted for intensity of use.
3. Using the Solow method but total hours worked adjusted by education level.
4. Corresponds to the *Comité del PIB Tendencial* method without the mining sector. Using the Solow method with capital stock adjusted for intensity of use and total hours worked adjusted by education level.

Source: Ministry of Finance.

StatLink http://dx.doi.org/10.1787/888932923773

Beyond the uncertainties in measuring TFP growth, there is the question of whether the policies implemented over the past few years are the right ones. Good framework conditions are an important prerequisite for long-term investments, and Chile's stable macroeconomic policies and trade openness provide useful preconditions. Restrictions on competition could be reduced further, though these policies are quite favourable towards businesses and entrepreneurs especially when compared with other Latin American countries. According to the INSEAD/WIPO Global Innovation Index 2013, Chile currently ranks in the top 50 in the World and the highest in its region (GII, 2013), and other indexes paint a similar picture, as described in the next section.

It will be extremely important for Chile to further enhance its innovation capacity, and thus boost TFP, in light of the considerable uncertainty that surrounds the country's future growth potential. Copper production, and thus natural capital, made a significant contribution to GDP growth in the past. Though the contribution of copper production to growth has declined, various bottlenecks to its production could limit the future pace of income convergence, all else equal (Box 2.1). Thus it is important that the rents from natural capital are invested in human capital and intangible assets from innovation investment that have a high long-term rate of return through enhanced TFP growth.

Box 2.1. **Stylised scenarios for copper production and long-run growth in Chile**

Uncertainty surrounding the path of future copper production could have important impacts on the evolution of Chile's GDP. This box makes a set of simple assumptions to assess what the effect on GDP could be, all-else-equal (see Brandt, 2013, for more details on the methodology). While it is extremely difficult to predict copper production in the long term, since it will heavily depend on technology developments, the success of exploration efforts and global copper prices, for illustrative purposes, it is useful to look at some stylised scenarios and their effects on GDP developments.

Two scenarios are presented here that build on the OECD's long-term growth scenarios (Johansson et al., 2012), which assume a moderate pace of structural reform over time. They are based on a production function that is augmented to include a natural capital stock (Brandt, 2013). Since for copper makes up the lion's share of natural resources in Chile, the scenario presented here focuses on the role of copper for the sake of simplicity.

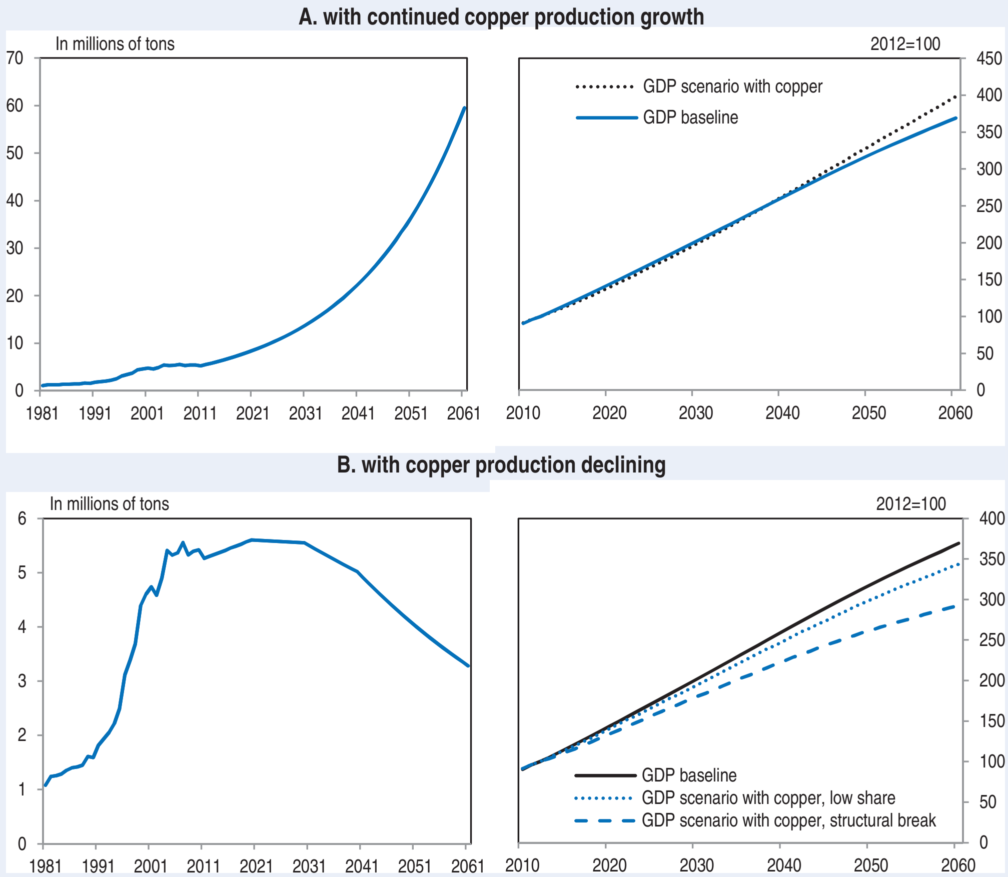
In a first scenario in which copper production overcomes the current stagnation of production and continues to grow at the average rate observed since 1970, the expected growth path would be not be harmed (Figure 2.3, Panel A). In fact, starting around 2040 GDP would be higher under this scenario than under the baseline scenario, as continued copper production growth would offset some of the effects of the declining working age population.

The situation is different in a second scenario, in which copper production continues to grow until 2020, then stagnates and starts to decline after 2030. The developments until 2020 are based on expectations regarding the expansion of production capacity based on current investment plans – plans that are currently behind target – as copper production growth has slowed to an annual pace of less than 1.7% since 2000, from 10% in the decade before. In this alternative scenario, GDP is foreseen to turn out between 7 and 20% (depending on the copper share in GDP) below the level expected in the baseline scenario in 2060 (Figure 2.3, Panel B). Since copper production is already hitting bottlenecks as the easiest-to-exploit reserves are exhausted, this scenario is not implausible. If Chile were to continue to extract copper at the current rate, proven reserves – that are known and can potentially be exploited with available technologies – would last another 35 years. However, new technologies and exploration tend to lead to discovery of new reserves, and the possibility to exploit them, especially in times of scarcity and rising prices. It is thus quite likely that Chile will be able to exploit its copper reserves for much longer than what a scenario based on current proven reserves and extraction rates would suggest. On the other hand, considering the bottlenecks observed already at present should be a motivation to ensure that innovation policies are as well-developed as possible.

Trend TFP takes time to pick up in response to improved policies, and there is indication that overall framework policies have already become quite good for business. Innovation-specific policies have evolved considerably in recent years, and the rest of the chapter looks at areas that could be strengthened. The second section examines efforts to boost R&D intensity through tax incentive schemes, and makes recommendations about how to fine-tune this scheme. The third section discusses policies to promote innovative start-ups and venture capital. Some strong programmes have been developed, and many appear to be working well, though there appears to be scope to rationalise and review them, giving them more focus and impact. The fourth section considers the organisational

Box 2.1. **Stylised scenarios for copper production and long-run growth in Chile** *(cont.)*

Figure 2.3. **Long-term growth scenarios**[1]



1. Scenarios "with copper" refer to alternative scenarios with specific assumptions about the evolution of copper production.

Source: OECD Calculations.

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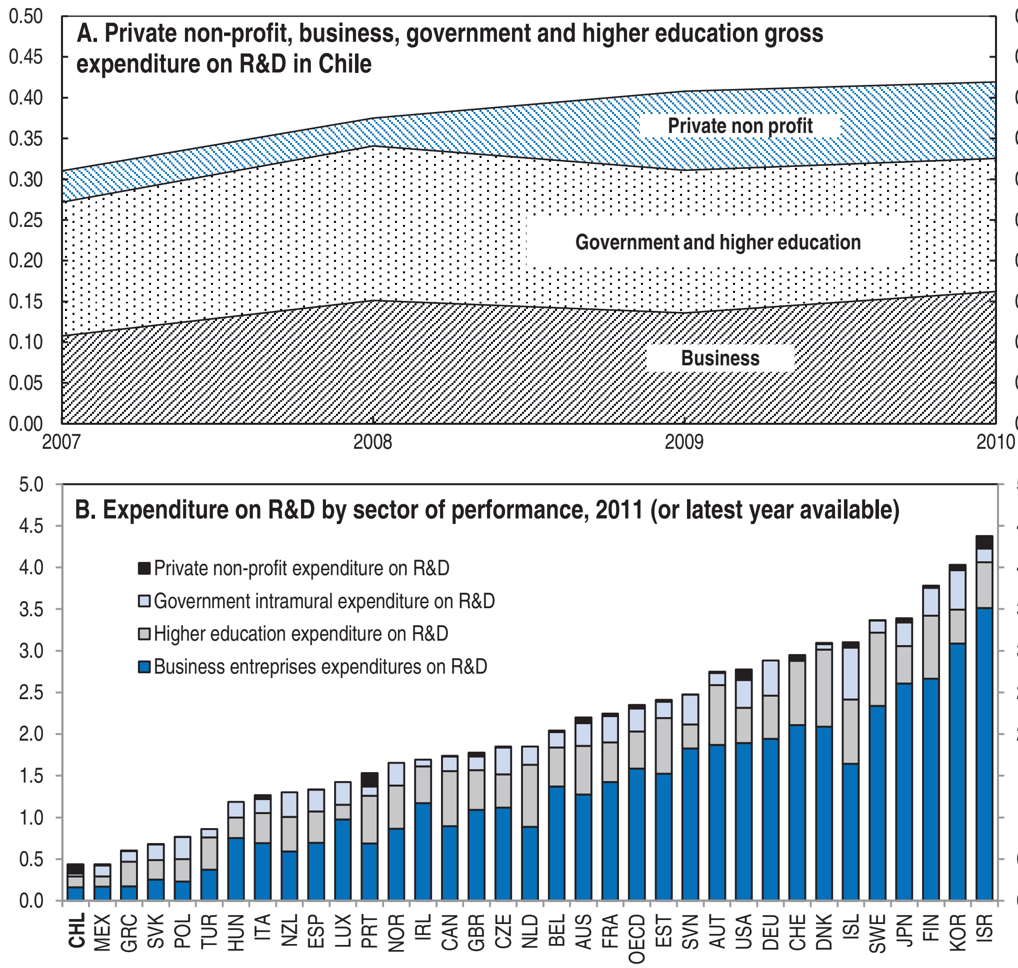
setup of the innovation system. Finally, last section discusses efforts to produce larger numbers of advanced graduates with relevant skills.

Business sector R&D intensity remains low

Chile's R&D intensity and innovation spending more broadly are the lowest in the OECD, with the limited R&D expenditure heavily concentrated in the publicly funded university sector (Figure 2.4). While Chile's economy is specialised in industries that tend to have lower average R&D intensity globally, business sector participation is exceptionally low overall, with only around 350 firms stating that they routinely invest in R&D, a figure that has only marginally increased over time. More broadly, evidence from Innovation Surveys (the latest for 2012 is not yet available) showed that about one-third of firms innovate (Minecon, 2009), which is less than the 40% or so that is usual in EU countries. Furthermore, business innovation spending *fell* in Chile as a percentage of GDP through the

Figure 2.4. **R&D intensity is low, especially in the business sector**

As a percentage of GDP



Source: OECD, *Main Science and Technology Indicators Database.*

StatLink http://dx.doi.org/10.1787/888932923583

mid-2000s (Benavente, 2006), and data suggests that it had not recovered by the end of the decade. Previously, there were concerns about the strength of intellectual property rights (IPR), but these concerns have mostly been addressed through improvements in IPR protection (OECD, 2011). Although the rate of IP production continues to be low, due to the low levels of applied research and technological development, increases in patenting and citations have been significant (OECD, 2013e).

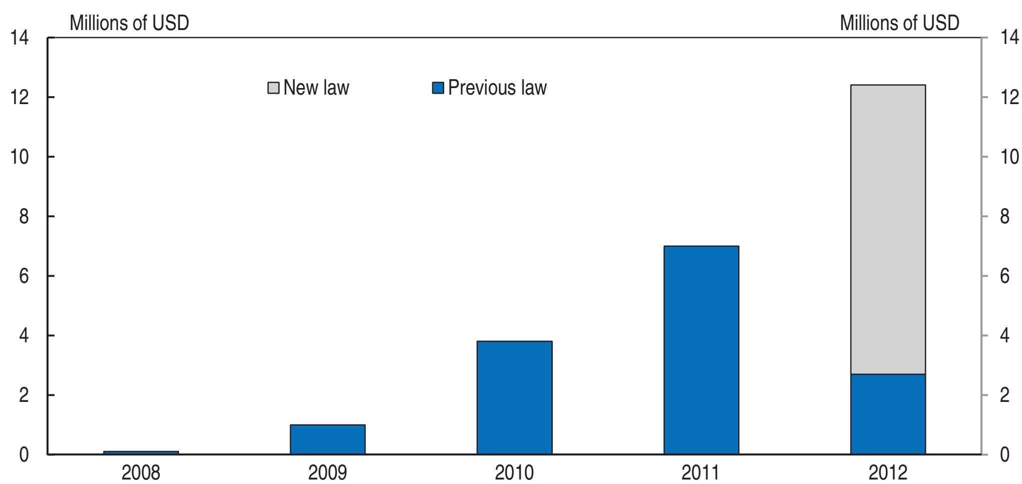
Although R&D spending is generally a profitable investment, it has been carried out in Chile primarily by state institutions. Low R&D by private firms may have to do with market failures, as evidence suggests that private rates of return to R&D investment are generally quite high (Benavente et al., 2006). Uncertainty may be very discouraging for firms to invest in R&D, especially for smaller firms. Especially when there is limited access to financial markets, smaller firms are affected to a larger extent and the investment in R&D results in sub-optimal choices, a problem that encountered in other economies as well.

To promote private investment in R&D, and complementing a substantial innovation support system, a tax benefit was introduced in 2008. Firms that have signed R&D

agreements with certified research institutions (mostly universities) could ask for a 35% tax reduction in resources invested in their joint projects. The remaining 65% of R&D expenses can be deducted from taxable earnings, which means that effectively companies can benefit from a tax benefit of almost half (48%) of R&D spending. A modification to this benefit in 2012 made in-house R&D activities also eligible for the tax credit, and simplified the administrative process. Other important changes to the tax benefit included: a threefold increase in the annual tax ceiling for the benefit, to the equivalent of USD 1.2 million; and a lifting of the (15%) cap as a share of gross income. After this modification, the flow of new applicants increased five-fold in size. Nevertheless, the existing programme is still most relevant for larger-sized firms, since the credit is only redeemable against profits.

In 2012 a preliminary assessment of the tax credit programme was conducted, that covered its first few years of operation. The review found that the new law substantially expanded R&D support to a substantial new set of companies, thanks notably to incorporating intramural R&D. Almost 80% of what was certified in the four year life of the old law was certified within 10 months following the amendments introduced in the 2012 revision (Figure 2.5). The amounts increased to an accumulated USD 24.3 million when considering the period 2008-12. Out of the amount certified in 2012, almost 80% was approved under the new law, which started operating in the last quarter of that year.

Figure 2.5. **R&D tax subsidy certifications**



Source: CORFO, June 2013.

StatLink http://dx.doi.org/10.1787/888932923811

Nevertheless, the programme has been more relevant for larger firms than smaller ones, similar to what has been observed elsewhere (see Criscuolo and Menon, 2013). A recent report issued by CORFO indicates that 66% of the participants were large companies, with 34% small and medium companies. Ideally, there should be a way to make younger firms (with no history) eligible.

Evidence from the OECD's work on new sources of growth (OECD, 2013b) suggests that making R&D tax credits refundable can also help dynamic smaller firms, including start-ups that are not yet earning profits and thus cannot use non-refundable credits to offset earnings. Over time, Chile should monitor the implementation of the scheme closely and consider offering refundable credits for small firms. To enhance incentives among larger firms in the future, an incremental element could be added to the existing scheme to provide enhanced incentives. Carrying out periodic evaluations, as foreseen in existing law, is also important to ensure that the schemes remain cost-effective.

Policy reforms have improved the climate for entrepreneurship

Entrepreneurship is an important source of innovation through new firm creation and growth, and thus an important driver of productivity gains (Aghion and Howitt, 2006; Acs et al., 2009; OECD, 2013b). This process is regularly associated with productivity increases due to resource reallocation from low to high productivity firms and by increasing productivity and scale of incumbents that are challenged by new entrants. New companies, especially those operating in innovative sectors, adopt new technologies at a faster rate and generate more jobs. In addition, the incorporation of new technologies has a substantially larger impact on new firms than on existing producers in traditional sectors (Bergoeing et al., 2006).

Recent reforms have aimed to make founding start-ups easier in Chile. The number of days needed to open a business has been reduced substantially. A law was passed in 2011 that reduced the time needed to start a business from 22 to 7 days, by easing requirements for obtaining permits and payment of taxes, as well as by streamlining notification requirements. Another new law went into effect in May 2013 that eases requirements further, allowing a firm to be created in just one day and reducing the cost substantially. Last but not least, a law that went into effect last year accelerates the granting of definitive municipal permission to operate, and allows new entrepreneurs to issue electronic invoices immediately.

The creation of the Start-Up Chile entrepreneurship programme, an initiative of the Ministry of Economy and CORFO, the main state development agency, aims to make Chile the leading innovation hub in Latin America (Box 2.2), along with a number of complementary programmes that help to facilitate international technology transfer.

Other reforms and policies, such as the Seed Capital and the Incubators programme, aim to ease access to credit for small enterprises and women, and Entrepreneurial Environment programme aims to foster entrepreneurship skills and related competences (OECD, 2012a). Over the past four years, these policies have contributed to a fourfold increase in applications to government-backed seed capital programmes. Chile's policies for venture capital are lauded as the best in the Latin American region (LAVCA, 2013). Although only a limited number of companies are funded each year, the venture capital industry has started to gain traction (Table 2.1).

Along with these measures that help reduce bureaucratic obstacles for entrepreneurship, the *Innova Chile* Programme has eliminated the requirement that applicants secure bank guarantees. It recently started providing funding on an up-front basis, which lessens financial pressures on entrepreneurs.

CORFO has worked to foster the development of venture capital (VC) industry in Chile and the participation of private investors in mutual funds, in order to encourage private investment in small and medium enterprises (see Benavente et al., 2005). The "Venture Capital for Business Innovative" and CORFO-directed VC investment in mutual funds programmes are examples of these efforts. Following a 2011 evaluation of existing programmes, CORFO began to implement a Development and Growth Fund and an Early

Box 2.2. **Start-up Chile**

Start-up Chile has generated more than 700 new start-ups over the last two years, many by foreign entrepreneurs. The programme, which began in 2010, seeks to attract entrepreneurs from abroad by offering USD 40 000 equity-free seed capital and a short-term work visa, to entrepreneurs who come to Chile to develop projects over a six-month period. To date, the programme has supported projects from over 70 countries. This has helped to boost Chile's attractiveness for developing new firms, and make up for weaknesses in innovation capacity and risk readiness.

A main goal of Start-Up Chile is to promote a change in the entrepreneurial mind-set in Chile. With increasing numbers of start-ups developed by the programme, it could trigger more people to develop their own start-ups, compared to a previous situation where start-ups were much less frequent and hardly visible. While it is difficult to make a claim as to how much the rate of entrepreneurship has climbed due to the programme, its promotion of an entrepreneurial culture should have a positive impact on entrepreneurial capacity at the country level, particularly when the number of start-ups applying to incubators, seed capital programs and other CORFO support schemes has increased four-fold in the last four years.

While it is probably too early to carry out a full evaluation, the programme has already resulted in some important advances in the Chilean entrepreneurial environment. Between 2010 and mid-2013, Start-Up Chile participants held about 700 meetings and participated in over 2 000 workshops and conferences. This is a response to the request by the programme that entrepreneurs that participate must contribute by engaging with the local business community. Chile has also been exposed internationally to global entrepreneurship as a result of the programme. This can be considered as a successful aspect of Start-Up Chile. The programme has received considerable attention in international media, and has been emulated in other countries' initiatives. Another notable phenomenon is the self-perpetuating nature of the network of entrepreneurs that have become part of Start-Up Chile. Numerous entrepreneurs have written or spoken out in the press about their positive experiences with it, encouraging more individuals to apply.

Table 2.1. **Venture and seed capital funding**

In USD million	2000	2005	2006	2007	2008	2009	2010	2011	2012
CORFO seed funding	0.0	1.6	4.7	6.0	7.3	5.5	6.7	6.7	6.2
VC investments with public funding	8.7	16.6	28.2	57.3	47.7	45.8	53.9	67.3	83.3
Early stage investment	0.0	3.1	0.5	1.5	5.0	3.9	6.8	8.1	5.5
Numbers									
Int'l patent applications by Chileans	1	9	12	17	27	54	88	118	110
VC deals in small firms	0	3	3	4	10	8	13	19	20
New VC funds	0	4	5	1	4	2	6	0	8

Source: Echecopar et al. (2013).

Stage Fund. The first one promotes investment funds that provide financing and development opportunities for small and medium Chilean businesses with high growth potential, which are currently in an expansion stage. The Early Stage Fund promotes investment funds that provide financing and development opportunities for early-stage small and medium Chilean businesses that show promise or potential for growth and innovation.

Activities relevant to the development of a domestic venture capital market in Chile can be categorized into two broad phases (Echecopar et al., 2013). The first phase, which could be referred to as the *market oriented phase,* took place up to about 2000. During this phase the basic formal institutions for the venture capital market were put in place. The second phase could be referred to as *active public policy phase* (from 2000), and consisted of many government initiatives to develop the venture capital industry. These initiatives are summarised in Table 2.2.

Table 2.2. **Summary of government initiatives related to start-up funding, 2000-12**

Initiative	Type of initiative	Year	Additional informatin
Public Offering Shares law	Market reform	2000	• Increased protection of minority shareholders • Better corporate governance in listed companies
MKI: new regulations to deepen capital market	Market reform	2001	• Tax exemption on capital gains of highly traded companies • Tax exemption of capital gains in emergent stock for up to 3 years
Subsidize operations of business incubators	Incentives to promote innovation and commercialization	2002-2009	• No market result metrics were tied to subsidies. • Initiative was not evaluated positively and was discontinued in 2010
Provide seed capital for incubator start-ups	Incentives to promote innovation and its commercialization	2002-2011	• Initially CORFO decided the allocation of funds through third party evaluations of projects. • In 2011 changed to system were incubators can do the disbursement of funds subject to ex-post CORFO validation
CORFO F2 and F3 matching fund instruments	Incentives to promote early stage investments of private investors	2005-2010	• Originally a 3 to 1 match (F2); funding ran out in 6 months due to demand; switched to 2 to 1 match (F3) • Specified that investments must be in small to medium firms • Actual investments were primarily directed to well established, traditional firms • Post 2006, some funds dedicated to "start ups"
CORFO subsidizes operating costs for angel networks and co-funding for syndicated angel funds	Incentives to promote early stage investments of private investors	2006-2010	• Five new angel networks created but almost all disappeared by 2011. • Co-financing of syndicated funds unsuccessful because required angels to pool their funds and co-invest; preference was to invest alone
Government support for Innovation Forum	Support for private partnership aimed at promoting innovation	2006-present	• Created an annual national innovation contxt (Avoni) • Provides other events and support related to innovation
FICER regulation for foreign venture capital investors	Market reform	2007	• ncentives to encourage foreign venture capital investment. • apital gains tax rate reduced to 10% (from 35%) when investors syndicate with a local firm
MKII: new regulations to promote risk capital markets	Market reform	2007	• Tax exemption on capital gains of venture capital funds for firms sold to public (listed) funds • CORFO (government) can be a shareholder (previously only a lender) in VC funds • Banks allowed to invest up to 1% of assets in VC funds • New form of legal ownership permitted (SPA) allowing easy transfer of ownership shares in private firms
Creates "Start-up Chile"	Program to import entrepreneurs from outside Chile	2010-present	• Provides a 6 month work visa and some nominal seed funding for entrepreneurship from around the world to come to Chile to work • Entrepreneurs are co-located and required to do some

Source: Echecopar et al. (2013).

Chile could still ease restrictions that require foreign funds to set up local Chilean structures in order to secure commitments from Chilean investors, a step included in legislation that is already with Congress. The venture capital industry could also be strengthened by offering economic and financial training to entrepreneurs so they can be in a better position when dealing with investors; and creating mechanisms that leverage available capital resources in large corporations. A new Funds Law that would simplify fund formation, ease tax burdens, and create other advantages for the private equity and venture capital has not passed in Congress, though it has passed one chamber and is expected to pass the other. Nevertheless, under current regulation, two funds with international investor participation have already been set up.

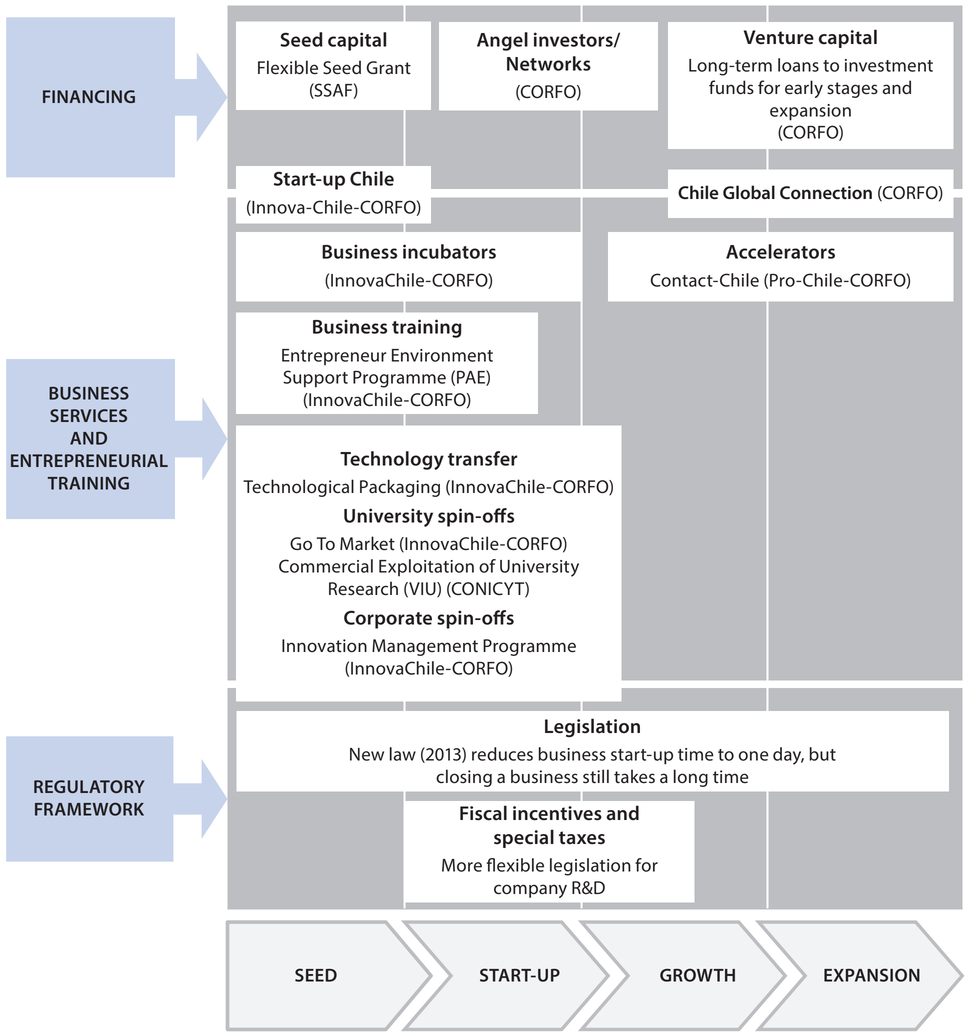
In terms of Chilean capacity to attract and develop new firms, Chile was ranked 22nd of 79 countries in the 2012 GEDI (Global Entrepreneurship and Development Index). On individual indicators, Chile scored well on new product introductions, competition, and globalisation. On the pillars, Chile scored best on product innovation, cultural support, and opportunity perception. Chile's main weaknesses on individual indicators are R&D expenditures, informal investment and the percentage of businesses active in the technology sector. With regard to the pillars, Chile performs least well on process innovation, risk capital and the strength of its technology sector. Each of these is a direct function of weakness in one of the individual indicators. But these weaknesses are most likely inter-related.

The government has developed a set of policies that have a strong focus on promoting start-ups (Figure 2.6). These include the seed, angel and venture capital programmes described above, as well as instruments that are intended to offer a chain of support at different levels (finance, management skills and the legal framework) (see Table 2.A1.1). The government had been focused on business incubators until recently, though it is now moving towards more of an accelerator model, which focuses on helping with the expansion of high-growth businesses. A key change has been to align the entrepreneur's interest with that of the accelerator programmes, namely using the benchmarks of starting sales, sales growth and private funding raised.

The Incubator Programme, run by CORFO, supports innovative entrepreneurs in developing their business projects through co-financing activities for the creation, implementation and launch of their ventures (Álvarez et al., 2013). This includes such activities as market research, proof-of-concept in the market, commercial packaging, supplier development, market validation, business outreach, prototype development, and establishment of the company, among others. It provides a subsidy of up to 75% of the total project, with a maximum of USD 80 000. Universities contribute to this challenge by providing education and training, as well as support technology transfer to a lesser extent.

Chile already has a substantial business incubation industry, with around 27 incubators (CORFO, 2012). Evaluations suggest that early stage highly risky firms have been receiving capital, but primarily funding established firms with low risk. Partly as a consequence, the Incubator Programme was revised in 2011, attempting to redesign the programme from a "cosy" place for new entrepreneurs to follow more of an accelerator model (Chandra et al., 2012), that focuses on boosting the growth of start-ups. Early indications suggest that these changes have helped the good incubators to succeed and have forced the bad ones to exit. Nevertheless, evaluations are needed to test the validity

Figure 2.6. **Overview of policy tools to promote innovative businesses**



Source: Based on official data and interviews with experts (OECD, 2013g).

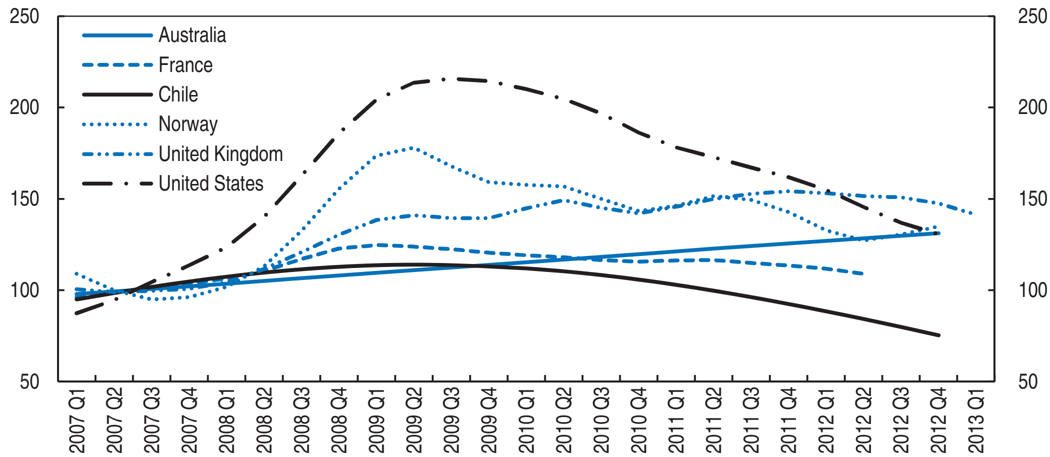
of these initial observations. CORFO intends to introduce systematic evaluations of all programmes later this year.

Simplifying business exit

Bankruptcy procedures frequently last for five years, whereas in other OECD countries the average is usually under 1½ years. Easier exit would improve reallocation of resources, and by reducing uncertainties, stimulate both start-ups and financing. The OECD has recommended making such reforms in previous *Economic Surveys* of Chile. The current bankruptcy law has several shortcomings: the credit recovery rate for creditors is very low (25% vs. 68% OECD), and the bankruptcy process is lengthy and costly both to the state and filers. The law also gives the same regulatory treatment to businesses and individuals. Bankruptcies are not responsive to the business cycle (Figure 2.7), discouraging entrepreneurship and efficient reallocation.

Figure 2.7. **Bankruptcies are unresponsive to the business cycle**

Trend-cycle average 2007=100



Source: *Entrepreneurship at a Glance* (OECD, 2013d).

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A new bankruptcy law – the *Reorganización y Liquidación de Empresas y Personas* – is before Congress and would reduce the bankruptcy procedure time to a maximum of 14 months (7 months for smaller firms), which is similar to the average time to close a business in OECD countries. It follows best practices, including setting time limits on those procedures to accelerate the liquidation, and includes procedures that avoid the delays in payment to creditors, thus expediting the return of productive assets to the market. The bill also recognizes the differences between the insolvency of a natural person and a company, proposing a simpler procedure in the case of non-corporate bankruptcy.

Industry-science co-operation

Industry-science co-operation is critical for innovation, and developing such co-operation has been a long-standing recommendation for Chile (see OECD, 2010b). Important efforts have been made to bridge both cultural as well as practical barriers to these linkages. These efforts include a major recent programme to attract international R&D centres of excellence, an applied research programme that helps local researchers connect to industry (*I+D Aplicada*), as well as an assortment of other instruments.

Greater concentration of support in areas that complement natural advantages could be appropriate if done in a way that emphasises industry-science co-operation (Warwick, 2013). Chile is pursuing a broadly horizontal approach to its innovation policy, which reduces the risk of government failure. The risks of backing the wrong horse can be considerable. Recent OECD reviews (see OECD, 2013f) suggest that addressing co-ordination problems and focusing on creating networks, such as a framework for dialogue among private firms, may be most effective. Certain natural conditions, such as Chile's copper deposits, clear skies for astronomy, and expertise built up in some areas (fish farming and wine production) are an important asset for developing science and cross-links that can help generate a local innovation eco-system and strengthen technological development.

Efforts been made to use scientific knowledge to identify such advantages in positioning itself through the *Programas de Innovación Sectoriales*. Through CORFO, Chile has developed a programme to strengthen public-private co-operation in six fields of latent market opportunity: food, mining, fishing, tourism, construction and technology service providers. With a budget of USD 1.1 million for 2012, the programme focuses on co-ordinating public and private institutions, companies, researchers and academics to promote the competiveness of these sectors (OECD, 2012b). Such efforts to build comparative advantage should be accompanied by mechanics to reduce opportunities for rent-seeking behaviour, notably through continued strong involvement of the private sector. The example of the Chilean wine industry is a particularly good one, as its contribution to growth and exports have been considerable, as investments in knowledge-based capital have been complimented by private sector physical investment, producing robust growth (Dutz, 2013).

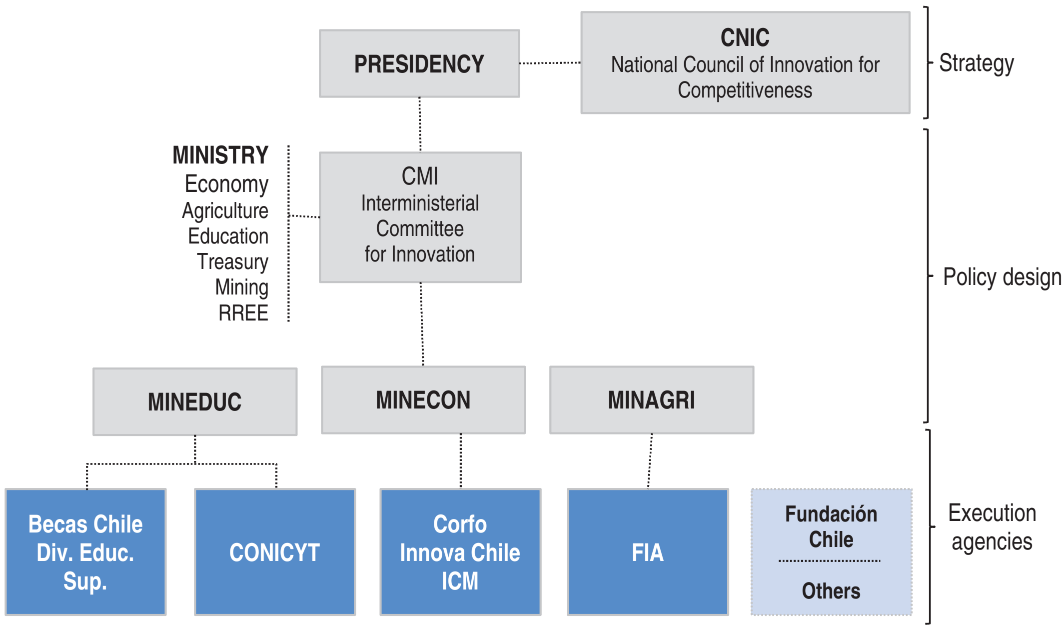
Expanding successful innovation promotion programmes

Chile has several well-designed innovation promotion programmes. These have sought to address a long-standing disconnect that existed between businesses and universities in Chile's innovation system, based on Innovation Surveys (Crespi and Zuñiga, 2012). But programme scale and take-up has not been large enough to make substantial impact. In fact, fewer than 1% of companies in the formal sector have applied and received support from these programmes, and the low R&D figures and innovative outputs (patents, trademarks and copyrights) reflect their small scale (OECD, 2013e). Regularly review innovation programmes and design them so that they can be adequately evaluated is important to ensure that they are cost-effective. Those programs that have been positively evaluated could be enlarged, while those that are found to be inefficient should be closed down or revised. However, some of the programs have not yet been properly evaluated. For instance, while it may still be too early to carry out a full evaluation of the Start-up Chile programme, so far only qualitative information is available, making it difficult to argue definitively in favour or against it. It will be important to carry out such reviews as soon as a sufficient track record is available, and make adjustments as appropriate.

More broadly, efforts should be made to address the fragmented institutional set-up for innovation, as identified in multiple external reviews of Chile's innovation system, including by the OECD (see OECD, 2007, 2010b, 2011b, 2012a). The objective of greater policy coherence could be realised through the creation of a new Ministry of Innovation, as proposed by a recent Presidential Commission (the Philippi Commission), and now supported by the major political parties. A unique Ministry could help to solve the co-ordination problems as well as the agency problem, since there is single and visible line of responsibility for R&D and innovation policy. Such large-scale institutional changes tend to be initially disruptive, and it may be difficult to fully separate out innovation-only activities from existing ministries.

Recently some Latin American countries have adopted this approach, among them Argentina, Brazil and Costa Rica, with mixed results. The risk of counter-productive disruption could be reduced by phasing-in gradually the transfer of competences to the new ministry. Despite the fact that creating a new innovation-focused Ministry has a strong political signal in terms of the relevance of the issues for the authorities, normally these ministries have a smaller budget and less political clout compared to ministries of Economy or Education. The Philippi Commission suggested the incorporation of the higher education area (Figure 2.8) as part of this new ministry that may help to reduce the co-ordination failures. In this regard, it is worth noting that very few countries have gone as far as transferring the oversight of higher education to a ministry of innovation. This may

Figure 2.8. **Organisation of the innovation system**



Source: *Philippi Commission Report*, April 2013.

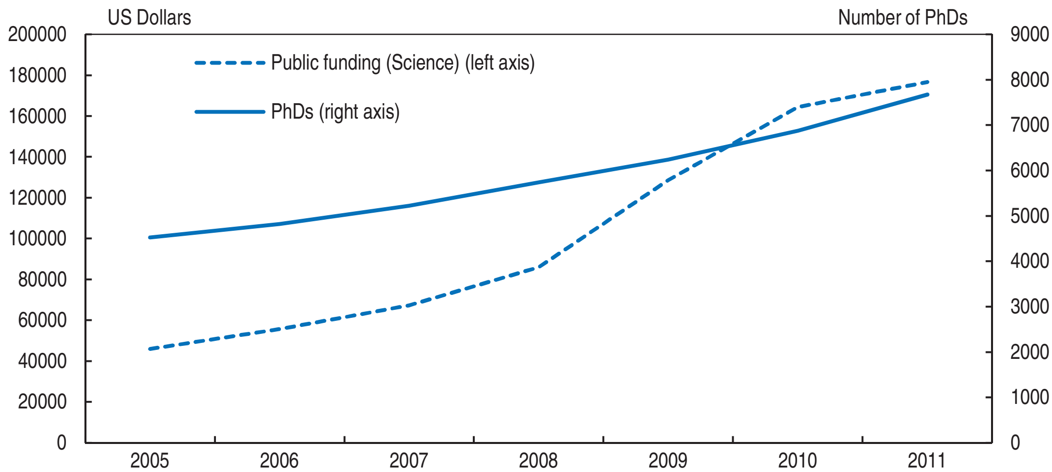
distract the problem of the effort that this new minister may have while focusing in higher education rather than the other areas of the ministry (R&D, innovation, property rights, among others) especially given the political contentiousness of funding support for tertiary education in Chile. Finally, it may be useful to keep strategic functions (such as the CNIC) semi-autonomous of the new ministry in order to strengthen long-term strategic planning.

A shortage of qualified researchers persists

Human capital is another obstacle to productivity improvements for Chilean firms, and improvements in the secondary and tertiary education systems have been longstanding priorities for Chile in the OECD's *Going for Growth* exercise (OECD, 2013a), as well as the subject of a special chapter on education in the 2010 *Survey* (OECD, 2010). Innovation and R&D activities are heavily dependent on well-trained workers, especially those with postgraduate qualifications. Despite strong efforts to increase the number of Masters and PhD graduates domestically and internationally (see Figure 2.9), Chile still lacks sufficient advanced human capital in key science, technology and engineering management (STEM) fields, though it is catching up among younger cohorts (OECD, 2013e). Financial support for higher education should be expanded for advanced degrees with substantial technological content.

During recent years, Chile has increased its effort to finance higher education in scientific fields. Notably, there is generous postgraduate support for the best students through the *Becas Chile*, for those students studying abroad, and for domestic students through the Postgraduates programme at CONICYT, the National Commission for Scientific and Technological Research. The *Becas Chile* programme provides fully-funded scholarships to students studying at the best schools abroad, conditional on these students returning to Chile. Public resources allocated to science have increased three times since 2005, notably after the approval of the Copper Mining Tax. This effort led to an increase in

Figure 2.9. **Increasing investment in advanced studies should increase output of PhDs**



Source: Álvarez et al. (2013).

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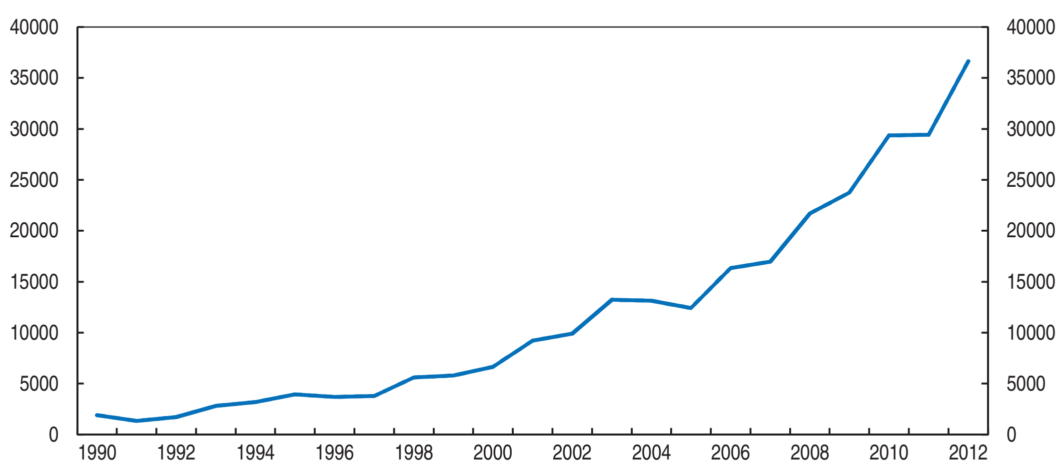
the number of PhD in the country (Figure 2.9). If current trends continue, this number will almost double between 2010 and 2014.

However, in terms of PhDs per million inhabitants, Chile only had 383 PhDs in 2009 – well below that observed in an average OECD country, but also in other emerging economies such as Israel, Slovenia or Turkey. Critical masses are important for research, and Chile is far from reaching such levels.

The number of master's degrees rose substantially (Figure 2.10), but, these figures are also still low compared to other countries. Most of these students are enrolled in national programs where they need on average 2.5 years to finish a programme. Additionally, since nearly half of the PhDs have a master degree, and Chilean undergraduates take on average more than six years to finish their studies, the typical preparation for a research career is long.

Figure 2.10. **Evolution of master's student completion**



Source: Chile Ministry of Education.

StatLink http://dx.doi.org/10.1787/888932923868

PhDs in social sciences and humanities represented more than 41% of total graduates between 2007 and 2011 – a disproportionate number compared to most other OECD countries. This is followed by natural sciences (26%), engineering (17%), agricultural sciences (9%) and medical sciences. When comparing with OECD countries, Chile tends to have more social sciences and less medical sciences and engineering graduates. This is especially relevant for the *Becas Chile* programme, since less than half of the PhD students benefitting from it are focused on STEM fields, a lower proportion of such students than in most OECD countries.

Less than 10% of the PhD graduates (and masters as well) do research in the private sector. Most work in universities (78%), while a few do research in public institutions. This has an effect on the rate of how knowledge is created in different productive sectors. For example, in the mining sector, resource-intensive countries like Australia and Canada that are close competitors of Chile have 20 times more researchers per unit of production than Chile. A similar pattern can be found in forestry (8 times) and aquaculture (5 times), sectors that together with mining represent more than 80% of Chile's exports. Existing programmes to facilitate PhD integration into the private sector should be evaluated and expanded if needed.

Management education should also not be neglected. An important element of improving the entrepreneurial environment is to improve average managerial quality. Estimates of its effects based on systematic interviews of middle management from randomly drawn samples of firms vary widely across countries, and recent research had identified a causal effect of managerial quality on firm productivity (Bloom et al., 2013). For example, raising managerial quality in Chile to the high level in the United States could increase the average firm productivity by some 10-15% (Andrews and Criscuolo, 2013).

Box 2.3. **Recommendations on entrepreneurship and innovation**

Key recommendations

- Co-ordination among the various innovation policymaking agencies could be improved by establishing the Ministry of Innovation recently proposed.
- Further facilitate industry and research linkages, and promote public-private co-ordination to exploit natural endowments, such as copper mining, helping to complement comparative advantages.
- Regularly review innovation programmes, close down or adjust inefficient ones, and expand those that are proven to work.

Other recommendations

- Over time, make the R&D tax credit refundable for smaller firms, so that young innovative start-ups can more easily benefit, and consider adding an element to the scheme that enhances rebates for incremental investments.
- Expand advanced degree financial support on technological fields, especially in the *Becas* Chile programme.
- Further boost access of entrepeneurs to global networks and venture capital, including by simplifying requirements for foreign venture capital funds to operate locally.

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ANNEX 2.A1

Table 2.A1.1. **Main policy tools to promote innovative businesses**

a. Financing

Instrument/Programme	Type	Objectives	Beneficiary	Additional information	Maximum period
Seed capital (InnovaChile-CORFO)	Grant	Entrepreneurs wishing to create and implement a business idea	Operates through sponsors, which submit a joint application with the company	• Grant of up to 75% • 25% in monetary support • Up to USD 77 000	24 months
Flexible Allocation Seed Capital (InnovaChile-CORFO)	Grant	Innovative entrepreneurs with high-risk projects	Operates through business incubators (second-tier scheme) that receive funds to invest in high-risk innovative start-ups	• Grant of up to 75% • 25% in monetary support • Up to USD 1.3 million per incubator	9 years
Startup Chile Global Entrepreneurs Competition (InnovaChile-CORFO)	Grant	Attract investors from around the world to conduct business in Chile and thus generate externalities	Entrepreneurs from around the world who want to start a business in Chile	• Up to USD 40 000	1 year
Venture Capital for Innovative Firms (CORFO)	Long-term loans to investment funds	Support start-up or expansion of businesses that have innovative projects with high growth potential	Operates through investment funds that invest in firms with assets not exceeding USD 4.3 million	• The amount the fund invests in the firm depends on the project • Capital investment to acquire shares	
Direct Investment in Investment Funds (CORFO)	Direct contribution to investment funds	Develop the venture-capital industry Foster private investment in investment funds geared at firms with high growth potential in their expansion stage	Firms less than seven years old with annual sales of less than USD 17.1 million	• The amount the fund invests in the firm depends on the project • The fund acquires shares through capital investment	10 years
Fénix Mining Exploration Fund (CORFO)	Long-term loans to investment funds	Develop the venture-capital industry in the mining sector to promote exploration and mining in Chile	"Junior" exploration and mining firms with annual sales of less than USD 8.6 million	• Fénix fund: CORFO investment of USD 60 million and private investment of USD 30 million • Each management organisation can receive USD 6.4 to 17.1 million for investment	10 years
Angel Capitalist Networks (RCA) (InnovaChile-CORFO)	Grant	Organise, formalise and operate business angel networks to invest in emerging technology-based firms (R&D)	Individuals, businesses, foundations and corporations, or current beneficiaries of the network	• Grant of up to 70% • 25% in monetary support • Up to USD 154 000 in the first year and USD 192 000 in subsequent years	72 months

Table 2.A1.1. **Main policy tools to promote innovative businesses** *(cont.)*

b. Development of business skills

Instrument/Programme	Type	Objectives	Beneficiary	Additional information	Maximum period
Business incubator (InnovaChile-CORFO)	Grant	Support business-incubator operations	New incubators or those previously funded by InnovaChile. Currently, the investment depends on the performance evaluation of each incubator	• Grant of up to 65% • 25% in monetary support • Up to USD 422 000 a year	6 years
Technological Packaging for New Businesses (InnovaChile-CORFO)	Grant	Packaging of high-tech firms with high growth potential	Operates through intermediaries (advisory body). Beneficiary firms must be no older than three years old	• Grant of up to 80% • 20% in monetary support • Up to USD 38 000 in stage 1 and up to a total of USD 345 000 for two stages	36 months, or 48 months in exceptional cases
Global Connection – International Acceleration of Technology Firms (InnovaChile-CORFO)	Grant	Support for international expansion	Firms that are less than four years old	• Grant of up to 90% • 10% in non-monetary support • Up to USD 38 000	9 months

Source: Based on official data and interviews with experts (OECD, 2013g).

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