

# 1 Key policy insights

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Chile's economy recovered swiftly from the pandemic on the back of exceptionally strong policy support, which eventually led to a significant overheating of the economy. Inflation has risen amid buoyant private consumption, further aggravated by the Russian aggression on Ukraine. Monetary authorities have acted in a timely and decisive fashion to contain inflation, and fiscal policy is now consolidating. In the medium term, Chile's fiscal rule could be further enhanced through a debt anchor and a well-defined escape clause. Significant underlying challenges will have to be addressed over the next years, including stagnant productivity and high inequalities. Strengthening competition, reducing regulatory barriers and spending more on research and innovation will be key priorities for boosting productivity and investment, while pressing social needs call for more attention to how incomes and opportunities are distributed, including through taxes and transfers. Expanding access to high-quality early childhood education would improve educational outcomes and productivity, while allowing more women to work. Environmental challenges and risks loom large, but also provide significant opportunities for the future. The current high fossil content of the energy matrix contrasts with Chile's strong potential in renewable energy generation.

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## Maintaining growth and enhancing social inclusion will require bold reforms

Chile's economy has been a poster-child of Latin America for a long time. Its solid institutions have delivered macroeconomic stability and rising living standards. A strong reputation for sustainable and prudent fiscal policy and an independent central bank have laid the grounds for this stability. Per-capita incomes have more than doubled since the 1990s and are among the highest in the region. Poverty has fallen while a new middle class has emerged. Most social indicators have seen significant improvements.

However, despite all this remarkable progress, cracks have emerged on the surface. In October 2019, widespread social unrest paralysed the country and revealed deep-rooted discontent with inequalities of economic conditions and opportunities. Stark differences in access to education and health services have precluded many Chileans from benefiting from the country's economic progress, jeopardising social cohesion and causing disappointment. Around one third of the population is economically vulnerable with incomes below USD 13 per day at 2011 purchasing powers (World Bank, 2021<sup>[1]</sup>) and spend more than 30% of their income on servicing debt (CMF, 2021<sup>[2]</sup>).

After the social unrest, the economy was battered by two additional major shocks. The Covid-19 pandemic took a steep toll on lives and livelihoods, and led to the sharpest contraction of economic incomes in 40 years. On the back of exceptionally strong policy support, the economy recovered swiftly in 2021 and overheated significantly, with domestic demand pushing inflation well above target. Inflationary pressures were exacerbated by the Russian aggression on Ukraine and global supply shortages in 2022, with rising food and energy prices pounding hard on many families as inflation has risen above 14%. In addition, China is Chile's major trading partner and its zero-Covid policy has reduced demand for Chilean exports.

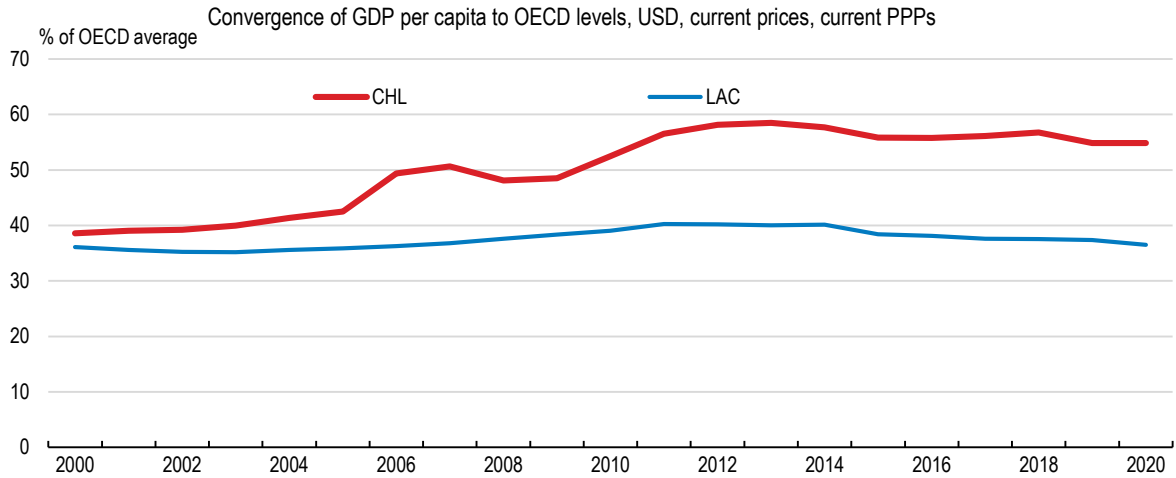
But in the face of these extraordinary shocks, Chile's institutions have been able to react with resilience and prudence, correcting the course in time and averting worse outcomes. For all their convulsion, the social unrest of 2019 eventually resulted in an orderly and democratic process of rewriting the country's constitution. In a national referendum, a majority of Chileans voted in favour of preparing a new constitution. A concrete proposal for a new constitution was rejected in another national referendum in September, and another process for drafting a new constitution is now underway.

Chile's pandemic response successfully used the fiscal space accumulated over years to lift the economy out of the recession, supported by a rapid and well-organised vaccination rollout. Rising inflation was addressed with timely action by monetary authorities and targeted fiscal support, while high global energy prices are being harnessed to advance ambitious plans to exploit Chile's comparative advantage in renewable energy generation. A new government took office in March 2022, elected on a campaign centred on social reforms, more equity, including across genders, and more sustainability. Significant reform progress has either been achieved over this short period or is currently under discussion (Box 1.1).

Chile is now at a critical junction where many decisions are being taken that are likely to shape the future of its society and economy for years to come. That makes it particularly crucial to base reform decisions on all the available evidence, both domestically and internationally. While reforms are the only way to overcome current challenges, it is also worthwhile to preserve what has worked well in the past, such as the strong and well-functioning institutions that have been a backbone of Chile's success.

In addition to the current challenges such as high inflation, significant underlying growth challenges will have to be addressed over the next years. A long-standing process of income convergence to advanced economies has gone into reverse since 2014, relative to the OECD average (Figure 1.1). Productivity has been stagnant or even decreasing, and structural reform efforts have fallen short of what is needed to lift it. Boosting productivity has become a key priority, including for raising export competitiveness, and export diversification could make further progress. Investment in new technologies has been weak, and important parts of the economy could benefit from stronger competitive forces, in part related to cumbersome regulations that hold back new entry and investment.

**Figure 1.1. Income convergence has reversed**



Source: OECD, Productivity database; World Bank, WDI.

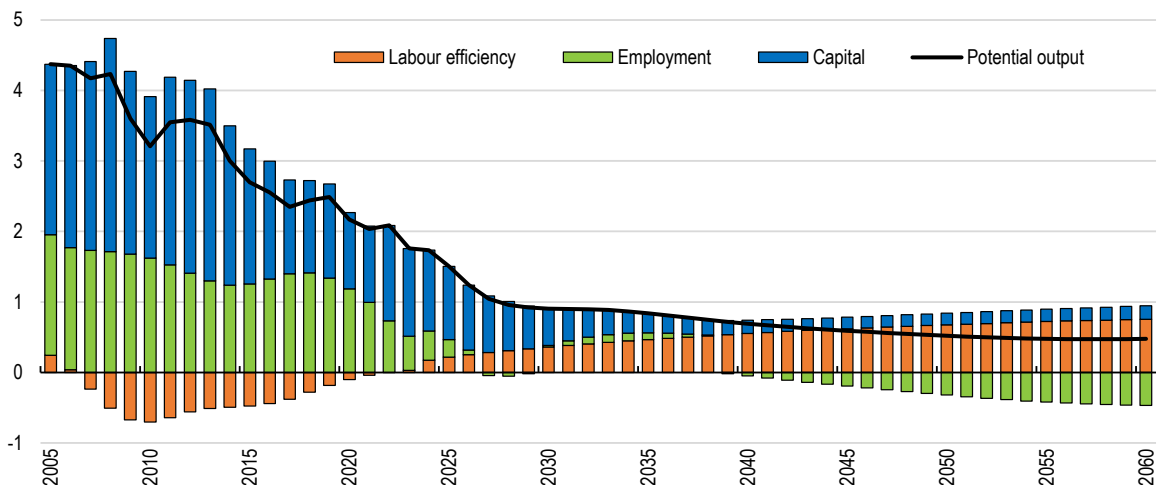
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Chile’s longer-term growth outlook will largely depend on its ability to address existing structural growth bottlenecks to lift productivity and investment. The prospects for future employment growth, which has been a significant source of growth in the last two decades, are largely determined by demographic factors. A rapid process of population ageing will reduce Chile’s labour force, and with that the economy’s growth potential, unless productivity can be raised. The share of those 65 years and older has risen from 3.4% in 1950 to 12.2% in 2020, and is set to exceed 30% by 2065, despite some expected beneficial effects from recent immigration. All else equal, this process would reduce the economy’s growth potential to only a quarter of its current levels, i.e. from around 2% to 0.5% per year, over the next 30 years (Figure 1.2). This is far below the average GDP growth of 3.8% between 2000 and 2019.

Lower income growth will significantly limit the scope for public policies to improve social inclusion and provide better opportunities for all Chileans. Only policy reforms that manage to raise productivity and investment will be able to generate the income and tax revenues that will allow Chile to advance on its path towards more, and more widely shared prosperity.

**Figure 1.2. Potential growth is set to decline as the population ages rapidly**

Contributions to potential output growth per capita



Source: OECD Economic Outlook database.

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At the same time, doing the right reforms has sizeable potential to improve living standards. Simulations based on the OECD long-term growth model (Guillemette and Turner, 2018<sup>[3]</sup>) suggest that an ambitious reform package that would strengthen Chile's institutional setup, improve domestic regulation and competition to boost productivity and improve education outcomes would be able to double GDP per capita by 2060, as opposed to a cumulative increase of 26% without any reforms (Figure 1.3). This reform boost would be sufficient to return to a path of income convergence vis-à-vis the United States and other advanced OECD countries.

### Box 1.1. Recent reforms

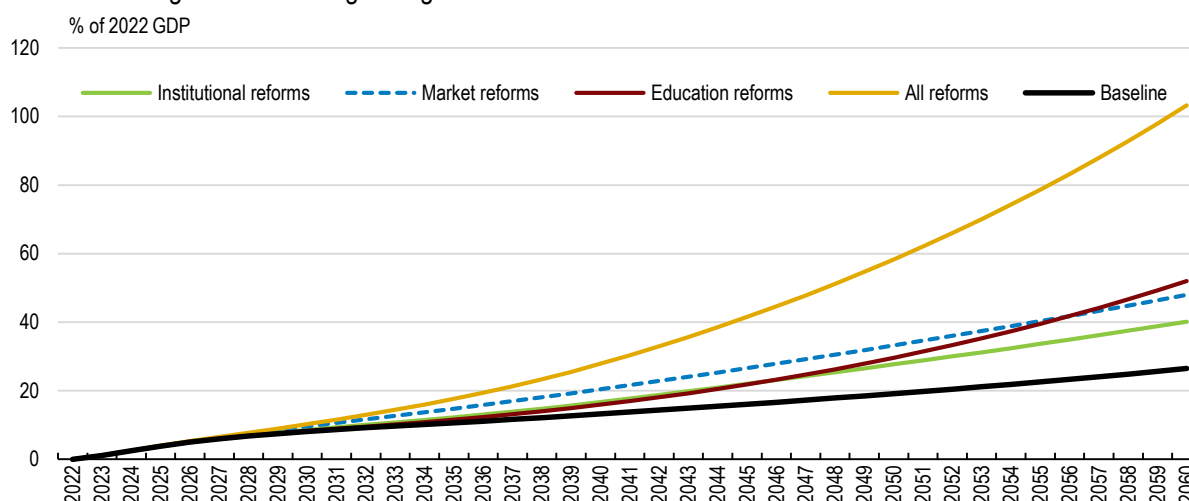
- Pension levels and coverage were increased through a new guaranteed universal pension approved in early 2022, with benefit levels equivalent to the poverty line for those aged 65 years and above, except for the most affluent 10% of the population.
- The minimum wage was increased by 17% in nominal terms in mid-2022, coupled with wage subsidies to compensate small firms for 53% of the increase.
- In response to rising energy prices, employment subsidies for low-income workers were extended in April 2022 until the end of the year. In addition, targeted cash transfers and support to firms in particularly affected sectors were bolstered through the “Chile Apoya” plan, worth 1.2% of GDP.
- A tax reform proposal was published in June 2022 to raise an additional 4% of GDP in tax revenues from personal income taxes, more effective taxation of capital income and capital gains, higher copper royalties, and improvements in tax administration.
- The tax reform proposal includes stronger incentives for productivity-enhancing investments and in particular, investments in research and development.
- A new long-term Climate Strategy has established legally binding net zero emission targets while promoting adaptation and increasing resilience against adverse climate events.

Besides boosting the engines of income growth, pressing social needs will necessitate a growing attention to how incomes and opportunities are distributed. The small size of Chile's public sector limits its ability to provide better public services and opportunities for all, and to reduce inequalities. Public education and health services have significant scope for narrowing the quality gap vis-à-vis private institutions. Pension replacement rates were already low before the pandemic, and many pension accounts are now depleted following three extraordinary withdrawals during the crisis, likely resulting in future fiscal contingencies. More than a quarter of the workforce is in informal labour relationships, depriving them of access to better protection. Women represent 51% of the population but only 41% of the workforce, and they suffer a pay gap of approximately 20%. Better access to quality childcare and early childhood education would allow more women to work.

Finally, environmental challenges and risks loom large, but also provide significant opportunities for the future. The high fossil content of the energy matrix contrasts with Chile's strong potential in renewable energy generation. Few countries in the world can match Chile's meteorological conditions for the production of solar and wind energy, and new export opportunities may become available through the development of a green hydrogen industry. However, concerted efforts will be needed to develop new energy sources for the future, and the transition is likely to involve a significant role for public policies.


**Figure 1.3. Ambitious structural reforms are estimated to lift incomes significantly**

Simulations using the OECD Long term growth model



Note: The “Baseline” projection depicts the trajectory of potential per-capita GDP in Chile according to current estimations of potential growth, without any reform effects. The “Institutional reforms” scenario includes reforms to strengthen institutions and make them more inclusive, through a gradual alignment of the Rule of Law index (Kaufmann, Kraay and Mastruzzi, 2015<sup>[4]</sup>) with the current OECD average by 2060, implemented gradually over time. The “Market reforms” scenario implies an improvement in product market regulations to make them more competition-friendly, as measured by the OECD PMR indicator, to the top decile level of OECD countries, an increase in public investment to 4% of GDP, and an increase in R&D expenditures to 1% of GDP, all by 2030. The “Education reform” scenario aligns student performance and educational attainments with the OECD average.

Source: OECD calculations based on OECD Long-term growth model (Guillemette and Turner, 2018<sup>[3]</sup>).

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Against this background, the main messages of this Survey are:

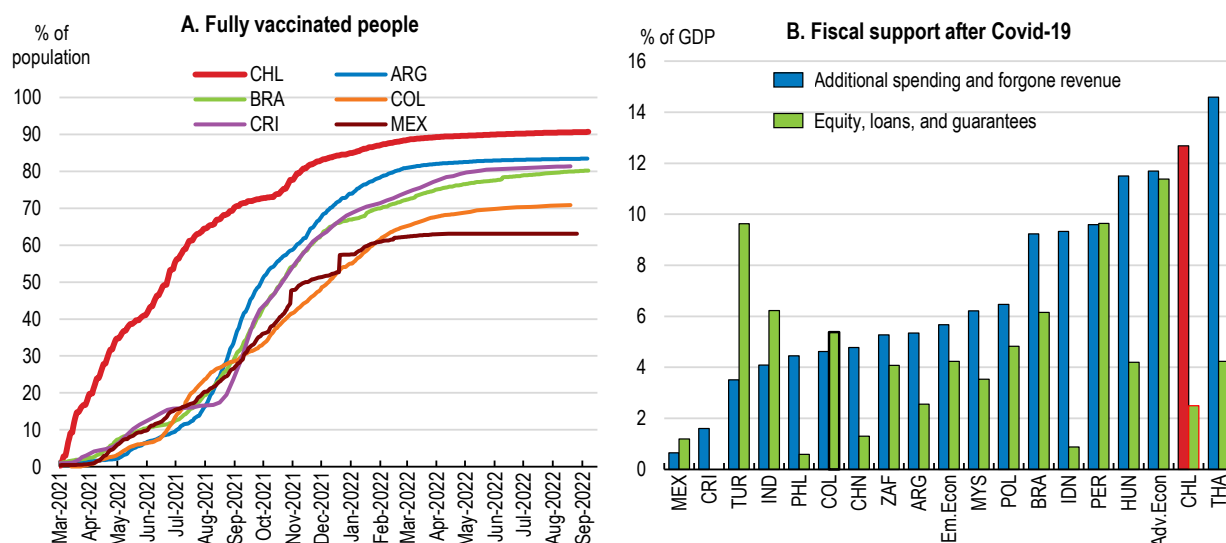
- Fiscal policy should be consolidated in the short-term, while medium-term fiscal sustainability should be ensured by enhancing the current fiscal rule with a debt anchor. Additional public revenues will be required to improve public services and provide better opportunities to all Chileans.
- Raising productivity will hinge on more competition-friendly regulations, stronger competition and more investment into research and development and human capital.
- Supporting vulnerable groups will require deep changes to social security benefits and their financing to strengthen incentives for formal job creation.

## The outlook has weakened and is subject to significant risks

### ***After a stellar recovery from Covid-19, growth has collapsed***

After a deep recession in 2020 when GDP fell by 6.2% due to the Covid-19 pandemic, the economy had a stellar recovery during the second half of 2020 and throughout 2021. This led to growth of 11.9% in 2021, with GDP levels surpassing pre-pandemic levels by 8% at the end of 2021, and eventually to significant overheating. One factor that can help to explain this strong rebound was a well-planned vaccination rollout that not only advanced more rapidly than in any other country in the region, but has also reached further, with over 90% of the population fully vaccinated by mid-2022 (Figure 1.4, Panel A). A second explanation was exceptionally strong policy support. Chile’s fiscal response at over 12% of GDP was one of the highest among emerging markets, and even exceeded the average response in advanced economies in terms of additional spending and foregone tax revenue (Figure 1.4, Panel B).

Figure 1.4. Covid-19 triggered a strong vaccination campaign and exceptional fiscal support

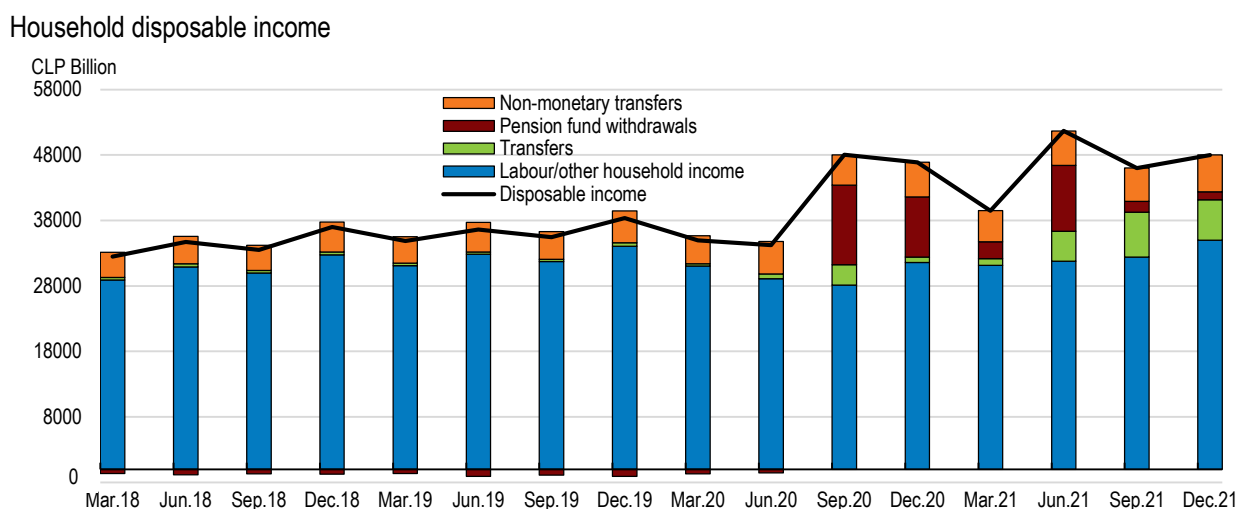


Note: Estimates as of September 27, 2021. Em Econ = simple average of emerging economies shown in chart. Adv Econ = simple average of AUS, BEL, CAN, CHE, CZE, DEU, DNK, ESP, FIN, FRA, GBR, ITA, JPN, KOR, NLD, NOR, NZL, SGP, SWE, USA.  
 Source: Center for Systems Science and Engineering at Johns Hopkins University; Our World in Data; IMF Database of Country Fiscal Measures in Response to the COVID-19 Pandemic, available at <https://www.imf.org/en/Topics/imf-and-covid19/Fiscal-Policies-Database-in-Response-to-COVID-19>.

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By the end of 2021, emergency transfers reached almost 16 million beneficiaries or 83% of the population. In addition, three rounds of early withdrawals from individual pension accounts released liquidity worth around 18% of GDP to households. This significant support totalling 30% of GDP overcompensated the loss labour of incomes during the pandemic and was not concentrated on low-income households, with household disposable incomes exceeding average 2019 levels by more than 40% in mid-2021 (Figure 1.5). This triggered a large temporary boom in the economy, fuelled by high consumption of durables, and supported production and investment in several manufacturing sectors, but inflation rose substantially to 12.5% in year-on-year terms in June 2022.

Figure 1.5. Pandemic-related policy measures have far overcompensated household income losses



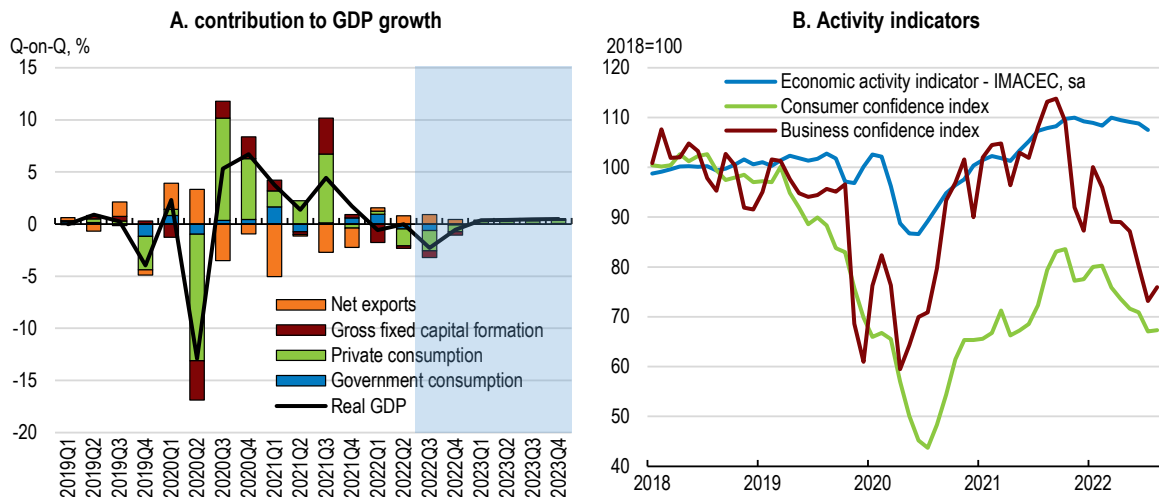
Source: Central Bank of Chile.

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As policy support was gradually withdrawn and household consumption slowed on the back of high inflation, economic growth collapsed and GDP contracted in the first quarter of 2022 and stagnated in the second quarter (Figure 1.6, Panel A). Economic sentiment declined throughout the first half of the year (Figure 1.6, Panel B). By contrast, services started to contribute positively to activity, reflecting the gradual removal of remaining Covid-19 restrictions. Investment fell in the first half of 2022, and early investment indicators such as business confidence suggest an ongoing slowdown in investment momentum.

The labour market has been recovering gradually and formal-sector dependent employment now exceeds pre-pandemic levels. Still, overall employment and labour participation, which dropped in 2020 as discouraged job seekers abandoned their efforts during the lockdowns, remain more than 3% below average 2019 levels (Figure 1.7, Panel A). Job losses affected particularly informal workers, which account for more than a quarter of the workforce, but also women and youths, exacerbating pre-existing inequalities. Now the job recovery is also advancing more slowly among these groups, in line with developments in other countries in the region. Up until July 2022, the unemployment rate decreased to 7.6% despite more people returning to the labour force. This level is significantly lower than in other countries in Latin America (Figure 1.7, Panel B).

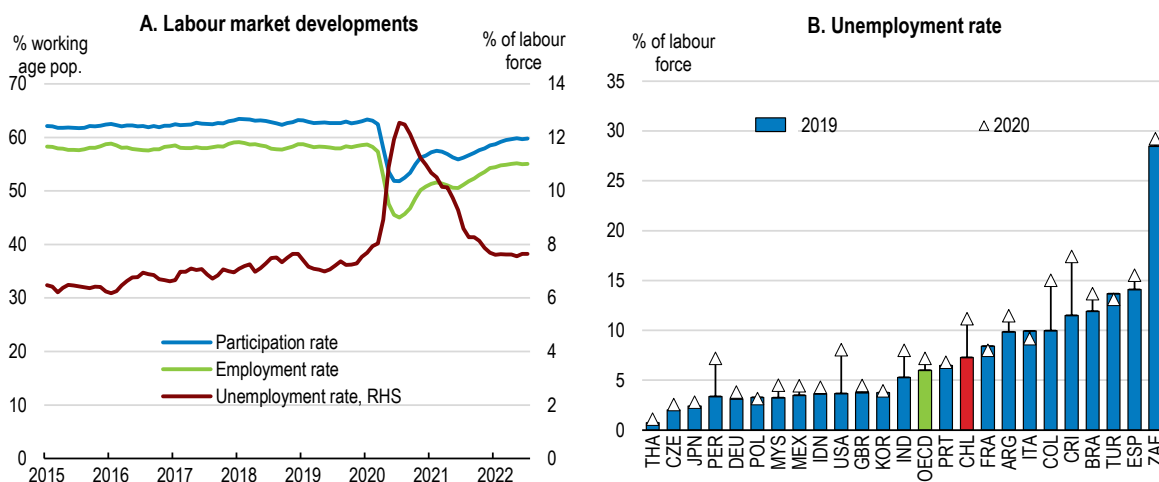
**Figure 1.6. Consumption and growth are slowing down amid low confidence**



Source: OECD projections, Central Bank of Chile.

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**Figure 1.7. The labour market is recovering gradually**



Source: INE; CEIC; World Bank WDI.

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Inflation has risen to 14.1% year-on-year in August 2022 as higher energy and food prices resulting from the Russian aggression on Ukraine have added to inflationary pressures from strong consumption demand, particularly through the price channel and supply bottlenecks, as Chile imports both oil and liquified natural gas at now significantly higher prices, but also through lower growth in European trading partners. A vehicle fuel price stabilisation mechanism created in 2014 is now being used to cushion the burden on households resulting from global price increases, and additional fiscal resources are being deployed to replenish it, along with price smoothing mechanisms for heating fuels and electricity prices. Price freezes have been established for public transport fares, while the effects of higher food prices are largely addressed through targeted transfers that rise automatically with inflation. Looking ahead, Chile's sophisticated system of public transfers and its strong underlying social registry would allow it to rely more on targeted transfers to cushion the impact of energy prices rather than price stabilisation mechanisms with implicit subsidies.

Growth is projected to slow to around 1.9% in 2022 and -0.5% in 2023 (Table 1.1), although annual growth in 2022 is heavily influenced by statistical carryover effects. In the near future, quarterly GDP contractions are likely to continue until the last quarter of 2022, as high inflation and rising interest rates curtail household purchasing power. These forces will continue to weigh on consumption growth during 2022 and 2023. Pre-pandemic employment levels will be recovered gradually, supported by ongoing hiring subsidies. Low business confidence suggests that investment is also likely to remain weak in the near term, with policy uncertainty, partly related to the implementation of the new constitution, and higher interest rates impeding a stronger investment performance. Inflation is projected to ease and converge gradually to the target in early 2024, as continuous monetary policy tightening takes its effect, and the economy slows down.

**Table 1.1. Macroeconomic indicators and projections**

	2017	2018	2019	2020	2021	2022	2023
<b>National accounts (% changes, seasonally-adjusted at 2015 prices)</b>							
Gross domestic product (GDP)	1.6	4.0	0.7	-6.2	11.9	1.9	-0.5
Private consumption	3.6	3.8	0.8	-8.2	20.5	2.1	-1.9
Government consumption	4.7	3.2	0.5	-4.1	10.4	4.1	-2.2
Gross fixed capital formation	-3.3	6.5	4.7	-9.7	18.0	-2.4	-1.8
Final domestic demand	2.1	4.3	1.7	-8.0	18.3	1.2	-1.9
Stockbuilding <sup>1</sup>	1.0	0.7	-0.7	-1.6	3.0	1.8	0.1
Total domestic demand	3.1	5.0	0.9	-9.4	21.7	3.0	-1.7
Exports of goods and services	-1.0	5.1	-2.5	-1.2	-1.5	1.6	2.1
Imports of goods and services	4.5	8.6	-1.7	-12.8	31.2	5.2	-1.4
Net exports <sup>1</sup>	-1.5	-1.0	-0.2	3.5	-8.9	-1.2	1.3
<b>Other indicators (growth rates, unless specified)</b>							
Unemployment rate (% of labour force)	7.0	7.4	7.2	10.7	8.8	7.8	8.0
Consumer price index	2.2	2.4	2.6	3.0	4.5	11.1	6.4
Consumer price index December-on-December	2.3	2.6	3.0	3.0	7.2	11.9	3.9
Core consumer price index	2.0	1.9	2.6	2.3	3.8	9.0	3.8
Core consumer price index December-on-December	1.9	2.3	2.5	2.6	6.4	9.5	5.2
Current account balance (% of GDP)	-2.8	-4.6	-5.2	-1.7	-6.6	-8.5	-6.7
Central government net lending (% of GDP)	-2.8	-1.7	-2.9	-7.3	-7.7	-0.1	-2.6
Central government gross debt (% of GDP)	23.7	25.8	28.3	32.5	36.3	38.2	40.9

1. Contribution to changes in real GDP.

Source: OECD projections, OECD Economic Outlook Database, INE, Central Bank.

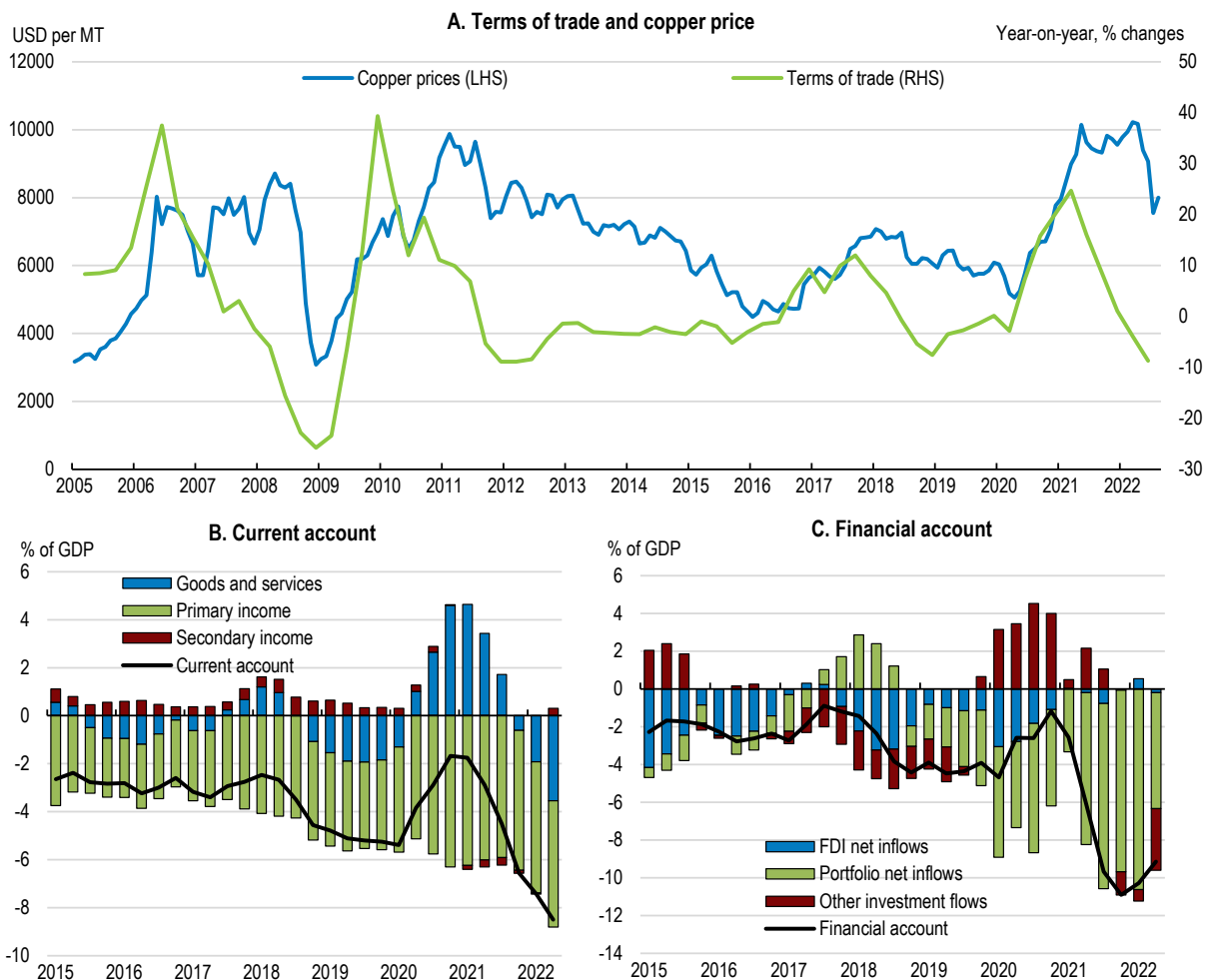


A widening current account deficit is projected to peak in 2022, on the back of higher global energy prices and a substantial deterioration of the terms of trade. Exports have been weakened by contracting copper production, mostly related to supply-side challenges like water restrictions, shipping delays and policy uncertainty. Imports of machinery and equipment remained fairly strong in early 2022. In 2023, strong copper prices and more robust production in key export sectors such as chemical products and mining derivatives in combination with lower consumer and investment demand for imports will improve the current account balance.

### Risks around the recovery remain substantial

Both domestic and external risks are unusually high and tilted to the downside at the current juncture. On the external side, the Russian aggression on Ukraine could lead to longer-lasting energy and food inflationary pressures that would make it more difficult to bring inflation back to target, and could require tighter financial conditions to cool down domestic demand. Further currency depreciation could amplify these pressures. Sudden sentiment changes in global financial markets, possibly related to surprises in the conduct of monetary policy in advanced economies, could limit financial inflows and increase financing costs for emerging market economies such as Chile. A sharper slowdown in China, the main trading partner, is another risk to growth, including through export and investment demand. Upside risks to growth are sustained higher copper prices and a faster resolution of global supply bottlenecks.

Figure 1.8. The current account deficit has widened amid deteriorating terms of trade



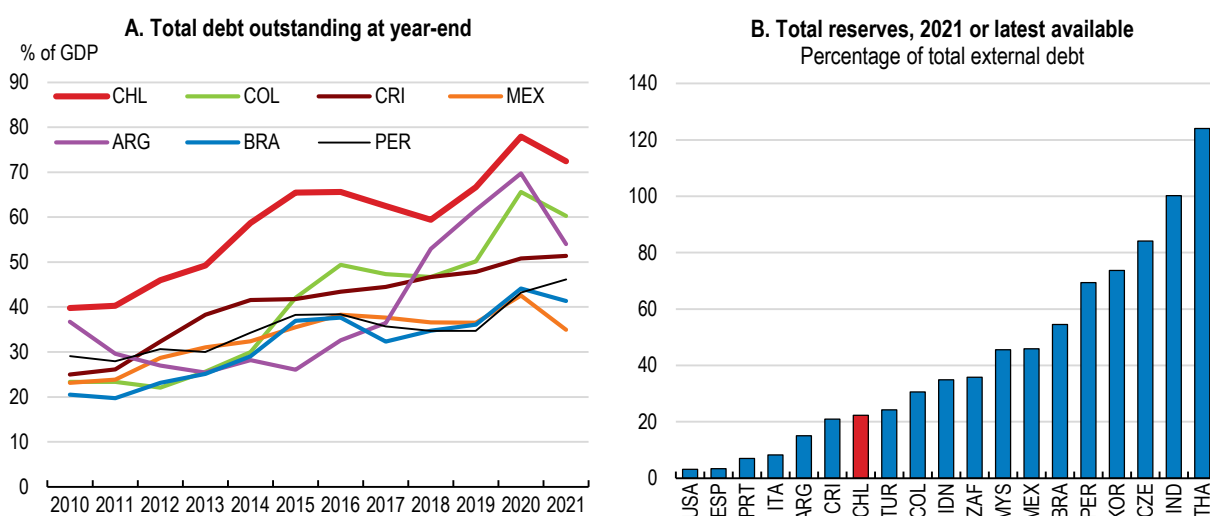
Source: Central Bank of Chile; OECD Economic Outlook database.

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Developments in external accounts have made the economy more vulnerable to swings on global capital markets than in the past. The current account deficit widened to 6.6% of GDP in 2021, reflecting the consumption boom driven by public transfers and the extraordinary pension fund withdrawals, especially for imported durables, and higher prices of energy imports, which outweighed strong copper prices and led to a decline in the terms of trade (Figure 1.8). This deficit is largely financed by portfolio capital inflows, which tend to be more volatile than direct investment flows. As the consumption patterns normalise, the current account deficit should narrow again, but there is a risk that it would remain large. In terms of stocks, however, Chile's position is stronger than in most emerging market economies as the net international investment position rose from -10.8% of GDP in 2020 to -5.5% of GDP in 2021. OECD projections point to a further deterioration of the current account balance to -8.5% of GDP in 2022, before improving slightly to -6.7% of GDP in 2023 on the back of slowing domestic demand.

Moreover, external debt has been on an upward trend and amounted to 72% of GDP in 2021 according to the IMF definition, which is high in a regional comparison (Figure 1.9, Panel A). Slightly more than a third of that debt, or 28% of GDP, is owed by the private non-financial sector, mostly in the form of securities and long-term loans. Around 20% of total external debt is covered by foreign-exchange reserves that would cushion the economy from any immediate impact (Figure 1.9, Panel B). Access to a novel one-year Short-term Liquidity Line (SLL) arrangement with the International Monetary Fund, amounting to 1.1% of GDP, will provide an additional backstop against external risks (IMF, 2022<sup>[5]</sup>).

**Figure 1.9. External debt is substantial and foreign exchange reserves provide some buffer**



Source: IMF IFS and WEO databases.

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Political risks also remain, particularly since the rejection of the draft proposal for a new constitution in September 2022. So far, the social unrest of 2019 has been channelled into a democratic reform process, but if that were to change and new episodes of social unrest took place, this could affect the trust in Chile's institutions and curtail prospects for investment and consumption.

***Financial stability risks seem contained, but financial market depth has declined***

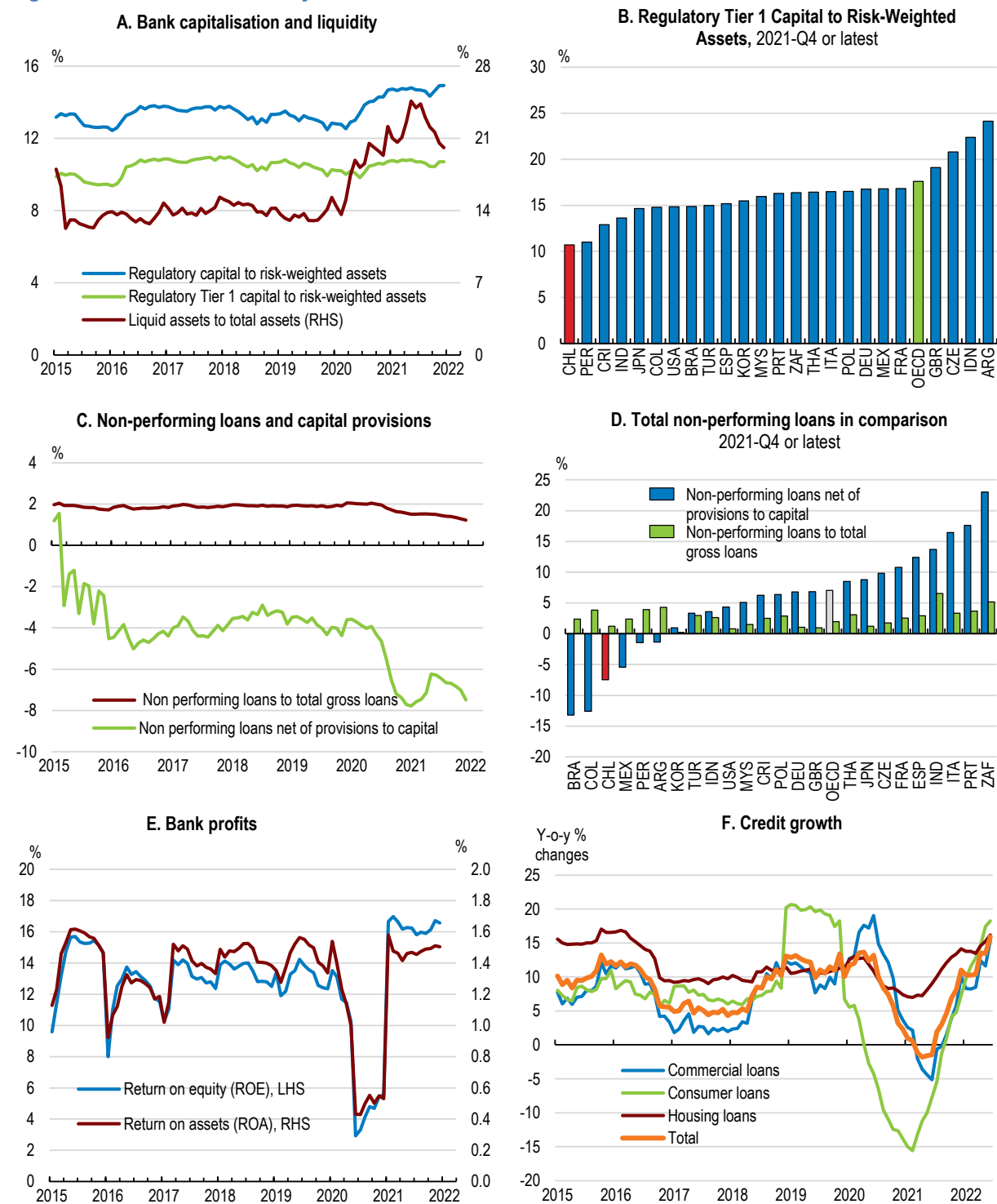
The deterioration of financial conditions, the widening of macroeconomic imbalances related to the strong policy boost to aggregate demand in 2021 and lower growth prospects going forward imply rising challenges for financial markets, exacerbated by higher global risks and volatility. The resulting risks, however, are mitigated by a relatively favourable starting position. Banking system capitalisation exceeds regulatory floors, even if regulatory tier 1 capital is low compared to other emerging and advanced economies (Figure 1.10). Basel III rules are being implemented as of December 2021, which will improve capital buffers. Non-performing loans have diminished to historic lows during the Covid-19 pandemic, despite a small uptick among consumer loans, and banks have bolstered provisions, resulting in a substantial excess coverage (Figure 1.10, Panel C). Bank profits have returned to pre-pandemic levels. Stress tests undertaken by the Central Bank and the IMF suggest that solvency indicators would exceed regulatory requirements even under severe stress (Banco Central de Chile, 2022<sup>[6]</sup>; IMF, 2021<sup>[7]</sup>).

Household indebtedness of 77% of disposable incomes remains high in a regional context, although below the OECD average of 105%. It declined by almost 7 percentage points during 2021 as some households made use of the extra liquidity afforded by the pandemic support to pay down debt (Banco Central de Chile, 2022<sup>[8]</sup>). Home prices rose vigorously in the first half of 2021, before starting to decline in the second half. Credit standards for mortgages have tightened and lending has slowed down. Some corporate borrowers were able to benefit from the strong consumption boom in 2021, and overall corporate indebtedness has declined, while lending standards have tightened for corporate bank loans and risk premiums in the local corporate bond market have edged up (Banco Central de Chile, 2022<sup>[6]</sup>).

The pandemic policy response is leaving a strong mark on Chile's financial markets. Pension fund withdrawals of approximately 18% of GDP required funds to liquidate long-term assets in their portfolio and reduced financial market depth, at the same time as households depleted their pension savings. Local long-term interest rates rose in response, and the maturities of bonds issued by banks, firms and the treasury shortened substantially, which together with tightening domestic and global financial conditions narrowed the scope to finance Chile's future investment needs. The smaller domestic financial market will also imply stronger recourse to external and foreign-currency borrowing in the future, increasing external vulnerabilities. Corporate bond issuance has already shown first signs of that (Banco Central de Chile, 2022<sup>[6]</sup>).

Chile's deep financial markets and the availability of private long-term credit are one of the features that have set it apart from many other countries in Latin America with substantially shallower financial markets (Figure 1.11). These have afforded Chilean enterprises lower costs of capital, more borrowing and investment opportunities and bolstered their resilience to shocks. Consumers in Chile have enjoyed consumption smoothing opportunities like no other Latin American countries, including the existence of deep long-term mortgage markets at fixed rates, which are not a common feature in Latin America. Now the share of new fixed-rate mortgages declined from over 90% in late 2019 to 41% in early 2022 (Figure 1.11, Panel D). These recent events were a significant blow to Chile's capital market. Looking ahead, it will be crucial to channel at least parts of new pension contributions into savings, which would continue to be invested in Chile's financial markets, to preserve Chile's distinct competitive advantage in access to credit.

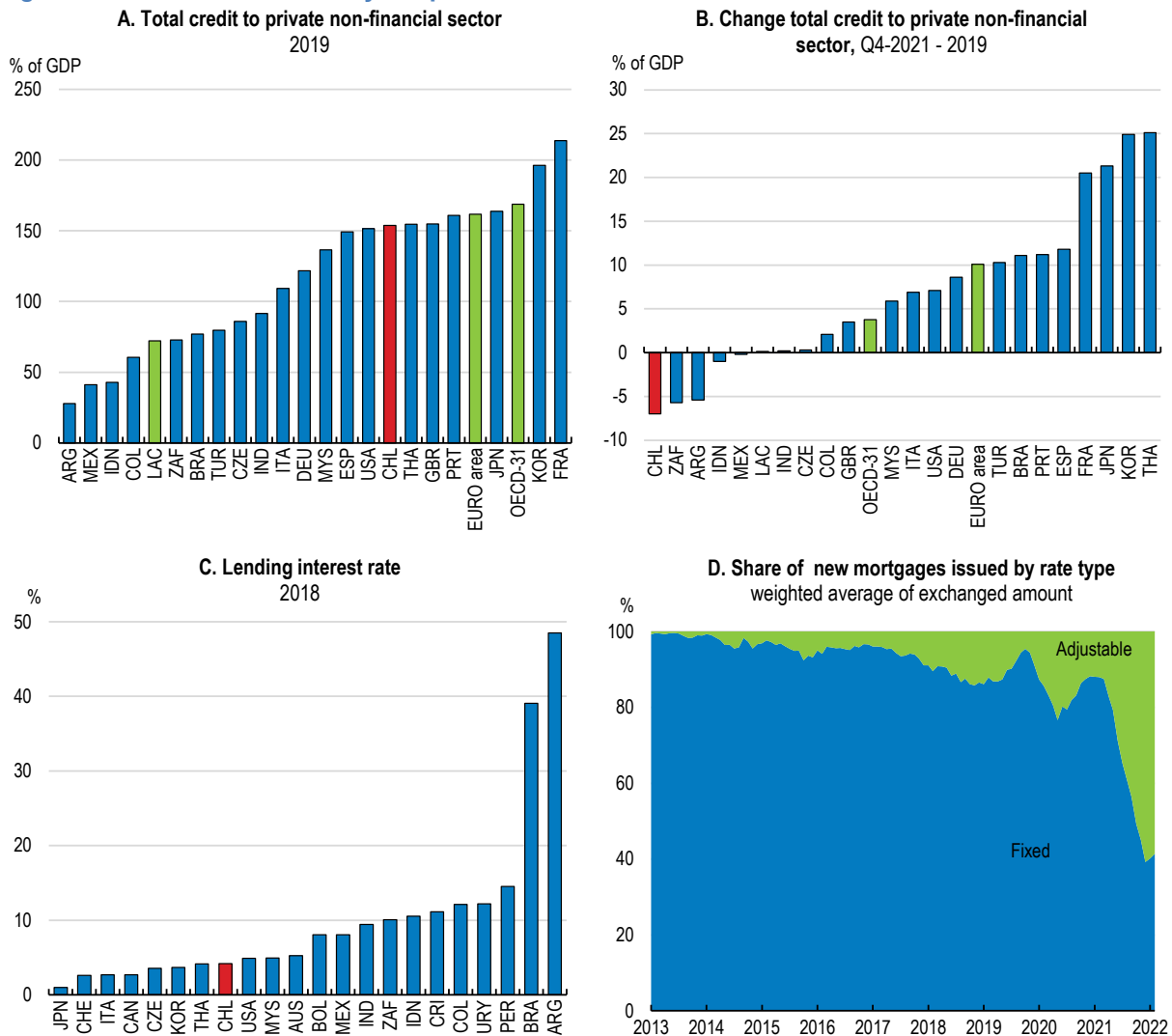
Figure 1.10. Financial stability indicators



Source: CEIC, BIS, Central Bank of Chile.

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**Figure 1.11. Chile's traditionally deep credit markets have become shallower and riskier**



Note: Domestic credit to private sector refers to financial resources provided to the private sector by financial corporations, such as through loans, purchases of non-equity securities, and trade credits and other accounts receivable, that establish a claim for repayment. Data for Argentina refer to 2017.

Source: International Monetary Fund, International Financial Statistics; BIS; Central Bank of Chile.

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### **Chile is particularly vulnerable to climate change**

Long-term vulnerabilities for economic growth include environmental risks, renewed flare-ups in social unrest, and slower growth in China, which is Chile's main trading partner and the destination for 38% of exports (Table 1.2; also Figure 1.27). Chile's exposure to the copper price is another source of vulnerability, although long-term price declines are unlikely given that copper is a key input for the global energy transition towards electricity from renewable resources.

Chile is particularly vulnerable to climate change due to the variety of geographic conditions and fragile ecosystems, including a 6.400 km coastline, vast arid areas, forests, and ice caps that are extremely susceptible to global warming. Exposure to natural disasters, such as fires and droughts, has increased in recent years, mostly driven by human activities such as deforestation, mining, land degradation, and air pollution. A 13-year-long drought required elaborating contingency plans for water rationing in 2022, and a 60% decrease in precipitation levels is expected for the northern and central regions by the end of the

century. Small variations in the average temperature could imply the disappearance of forests and arable areas in most of the territory, affecting the life, health, and well-being of millions of Chileans. This will also affect asset valuations, as around 30% of properties in Chile will be exposed to climate risks by 2050 (Banco Central de Chile, 2022<sup>[9]</sup>). The Central Bank has recently started to incorporate climate-related risks into its stress tests and financial stability monitoring tools (Banco Central de Chile, 2022, pp. 32-44<sup>[6]</sup>). Moreover, an inter-ministerial committee is trying to measure natural capital, in order to take this dimension in the development of public policies.

**Table 1.2. Potential major medium-term vulnerabilities**

Uncertainty	Possible outcome
Environmental risks related to climate change	Fires, droughts, water rationing, lack of arable land, stronger need for food imports.
After the massive withdrawals from individual pension accounts, financial markets have become more shallow.	Lower growth due to lower availability of finance for investments. Lower capacity to absorb future shocks.
Uncertainty surrounding the process of drafting a new constitution has risen following the rejection of a draft in a nationwide referendum in September 2022.	Renewed social unrest, political instability and policy uncertainty.
Slower economic growth in China	Lower import demand and growth.

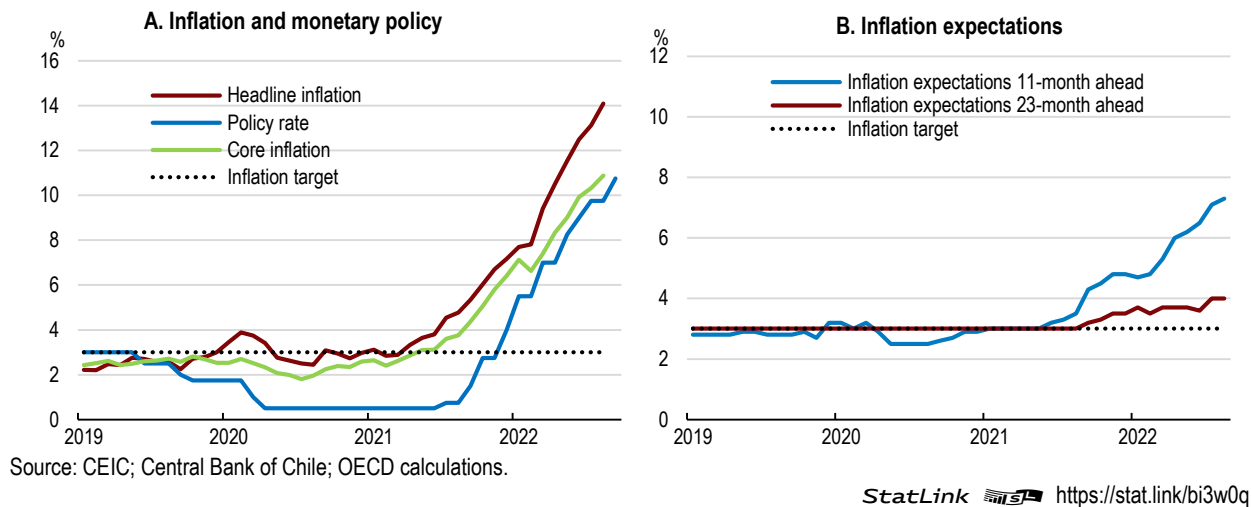
### Monetary policy will need to remain restrictive to fight high inflation

Traditionally, Chile's monetary policy has been guided by a highly credible inflation-targeting framework and a flexible exchange rate regime. The strong fiscal stimulus, most of which took place in 2021, gave rise to mounting inflationary pressures during that year, with inflation beginning to rise above the Central Bank's 3% target as of March 2021, and exceeding that target by 7.5 percentage points by April 2022 (Figure 1.12). Rising prices reflected initially a domestic consumption boom induced by extraordinary fiscal policy support to households. As a result, the output gap closed as early as mid-2021 and overheated visibly during the second half of 2021. While households used some of the extra liquidity from transfers and pension fund withdrawals to pay down debt, the rest was consumed right away, surprising many observers, with household savings remaining at a fairly low 4.5% of GDP in late 2021. Inflationary pressures were broad-based and hence quickly showed up in core inflation as well.

As of early 2022, global inflationary pressures stemming from higher food and energy prices as a result of the Russian aggression on Ukraine added to an already complicated inflation picture, with currency depreciation amid domestic political uncertainty adding on. Inflationary pressures have become widespread across components of the consumer price index, although somewhat more moderate in services, some of which are subject to regulated prices. Wages have increased by 9.7% year-on-year in July 2022, falling short of inflation, but above the 3.6% wage growth of 2019. The risk of a wage-price spiral therefore appears limited at this point, but remains to be watched carefully. Inflation expectations, which have traditionally been well-anchored due to the strong credibility of Chile's independent Central Bank, are now significantly exceeding the 3% target not only over a horizon of 12 months, but also over 24 months, the relevant horizon for monetary policy (Figure 1.12, Panel B). Price indexation is widespread in Chile, leading to more persistent inflation (Naudon and Vial, 2016<sup>[10]</sup>).

Monetary policy acted early to stem inflationary pressures, with 9 rate increases since July 2021, and a total of 925 basis points of rate increases since then. Financial conditions have tightened substantially as a result of these rate hikes, with an increase in the ex-ante real interest rate from -2.5% in 2021 to almost 5.8% in June 2022. This decisive action is showing some early fruits, as investment is contracting and household consumption is stalling, while real estate transactions and mortgage applications are slowing down.

**Figure 1.12. Monetary policy has reacted early, but inflation expectations remain high**



Looking ahead, the early monetary policy reaction should allow the tightening cycle reach an end soon as the economy is slowing down sharply and excess demand vanishes. Moreover, the effects of more recent tightening will take time to materialise and a significant part of inflation is imported. On the basis of currently available information, monetary policy will need to remain tight for some time to bring inflation back to the target and to firmly re-anchor inflation expectations. Regulatory policy measures that have the potential to boost competition and reduce prices could accompany monetary policy action, and achieving such price reductions would be particularly valuable in the current high-inflation context.

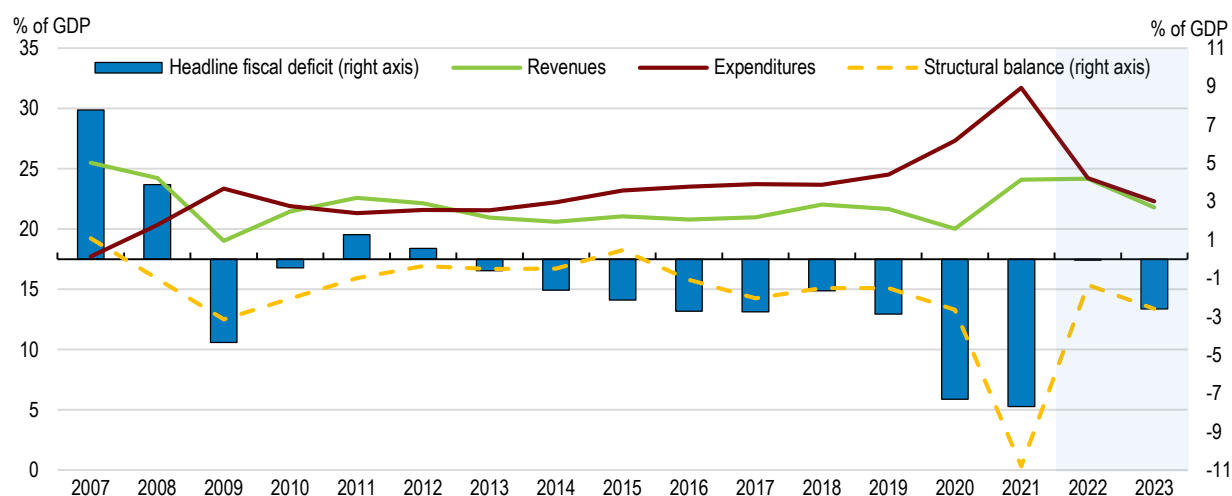
## Fiscal policy will require adjustments in the short and long run

### ***A fiscal consolidation is required to ensure prudent debt levels***

While the strong fiscal policy response supported a rapid recovery, its back-loaded timing and excessive impulse impeded an effective stabilisation of the economy, and can help to explain the renewed economic slowdown in 2022 and 2023. The fiscal expansion reached its peak in 2021 when the economy had already recovered, driving the headline fiscal deficit to a 30-year high of 7.7% of GDP in 2021 (Figure 1.13). The 2021 structural fiscal balance, which takes into account cyclical effects related to the strong recovery and high copper prices, was even more expansionary at -10.8% of GDP (DIPRES, 2022<sub>[11]</sub>). This suggests that the cyclical position of the economy would have called for a reduction of the fiscal impulse in 2021, rather than an expansion.

The bulk of this additional spending was emergency cash transfers, totalling 10.6% of 2021 GDP (Figure 1.14). The lion's share was the Emergency Family Income whose accumulated cost reached almost 8% of 2021 GDP by the end of that year. Until March 2021, this was restricted to the poorest 40% of the population, but its targeting deteriorated and its fiscal cost rose sharply when eligibility was extended to the bottom 90% of the population thereafter. As a result, the largest expansion of emergency transfers took place in the second half of 2021, when the output gap had already closed.

**Figure 1.13. Rising public expenditures led to a substantial widening of the fiscal deficit**

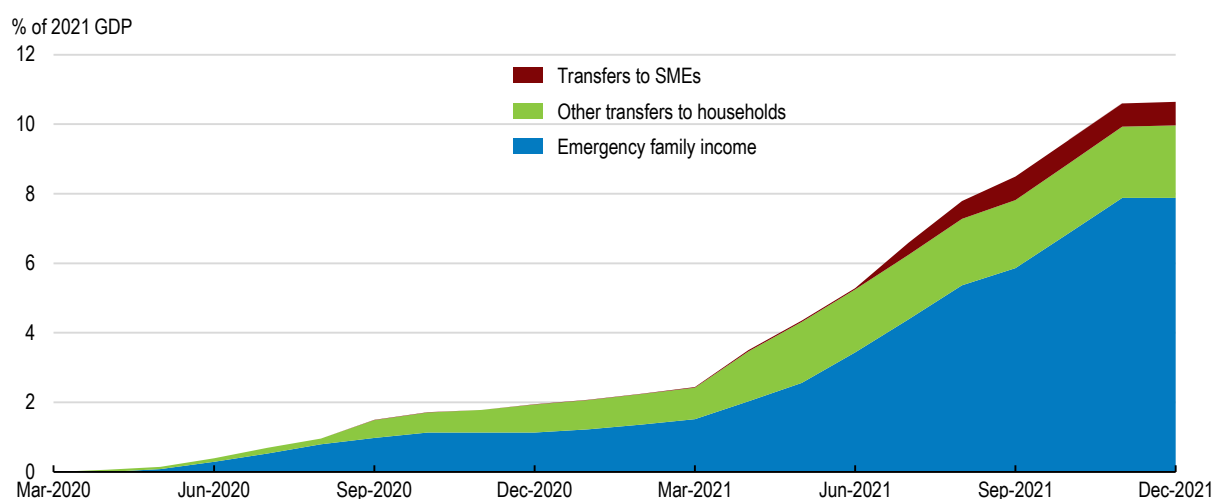


Note: The shaded 2022 and 2023 data are current government plans, adjusted for OECD GDP projections.

Source: OECD calculations based on Ministry of Finance IFP 2/2022, available at [http://www.dipres.cl/598/articles-279125\\_Informe\\_PDF.pdf](http://www.dipres.cl/598/articles-279125_Informe_PDF.pdf).

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**Figure 1.14. Emergency transfers rose strongly during 2021**



Note: Other transfers to households include Bono Emergencial, Bono Clase Media y Pensionados, Bono Covid Navidad, Cajas alimentos. Transfers to SMEs include Bono Apoyo a Pymes and Bono Transportistas.

Source: OECD calculations based on Ministry of Finance data.

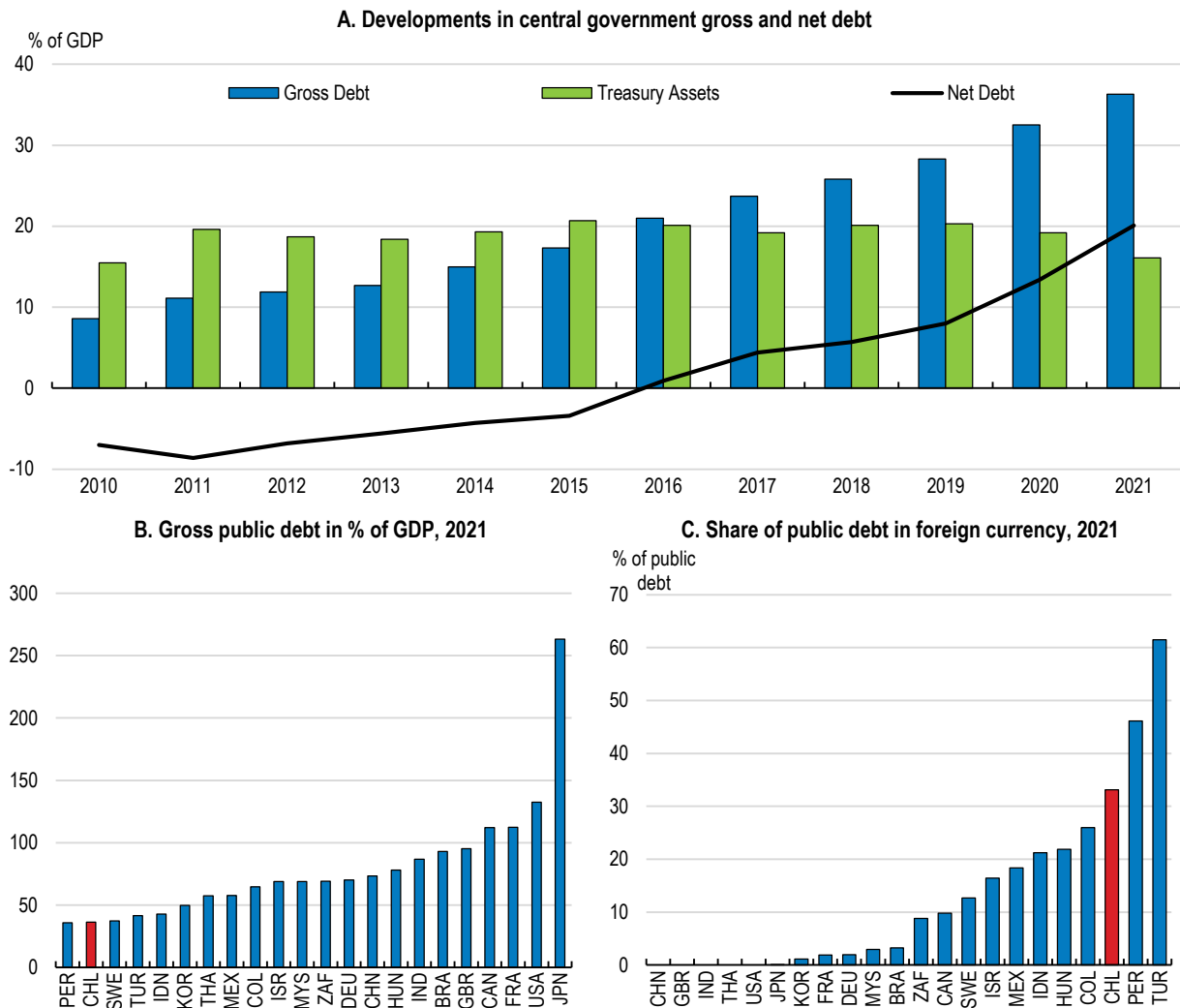
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The massive spending was financed by drawing on savings in sovereign wealth funds, with central government assets declining by 4.2% of GDP between 2019 and 2021, and new debt issuance, as gross debt rose by 8 percent of GDP, to reach 36.3% of GDP in 2021 (Figure 1.15, Panel A). In comparison to other emerging market economies, Chile's public debt remains at a moderate level, although tax revenues are also comparatively low. Public debt is less exposed to exchange rate risks, as 65% of Chile's gross public debt is domestically issued and denominated in local currency (Figure 1.15, Panels B and C). More than half of Chile's public debt has a maturity above 8 years and market perceptions about Chilean public bonds remain favourable relative to other countries in the region, despite a slight deterioration in early 2022.



Despite this relatively favourable static picture of Chile's public finances, the dynamics give more reason to remain prudent. Gross and net public debt have risen steadily over the last decade, suggesting that the current fiscal framework has been incapable to contain debt levels. Looking ahead, the domestic financing share of gross public debt is likely to decline as shallower domestic financial markets as a result of the pension fund withdrawals will require a stronger recourse to foreign financing.

**Figure 1.15. The debt outlook has deteriorated, but is still better than in other EMEs**



Source: Ministry of Finance; IMF, World Economic Outlook database; BIS.

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Higher debt, the strong recovery and high inflation now justify the planned substantial consolidation of fiscal policy over the next few years. Stronger than expected revenues in 2022 are helping to move in this direction. Current fiscal plans, in line with the fiscal rule, expect headline deficits of 0.1% of GDP in 2022 and 2.6% in 2023 when adjusted for OECD growth projections (Figure 1.13). In the short term, this will be achieved through a reduction in spending, as most transitory pandemic-related support programmes are being phased out. This implies a strong spending reduction close to 7.5% of GDP between 2021 and 2022. In the medium-term, the fiscal deficit is meant to narrow to 0.3% of GDP by 2026. The government also replenished the sovereign wealth funds by around 2% of GDP in the first semester of 2022.

Beyond 2023, the most salient feature of current fiscal plans is the mobilisation of additional tax revenues, spelled out through a wide-ranging tax reform presented in June 2022. These additional revenues are expected to come from higher personal income tax rates, especially in the upper brackets and from capital income, the introduction of a wealth tax, a higher tax burden on the mining sector and the reduction of tax exemptions in several areas, in combination with plans to improve tax enforcement. Legislated in 2022, these changes will affect the 2023 tax base, with most of the additional tax revenues being collected as of 2024. Over the medium term, the authorities expect an additional 4% of GDP in public revenues as a result of the reform.

The case for raising additional tax revenues appears strong given Chile's low tax intake on one hand, and the significant legitimate spending needs in several areas. While higher taxes may give rise to distortions that could weigh on economic growth, the overall effect of a fiscal reform package can be significantly more favourable if the additional revenues are used to finance expenditures that enhance growth and equal opportunities. Improvements in social protection and public services, as advocated in this Survey, would fall into that category. Such expenditures could include a more generous guaranteed minimum pension that would improve pension coverage and allow to strengthen the incentives for formal job creation, fighting poverty through better social transfers, investments in education and health. Moreover, additional investment in research and development could spur innovation and productivity. Raising an additional 4% of GDP in public revenues over time would be sufficient to finance the fiscal costs of recommendations made in this Survey (Table 1.3). This gradual process should be accompanied by regular impact evaluations.

**Table 1.3. Medium-term fiscal impact of recommendations in this Survey**

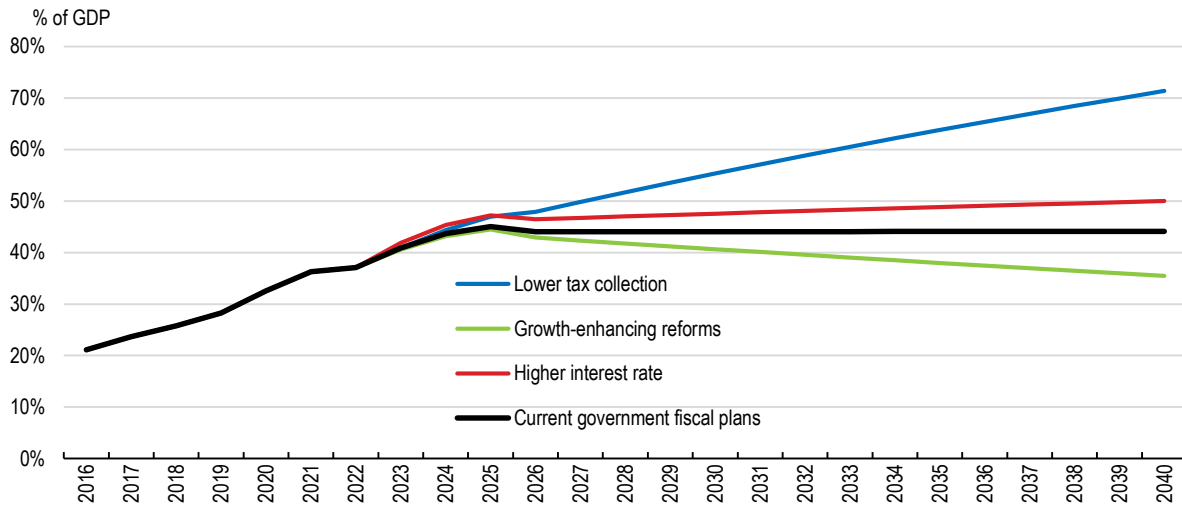
Recommendation	Estimated annual impact on fiscal balance
Mobilise additional tax revenues, including from personal income taxes, property taxes and improvements in tax administration.	4.0% of GDP (fully achieved by 2026)
Increase in the guaranteed minimum pension (PGU) to CL 250,000.	0.7% of GDP
Create a single guaranteed minimum-income scheme to eradicate poverty.	0.7% of GDP
Improve universal access to quality healthcare services through a single national health fund.	0.8% of GDP
Expand early childhood education and improve the remuneration of teachers, particularly at the entry level.	0.5% of GDP
Expand support for research, development and innovation	0.3% of GDP
Resulting change in fiscal balance	+1.0 % of GDP

Source: OECD estimates.

Based on these assumptions and including the expected fiscal costs associated with population ageing, gross public debt of the central government is projected to stabilise at 44% of GDP over the next two decades, almost 8 percentage points above 2021 levels, but in line with current practice in many emerging market economies (Figure 1.16, black line). This baseline scenario, however, is surrounded by significant risks. If currently planned ambitious tax reform were to raise only half the projected revenue increase by 2026 while maintaining spending plans, then gross public debt would be on an explosive path exceeding 71% of GDP by 2040 (Figure 1.16, blue line). Higher interest rates, possibly related to developments on global financial markets and shallower domestic financial markets, would also lead to a higher debt trajectory, though with a near-convergence of debt around 50% of GDP (Figure 1.16, red line). Finally, the package of growth-enhancing structural reforms described in Figure 1.3 would raise growth and hence reduce the debt-to-GDP ratio visibly, with a continuous decline in public debt that would reach 35% of GDP in 2040 (Figure 1.16, green line).

### Figure 1.16. Public debt has risen

Scenarios for the trajectory of gross public debt



Note: The current government fiscal plans scenario assumes GDP growth as in Table 1.1 and 2.2% thereafter. Additional annual tax revenues of 4% of GDP are phased in between 2024 and 2026. Public expenditures consider the sum of committed expenditures as per DIPRES (2022) and additional expenditures announced in 2022. The lower tax collection scenario assumes that only 2% of GDP can be raised in additional tax revenues while maintaining spending plans. The higher interest rate scenario assumes an additional 0.6 percentage points for the implicit interest rate on gross public debt. Finally, the higher growth scenario assumes long-term growth of 3% in 2024-2026 and 2.7% as of 2027, as in DIPRES (2022).

Source: OECD calculations based on (DIPRES, 2022<sub>[11]</sub>).

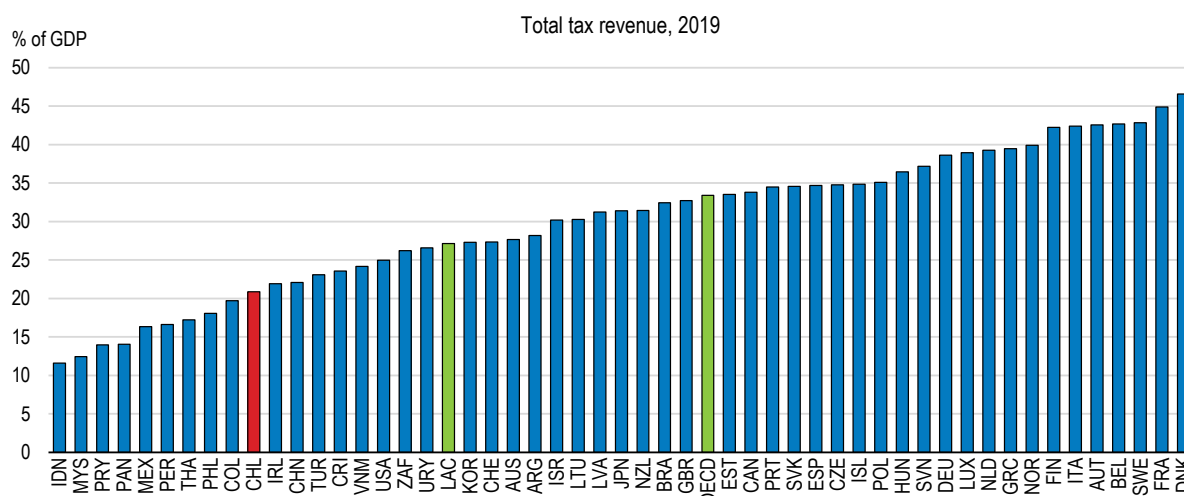
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### Raising additional tax revenues through a structural tax reform

The recently presented tax reform would bring Chile's tax intake closer to the Latin American average, which is still some 7 percentage points of GDP below the OECD average. Chile's tax-to-GDP ratio is among the lowest in the OECD (Figure 1.17). This finding holds even when comparing Chile to OECD countries like Australia, Canada, Ireland and New Zealand when they had a similar income level to Chile, when including mandatory contributions to pension or health funds managed by the private sector for all countries where these are relevant (OECD, 2022<sub>[12]</sub>). The current tax intake of 21% of GDP is insufficient for achieving sizeable improvements in social protection and public services such as health and education, and mobilising additional resources is key for achieving more inclusive growth in the future.

Tax revenues in Chile are concentrated in value-added tax and corporate income tax, while higher-income OECD countries depend more on revenues from personal income taxes and social security contributions (Figure 1.18). When mandatory contributions to private sector pension funds are included in social security contributions, their share of tax revenues in Chile is not that dissimilar to the OECD average, but the personal income tax burden on individuals is much lower in Chile (OECD, 2022<sub>[12]</sub>). In addition, Chile's personal income taxes also have a limited distributive impact. While in OECD countries personal income taxes and social security contributions together reduce inequalities in market incomes by around 25%, inequalities are reduced by only 5% in Chile (Causa and Hermansen, 2017<sub>[13]</sub>).

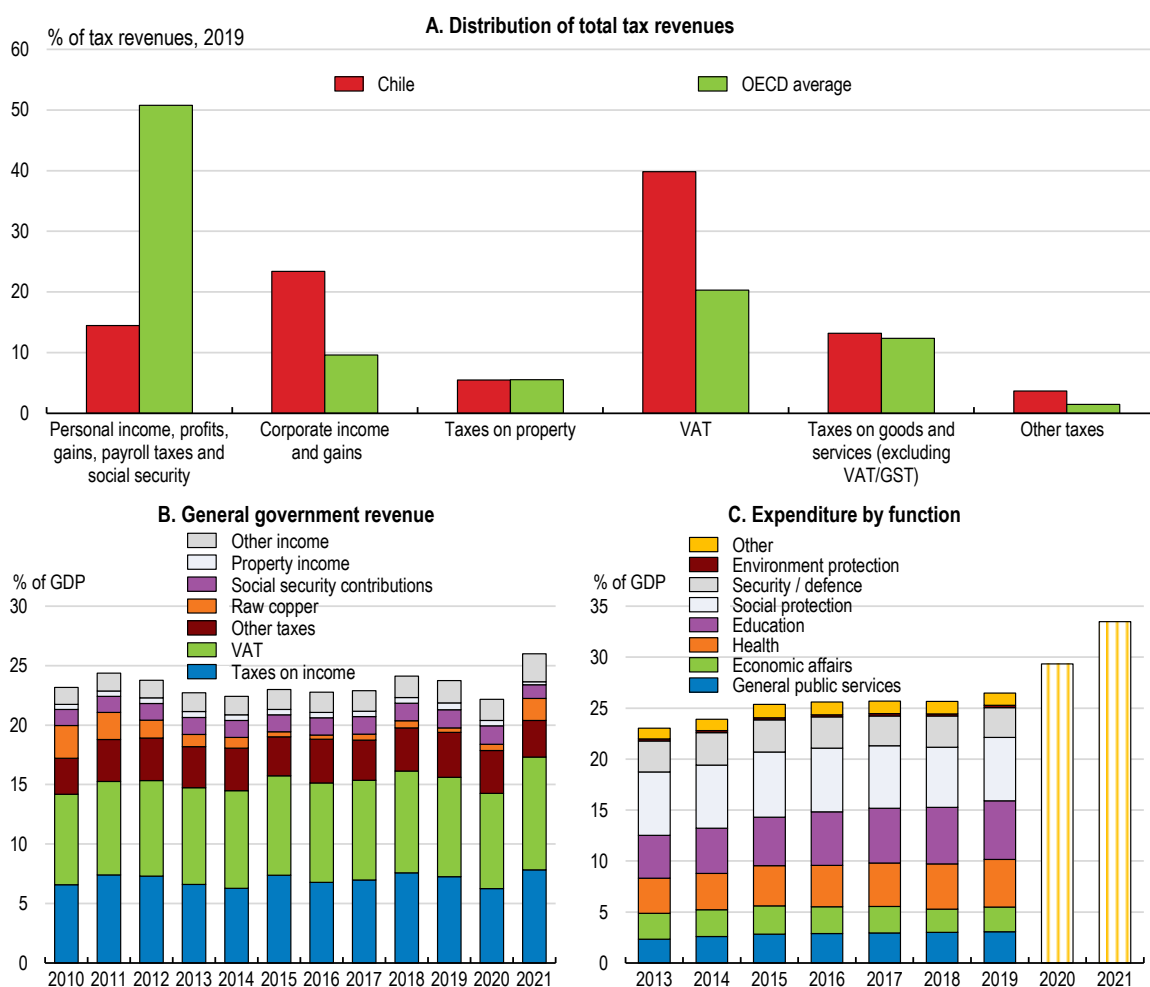
Figure 1.17. Tax revenues are low



Note: LAC is a simple average of ARG, BRA, CHL, COL, CRI, MEX, PER.  
Source: OECD, Global tax revenue database.

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Figure 1.18. Tax revenue composition



Note: Tax revenue includes net receipts for all levels of government.  
Source OECD Revenue Statistics database, Central Bank of Chile; OECD, SNA database.

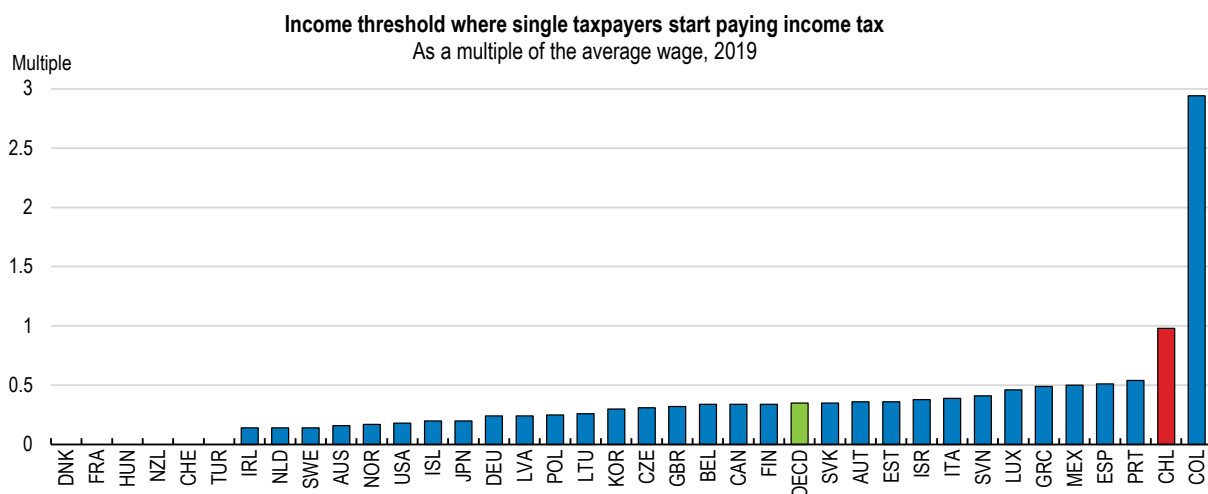
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The current tax reform plan that has been submitted to Congress envisages higher tax revenues from income and wealth on the order of 1.6% of GDP (DIPRES, 2022<sup>[11]</sup>). The draft includes introducing more progressivity into personal income taxes by raising rates in the higher tax brackets as of an annual income of USD 48,000 (Marcel, 2022<sup>[14]</sup>). Marginal tax rates will increase by 3-5 percentage points. The current top marginal rate of 40% is set to rise to 43%, almost identical to the current OECD average of 42.6 (OECD, 2021<sup>[15]</sup>).


The authorities also plan the introduction of a net wealth tax for individuals with global net assets exceeding USD 5 million, which would affect 6300 taxpayers in Chile. While there may be some merit to the motivation of correcting for weaknesses in taxing capital and labour income adequately in the past, difficulties in the valuation of assets and the risk of capital flight may limit the potential revenues of a wealth tax. The authorities are anticipating these challenges, and addressing them through a simplified valuation method, while revenue projections that consider a reduction of the tax base of 6% for every percentage point of the wealth tax. Eleven OECD countries currently use a wealth tax, raising an average of 0.3% of GDP (OECD, 2021<sup>[16]</sup>). Chile aims to raise 0.5% of GDP from the new net wealth tax, similar to Norway, and has opted for a simplified valuation of assets and liabilities to establish clear rules for taxpayers. There may also be scope for further revenues from taxes on immovable property, which raise 1.2% in the average OECD country, compared to 0.8% in Chile. Relative to other taxes, property taxes tend to have relatively benign growth effects (Arnold et al., 2011<sup>[17]</sup>).

An additional reason for the narrow personal income tax base is the high basic deduction, which implies that only around 25% of the population effectively pay the personal income tax (Figure 1.19). Relative to the average wage, this basic deduction is the second-highest in the OECD. Aligning only the basic deduction with the average OECD practice of single taxpayers starting to effectively pay personal income taxes at 35% of average wages, would lead to potential additional revenues of up to 0.8% of GDP (Brys et al., 2020<sup>[18]</sup>). Bringing more people into the personal income tax system, including with a low starting rate such as the 4% rate currently applied, would also help with the delivery of targeted benefits and the expansion of administrative tax data used in this process. The political economy of a gradual adjustment in this direction may not be easy, and would probably be facilitated if preceded by higher taxes on very high incomes as currently planned, some visible improvements in the quality of public services, or by lower social security contributions for low-income earners, as discussed in Chapter 2. Adjustments of the basic deduction are not part of the current tax reform proposal, but could be envisaged in the future.

**Figure 1.19. Only few people pay personal income taxes**



Source: OECD, Taxing Wages 2021, available at <https://doi.org/10.1787/83a87978-en>.

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The high basic deduction also has implications for the distributional impact of personal income tax deductions, such as the proposed possibility for tenants to deduct rent paid from their taxable income up to USD 450 per month, or for families with young children to deduce childcare costs up to USD 550 per month. As this tax expenditure only affects those that pay personal income taxes, which are the top 25% of the income distribution, its distributional effects would likely be regressive and the 75% of Chileans with incomes below the basic deductions would not see its benefits. By contrast, a long-standing tax exemption of landlords' rental income is set to be abolished by the tax reform proposal. This measure is expected to have a strongly progressive distributional impact.

Another reason for low personal income tax revenues is Chile's partially integrated income tax system which grants a partial shareholder-level dividend tax credit for corporate taxes paid at the company level. While an integrated tax system is meant to avoid the double taxation of corporate income, and is applied in Australia, Canada, Mexico and New Zealand, there is a perception in Chile that it has led to a low effective tax burden on capital incomes. Evidence suggests that taxpayers in the top 0.1% of the income distribution face a lower tax burden than people below the 90th percentile when considering corporate tax, personal income tax and value added tax (Ministerio de Hacienda, 2022<sup>[19]</sup>). The current proposal would establish a semi-dual income tax, where capital income and capital gains are taxed at a flat rate of 22% for those with annual incomes above USD 96,000, while those with lower incomes would pay their effective personal income tax on these revenue sources. The total tax burden on dividends, including the corporate tax paid at the company level, would remain below 43% with this new arrangement, close to the OECD median and the top marginal personal income tax rate.

For corporate taxpayers, the tax reform reduces the statutory rate from 27% to 25% while establishing a new 2% development surcharge from which productivity-enhancing investments into research and development or high-technology manufacturing or services inputs can be deducted entirely until none of this surcharge is due. This is a welcome change that is likely to spur productive investment. In addition, the ceilings of the R&D tax credit have been raised significantly (see section on productivity). The motivation behind these measures is to promote technology upgrading, and Chile's Productivity Commission, created in 2015, will participate in the definition of deductible expenses.

Taxes and royalties on large mining companies, particular in the copper sector, appear somewhat lower than in competitor economies, with an estimated effective tax rate on the sector in the range of 29%-40% (Caro and Hurtado, 2022<sup>[20]</sup>; Castillo and Valverde, 2021<sup>[21]</sup>; Davis and Smith, 2020<sup>[22]</sup>; Ostensson, Parsons and Dodd, 2014<sup>[23]</sup>; Jorratt, 2021<sup>[24]</sup>). The current tax reform proposal aims to raise an additional 0.5% of GDP in tax revenues from the sector, without breaking any existing contracts and respecting necessary delays. For holding companies, defined as those generating more than half their revenues from dividends, interests and rents, a new withholding tax of 1.8% will be applied.

Corrective taxes that are meant to change consumer behaviour like fuel or carbon taxes could also be an additional source of revenues in the medium run, even if in many cases their principal motivation is to change relative prices rather than raising revenues. Chile's carbon tax of USD 5 per ton of CO<sub>2</sub> is low in international comparison (see section on green growth). In addition, diesel fuel taxes are only a quarter of the tax burden on gasoline, which lacks an economic rationale (Harding, 2014<sup>[25]</sup>), and trucking companies as major diesel consumers are largely exempt from diesel taxes. The potential revenue impact of aligning the effective tax burden on diesel with petrol has been estimated at 0.5 percent of GDP (Brys et al., 2020<sup>[18]</sup>). Plans to raise corrective taxes are not part of the current tax reform proposal, but are being elaborated with a view towards presenting a draft law in the second half of 2022.

Fighting tax evasion is an attractive way to raise additional revenues and enhance tax fairness, but further headways would likely require investments in tax administration. Chile's tax authorities estimate lost VAT revenues from evasion at around 20% of VAT revenues, or 2% of GDP (SII, 2018<sup>[26]</sup>). While this is a large number, it is unlikely that all of this lost revenue could ever be recovered, but past efforts to enhance monitoring and audits have borne fruits, and could be one avenue to build on (Pomeranz, 2015<sup>[27]</sup>). The

scope for reducing income tax evasion is hard to assess, although improvements in the international exchange of information with more tax jurisdictions may help in the future. The current tax reform proposal intends to enhance transparency and compliance by creating a register of ultimate beneficial owners of companies, as has become common practice among OECD countries, in addition to changes to bank secrecy rules and the establishment of an anonymous whistle-blower statute for tax-related matters. In total, the authorities expect anti-evasion measures to generate additional revenues of 1.6% of GDP.

The current tax reform proposal contains many elements that go into the right direction of raising additional revenues in a progressive manner while promoting productivity and environmental sustainability. While some residual uncertainty will always remain, the authorities' goal of mobilising an additional 4 percentage points of GDP over 4 years is ambitious but certainly not out of reach, if sufficient political support can be garnered. Ideally, such a large tax reform should be based on a broad consensus to ensure continuity. Since 2010, subsequent governments have implemented a series of tax reforms, often undoing the changes made by their predecessors, and this has created policy uncertainty for investors.

The additional tax intake could be combined with measures to strengthen public spending efficiency, including by unifying fragmented income support schemes and re-organising innovation and research support programmes, for example. Estimates suggest that overall savings from improving the technical efficiency in public transfers, procurement and staff costs could amount to as much as 1.8% of GDP (Izquierdo, Pessino and Vuletin, 2018<sup>[28]</sup>). Even if these spending inefficiencies are one of the lowest in Latin America, realising some of the potential savings could complement new tax measures.

### ***Strengthening the fiscal framework***

Chile's solid fiscal framework rests on a structural fiscal balance rule established in 2001, with the copper price as one key ingredient. Both short and medium-term fiscal plans are published regularly and compliance with the fiscal rule is monitored by a recently established independent fiscal council. This strong framework has allowed Chile to build ample fiscal space during periods of high commodity prices. At the same time, Covid-19 and the resulting exceptional spending needs suggest that the current fiscal rule could be enhanced through a well-defined escape clause that specifies emergency reasons and modalities for departing from the rule, but also a clearer path for returning to it (CFA, 2021<sup>[29]</sup>). A recent draft bill aims at clarifying this issue, which would be a clear improvement in the fiscal framework.

But even before the pandemic, the current structural fiscal balance rule has not proven effective in reining in gross public debt, which has risen from 8.6% of GDP in 2010 to 28.3% in 2019, and then to 36.3% in 2021. Net debt has seen similar increases. This suggests that more could be done to contain future debt build-up. A recent addition to the fiscal framework has been the definition of a prudent debt ceiling of 45% of GDP, and recent government reports on the state of public finances have included a calculation of fiscal targets that would ensure compliance with this ceiling. A recent draft bill is meant to formalise this by adding an explicit debt anchor to the current fiscal rule, which would be a welcome improvement of the current fiscal framework. Pending implementation, the resulting dual fiscal rule would then be enshrined in law in the same way as the current rule.

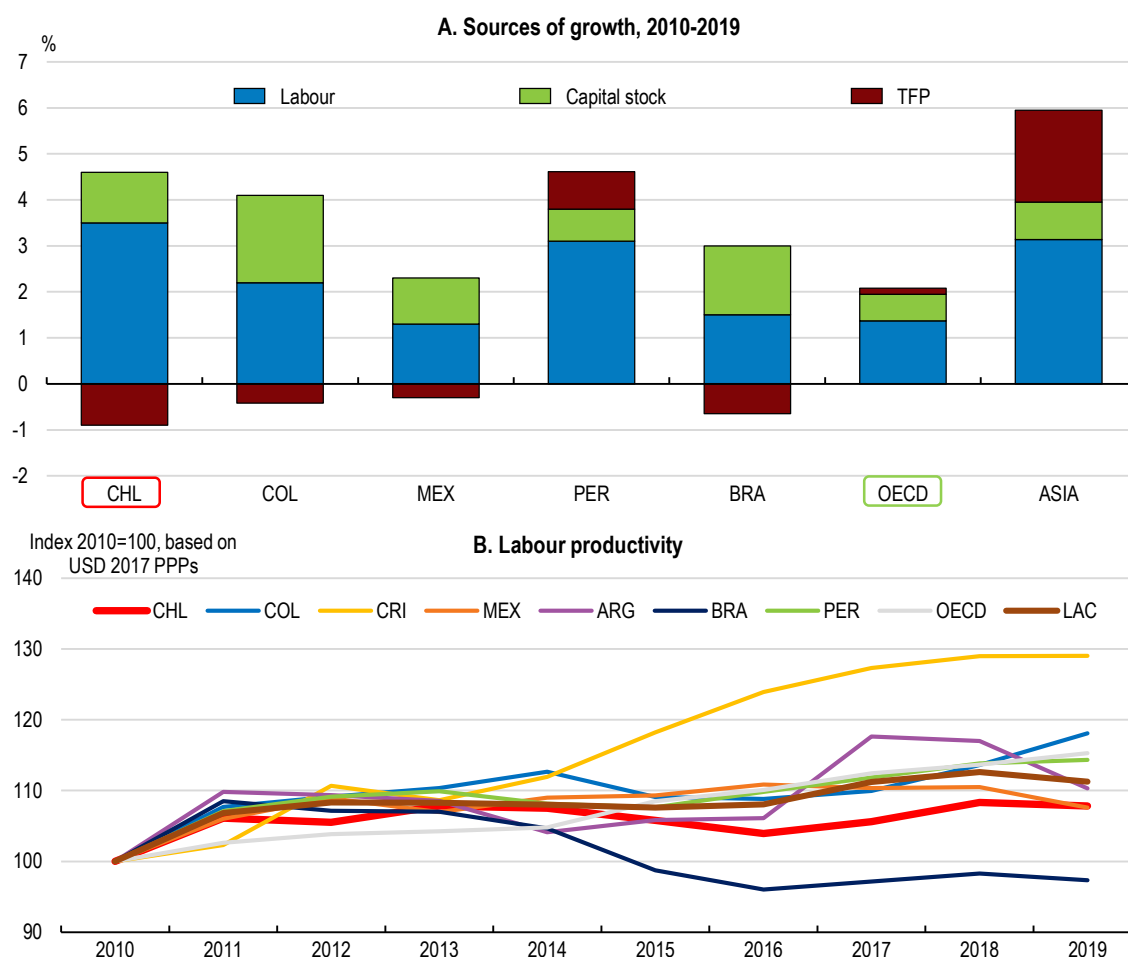
### **Boosting productivity requires stronger competition and internationalisation**

Over the last decade, Chile's total factor productivity has fallen and subtracted from economic growth (Figure 1.20, Panel A). This has widened Chile's productivity gap and GDP per capita gap relative to both advanced economies and fast-growing Asian economies, in line with developments in some other LAC countries (Figure 1.20, Panel B). The contribution of investment to growth, by contrast, has been fairly in line with other economies.

Boosting productivity has become a key priority for Chile. Weak productivity performance has severe implications for future improvements in material living standards, given that the favourable demographic developments of the past are turning around and will soon become a drag on growth (Figure 1.2). This


gives productivity growth a key role for sustained economic development, including the ability to redistribute income and improve the lives of those in need (World Bank, 2020<sup>[30]</sup>; UNDP, 2021<sup>[31]</sup>; OECD, 2015<sup>[32]</sup>). Without policies that boost productivity, the scope for further economic and social progress and to finance the policies described in Chapter 2 will be severely limited.

**Figure 1.20. Productivity has been a drag on growth and has fallen behind regional peers**



Note: ASIA, LAC and OECD are GDP-weighted averages for countries with available data.

Source: Conference Board; Feenstra, Robert C., Robert Inklaar and Marcel P. Timmer (2015), "The Next Generation of the Penn World Table" American Economic Review, 105(10), 3150-3182, available for download at [www.ggd.net/pwt](http://www.ggd.net/pwt).

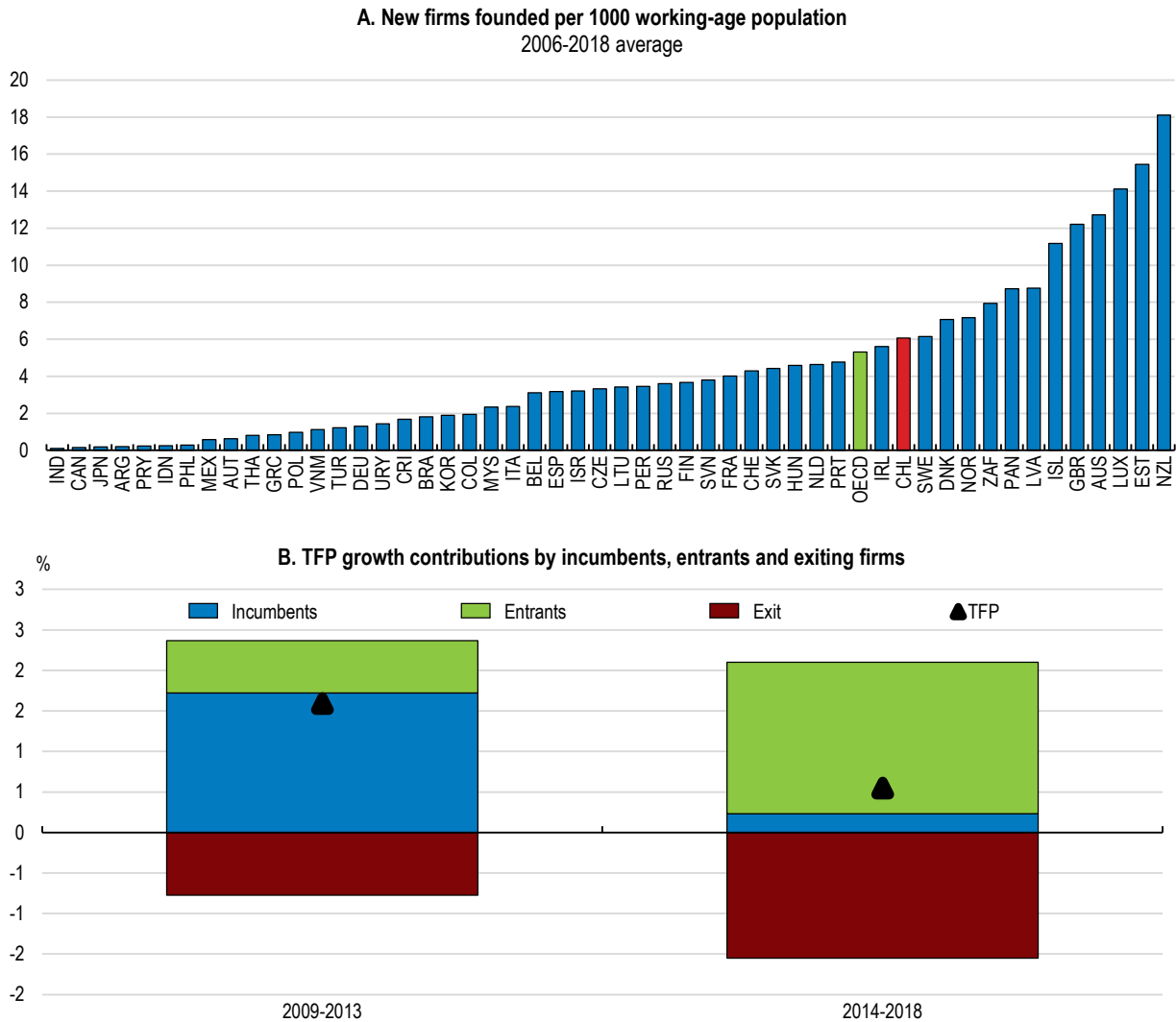
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A closer look at productivity developments across sectors reveals that mining, the largest sector of the economy, at 12.5% of value added, has been a drag on productivity growth for 20 years, largely as a result of a deterioration in ore grade since the early 2000s (CNEP, 2017<sup>[33]</sup>; De la Huerta and Luttini, 2018<sup>[34]</sup>). Falling productivity in extractive resource industries is a common feature beyond Chile, potentially aggravated by a deteriorating environmental footprint. The strong specialisation of the economy in mining industries also leaves the economy vulnerable to price volatility and previous OECD Economic Surveys have identified diversifying the economy as fundamental challenge for sustaining continuous long-term growth (OECD, 2018<sup>[35]</sup>). Comparing firms of different sizes, small and medium firms as a group have turned from declining productivity to positive growth, while the productivity of large firms has been trending down. In part, this may reflect the weight of mining firms among large firms.



Entry, exit and differential growth rates among incumbent firms, have also contributed positively to productivity growth. Entrepreneurship has been vibrant in Chile, as evidenced by higher business entry than in the average OECD country (Figure 1.21, Panel A). Moreover, the market entry of new firms has increasingly added to aggregate productivity growth in recent years (Figure 1.21, Panel B).

**Figure 1.21. Vibrant entry of new firms has been sustaining productivity growth**



Source: World Bank Entrepreneurship Survey and database, and Central Bank of Chile.

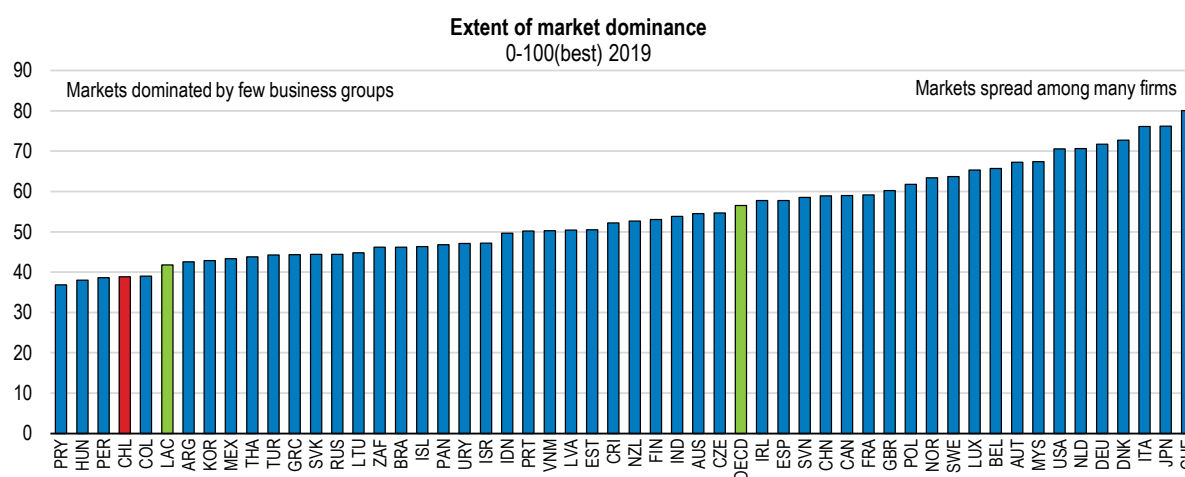
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Additional policy action can help to support these encouraging trends that have emerged. Boosting innovation and investment into research and development and technological upgrading is a key priority. The innovative potential of new entrants and the positive role of new firm entry for productivity point to the relevance of keeping markets open and ensuring vibrant competition. A new partial VAT exemption for start-ups in their first year of operation, part of the current tax reform proposal, is likely to support entrepreneurship at a fairly low fiscal cost of 0.004% of GDP (DIPRES, 2022<sup>[11]</sup>). Strengthening participation in international trade and attracting foreign direct investment are also avenues for improving technologies and achieving stronger productivity growth. Policies to support digitalisation have been discussed in detail in Chapter 2 of the 2021 Economic Survey of Chile.

## Strengthening competition through lower administrative burdens

Several indicators point to scope for strengthening competitive pressures among Chilean firms. Perceptions of business executives suggest that several key markets are dominated by relatively few players, making Chile the 39<sup>th</sup> most concentrated economy out of 141 (WEF, 2019<sup>[36]</sup>) (Figure 1.22). High productivity growth can be related to higher levels of competition, as competition provides the necessary incentives for existing firms to innovate and adopt better technologies (Holmes and Schmitz, 2010<sup>[37]</sup>; Costa Junior and Garcia-Cintado, 2021<sup>[38]</sup>; Vianna and Mollick, 2018<sup>[39]</sup>), while also supporting the reallocation of resources towards more productive firms, including new entrants (Decker et al., 2016<sup>[40]</sup>). But competition also matters for downstream firms that source from those sectors where competition is weak. This is particularly relevant for services inputs, where international tradability is often limited. International evidence suggests that access to cost-effective and innovative services inputs can play an important role for productivity in downstream sectors (Arnold, Javorcik and Mattoo, 2011<sup>[41]</sup>; Arnold et al., 2016<sup>[42]</sup>).

Figure 1.22. Competition is relatively weak

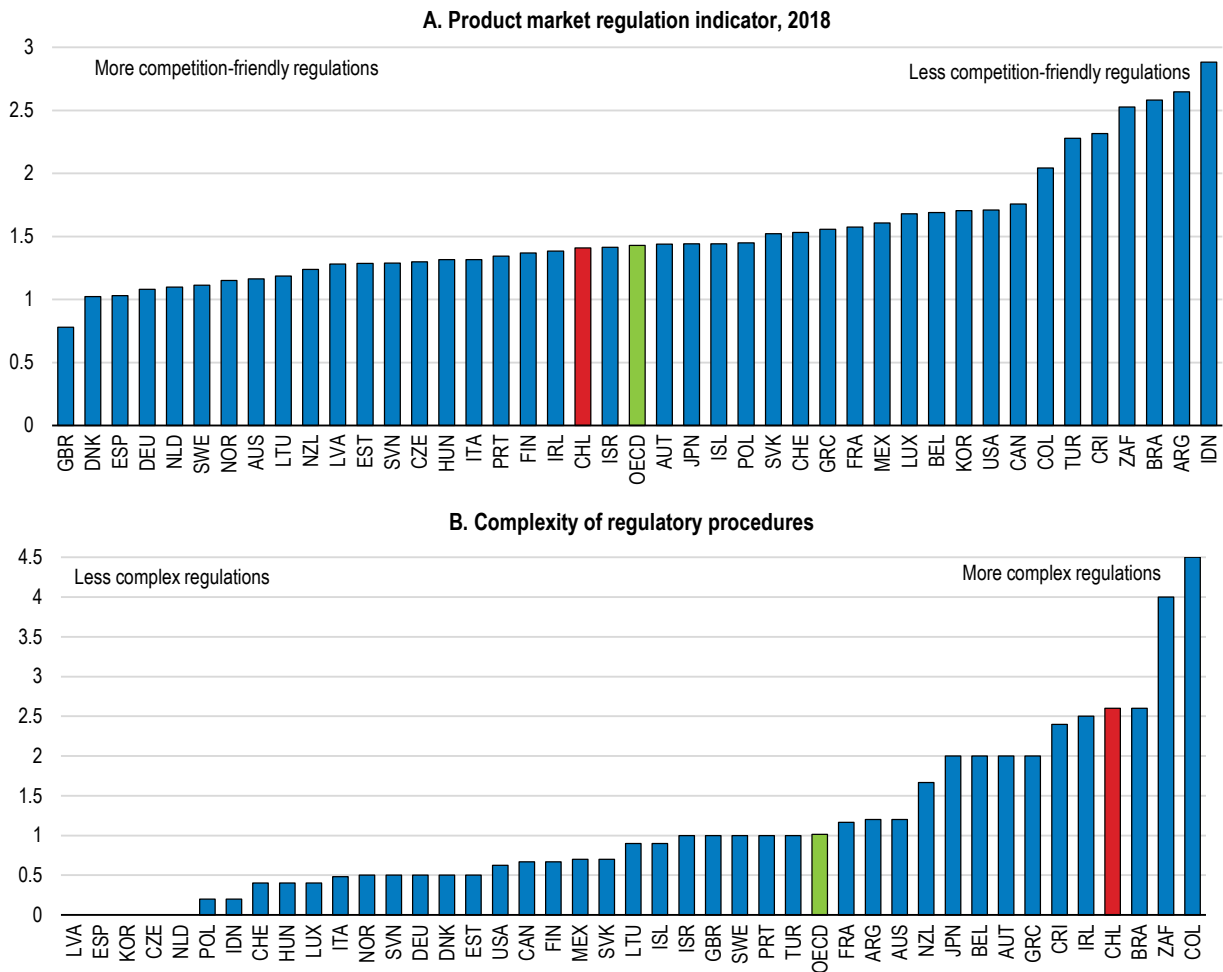


Source: World Economic Forum. The Global Competitiveness Index 4.0 2019 dataset, available at <https://www.weforum.org/reports/how-to-end-a-decade-of-lost-productivity-growth>.


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Chile's regulatory requirements on product markets are slightly less restrictive on average than those of the average OECD country (Figure 1.23). However, some specific sub-indicators reveal areas where Chile is significantly more restrictive than others. One area that stands out is the complexity of regulatory procedures.

Figure 1.23. Product market regulations compare well on average, but challenges remain

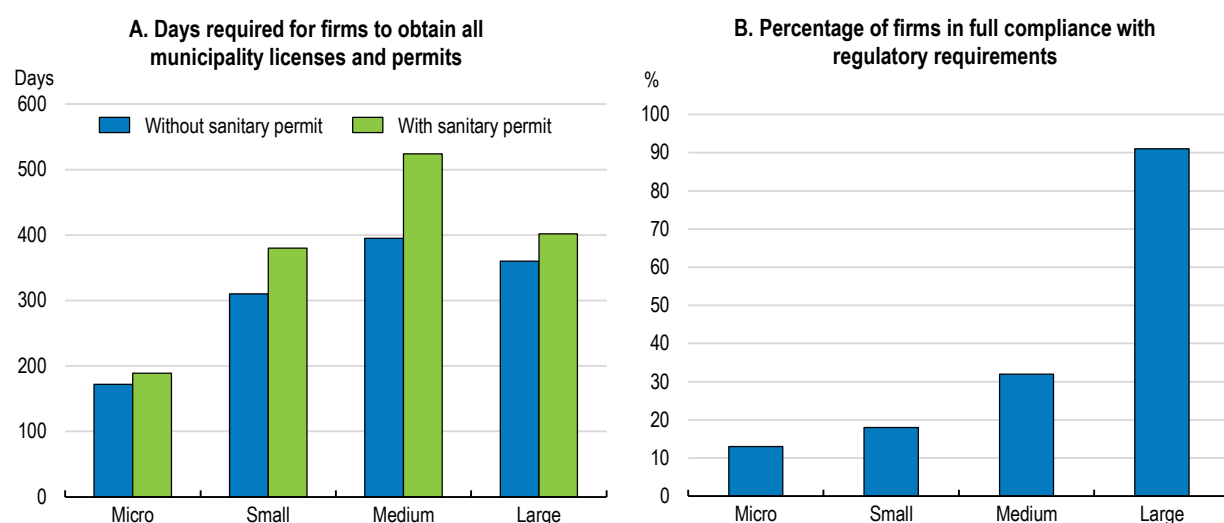


Source: OECD Product Market Regulation database 2018, available at <http://oe.cd/pmr>.

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While the last years have seen progress at the level of the central government, municipal licensing procedures continue to hamper entrepreneurship significantly. The time required to obtain all necessary municipal licenses can amount to up to 1.5 years (Figure 1.24, Panel A). This results in significant non-compliance with license requirements among small and medium enterprises, which weakens the rule of law, exposes these small new market entrants to judicial uncertainty and may deprive them of access to credit (Figure 1.24, Panel B). License requirements are often the same for small and large enterprises, so that the burden of compliance falls disproportionately on small firms given their lower capacity to deal with administrative burdens. Moreover, licenses and regulations are a particular hurdle for first-time entrepreneurs, and their simplification would there not only matter for productivity, but also for the challenges related to social inclusion and formalisation discussed in Chapter 2.

**Figure 1.24. Municipal licenses are a significant burden on entrepreneurship**



Note: Micro firms are defined by annual sales below 2.400 UF, small firms between 2.400 UF and 25.000 UF, medium size firms between 25.000 UF to 100.000 UF and large firms have annual sales above 100.000 UF. 1 UF=39 USD.

Source: Comisión Nacional de Evaluación y Productividad: Informe Anual de Productividad 2021, available at <https://www.cnep.cl/wp-content/uploads/2022/01/Informe-Anual-de-Productividad-2021-1.pdf>

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The central government can play an active role in reducing licensing burdens at the level of municipalities, many of which are not yet digitalised (CNEP, 2021<sup>[43]</sup>). In 2019, the government created a digital platform as a single point of contact to deal with 182 sectoral regulatory procedures for investment projects, including 9 municipal license requirements. A centralised internet portal for these municipal permits has been created, but almost half of municipalities are not yet integrated. Many of the more advanced municipalities have by now created their own portal where some other services are offered. In a similar vein, the authorities have started to roll out a digital platform for dealing commercial license applications at the municipal level in 2020. 26 municipalities are currently registered in this licensing module to process online applications, which is integrated into an online entrepreneur platform. Streamlining and unifying this complex universe of municipal licenses and portals into a true single window would significantly reduce the burden on entrepreneurs, investors, and citizens, as has been achieved in Portugal, for example. By raising transparency and reducing the scope for discrete decisions, this would also reduce the scope for corruption.

Additional regulatory complications arise whenever a firm wishes to enter a strategic sector. In these sectors, multiple agencies at the national, regional and local level are involved in the licensing process, with overlapping competencies in terms of content (CNEP, 2019<sup>[44]</sup>). The uncertainty rises further when the rules about the approval process not clearly defined, and discrete political decisions about the approval of an investment project, often at the very end of the administrative process, make regulatory outcomes less predictable. Defining clear rules would help to reduce this uncertainty.

This also applies to environmental licenses, which are subject to significant delays, uncertainties and litigation. Institutional safeguards against political influence are insufficient, due to a lack of effective protection mechanisms for professional assessment teams against political pressures (Chile Transparente, 2021<sup>[45]</sup>). The final approval decision of the Environmental Assessment System lies with a Committee of Ministers, rather than being guided by clear and transparent rules. The quality of the process and environmental protection could be boosted by improving the capacity of public institutions to obtain and review relevant information, as the current process is characterised by a heavy reliance on information provided by project owners (Chile Transparente, 2021<sup>[45]</sup>).

The complexity of Chile's regulations will require a comprehensive review of the stock of existing regulations and their competition impact. Many existing rules may have ceded to serve a legitimate public interest purpose, and where that purpose can be confirmed, digitalisation provides plenty of opportunities to reduce compliance costs. Such a review should include all levels of government and all ministries and institutions that issue regulations, but driven by a coordinating agency at the central level. One ultimate objective of such a comprehensive review would be a move towards a "zero-licensing" scheme wherever possible, following the successful example of Portugal in 2013 (OECD, 2014<sup>[46]</sup>). Under this scheme, license requirements in non-risk sectors were largely replaced by a simple prior notification to the authorities through electronic means, combined with reinforced ex-post inspections and sanctions for non-compliance.

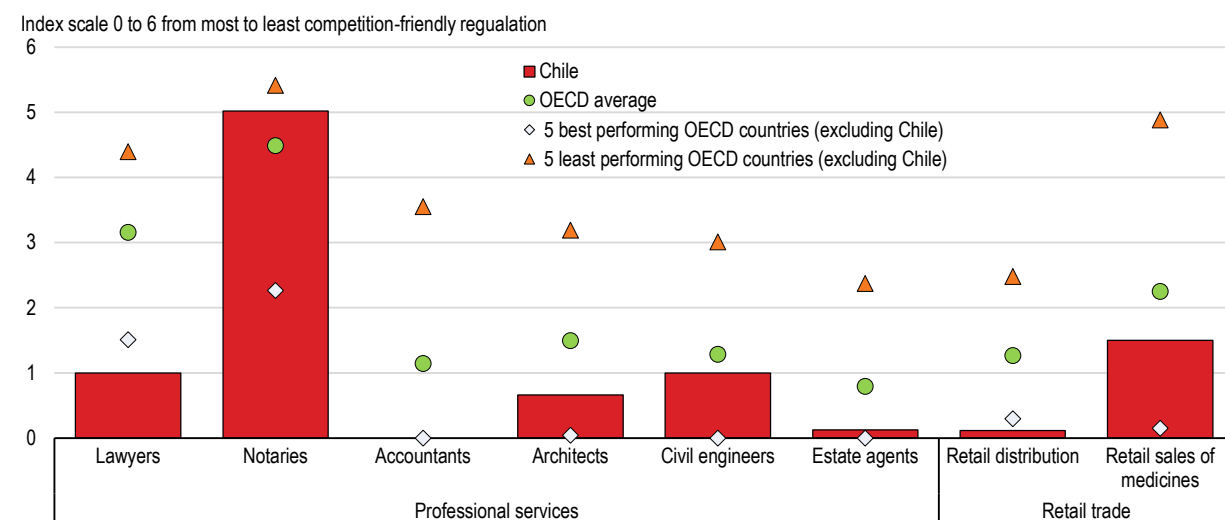
For new draft laws and regulations within the realm of 24 ministries, regulatory impact evaluations became mandatory in 2019. An evaluation one year later, however, showed only limited compliance with the evaluation requirement, at around 40% for laws and 12% for general decrees, which implement regulations. The rules were refined in 2022, but more efforts may be needed to ensure full compliance.

Collaboration between the public and private sector is being enhanced through sector-specific Executive Roundtables, following a successful experience in Peru. These are meant to identify and address obstacles to productivity growth in sectors such as construction, tourism, food and the creative industries. These roundtables involve regular meetings and interactions between private and public stakeholders, which allows them to identify problems and implement solutions, scaling them up quickly to the highest political level if necessary to ensure that solutions are delivered. Moreover, the solutions often involve regulatory changes in different areas of government.

Chile's competition policy framework has seen significant improvements over recent years, although with significant delay relative to other OECD countries. Merger control and criminal sanctions for cartels were only introduced in 2016, leaving a legacy of high concentration across wide parts of the economy. In line with OEC recommendations, the same 2016 law also strengthened the powers of the competition authority (*Fiscalía Nacional Económica*). In fulfilment of its competition advocacy role, the competition authority has been trying to address the legacy of high concentration by undertaking market studies of key sectors. These revealed significant need for action on competition in sectors such as prescription and non-prescription drugs, school books, public notaries, public procurement, annuities, gas and funeral services. These market studies, some of which have resulted in concrete legislative initiatives, are a highly valuable part of necessary efforts to take stock of competition weaknesses in product markets, but they should also result in changes to the law, which has so far not happened. The authority's current budget for these studies is insufficient for playing a stronger role in this process and should be augmented, as it currently only finances a staff of 5.

Professional services are particularly prone to barriers to competition imposed by sector regulations. Chile's regulations perform well in many of them, but one example of insufficient competition is the public notaries' profession (Figure 1.25). Currently notaries are needed for more than 200 procedures, both for the validation of signatures and the drafting and storage of legal documents. The sector is characterised by high entry barriers, supply restrictions and price regulations. Notaries require a law degree with 1 year of practice, face geographic restrictions on their area of exercise that effectively give them local monopolies and their number is fixed by decree. Signature validation in only 17 procedures generates 85% of notaries' revenues, but none of these require any judicial knowledge (FNE, 2018<sup>[47]</sup>). Moreover, regulated price ceilings for certain services are regularly ignored. This implies a significant cost for businesses, particularly when combined with a complex regulatory and license framework. A 2018 draft law aimed to modernise the notary system and reduce the mandatory recourse to notaries and a 2020 draft law aimed to exempt 11 common procedures from the need to notarise signatures, but both projects have not advanced in Congress. Extending the use of electronic signatures may also reduce the costs of contracting and administrative procedures, but a 2012 draft law to that regard has not yet advanced in Congress.

**Figure 1.25. Regulation restricts competition in the notaries profession**



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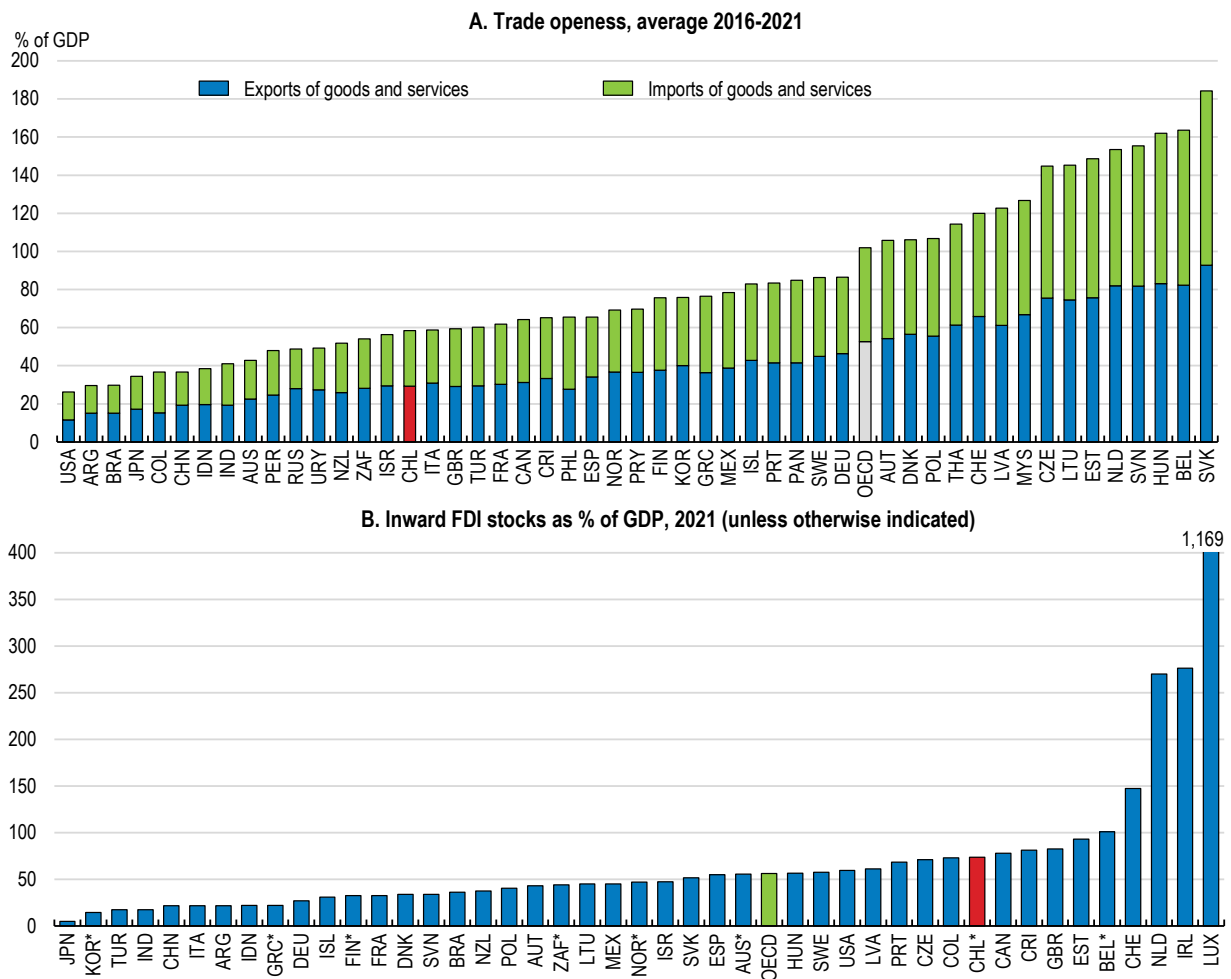
### ***Harnessing international trade and investment for stronger productivity gains***

Not only domestic, but also external competitors determine the strength of competitive pressures. Chile has actively and successfully sought to harness international trade and foreign direct investment (FDI) for domestic growth and employment creation (Novik and Nazal, 2020<sup>[48]</sup>). Multi-lateral tariffs are low and further reduced by an extensive network of 29 trade agreements with 65 markets. Some of these include modern provisions that aim to improve the social and sustainability impact, such as provisions about labour or environmental standards, or responsible business conduct. Chile's participation in international trade is mid-range among OECD countries, which may be related to its relative geographic remoteness relative to large markets (Figure 1.26, Panel A).

Chile's export structure is significantly shaped by mining exports, especially copper (Figure 1.27). The reliance on natural resource intensive sectors has limited diversification of exports in terms of goods, firms and destinations, as pointed out in the 2018 Economic Survey of Chile (OECD, 2018<sup>[35]</sup>). At the same time, Chile will have an important role in the global energy transition due to its abundance in key natural resources such as lithium and its favourable conditions for producing green hydrogen (see section on green growth).

Further diversification of exports, and of production structures, remains a major outstanding challenge, even if some progress has been made in developing comparative advantages in other sectors including wine, salmon, forestry and fruit production. Manufacturing exports now account for almost a third of total goods and services exports. Still, there is ample room for further efforts to diversify export and production structures, including with respect to participation in global value chains (GVCs). Chile's sizeable forward participation in GVCs is largely the result of exporting primary and intermediate products that feed into other countries' exports. By contrast, backward participation, measured by the share of foreign inputs in gross exports, is rather small, in line with its market size and distance from manufacturing hubs (OECD, 2022<sup>[49]</sup>).

Figure 1.26. Chile's trade participation is mid-range, but it attracts sizeable FDI flows



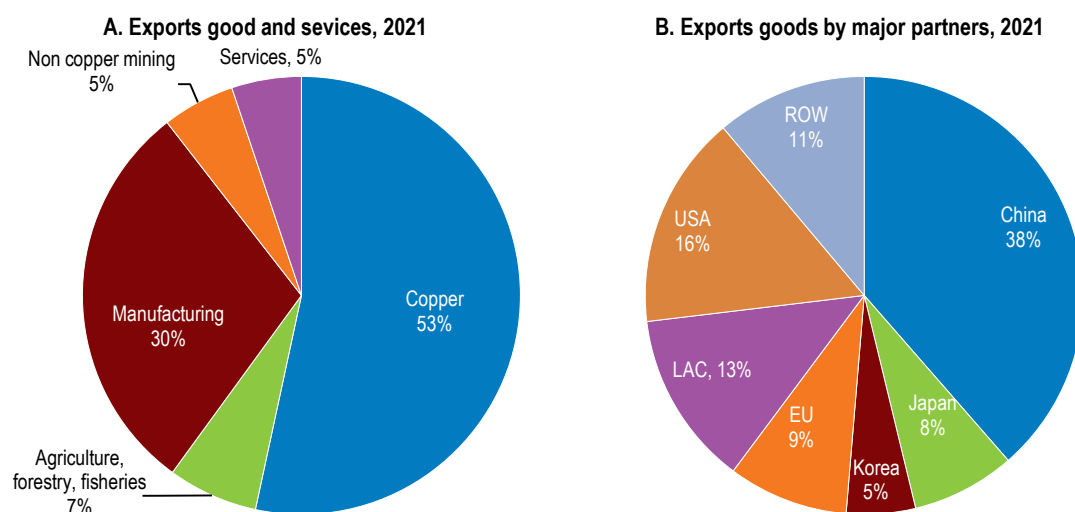
Note: In Panel B, countries marked by an asterisk refer to 2020.

Source: OECD Economic Outlook database, OECD (2021), FDI stocks (indicator). doi:[10.1787/80eca1f9-en](https://doi.org/10.1787/80eca1f9-en).


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Inward FDI stocks are higher than in the average OECD economy or regional peers (Figure 1.26, Panel B), even if inflows have declined over the last 10 years, in line with developments in many countries (OECD, 2022<sup>[49]</sup>). 40% of FDI stocks are concentrated in the mining sector, mainly in copper mining, while finance and energy, particularly renewables, have also become increasingly attractive for foreign investors. Attracting more FDI in the production of green hydrogen could help to develop that sector (see section on green growth). Foreign companies play a key role for exports of both goods and services, but they are also significantly involved in the creation of human capital and integrated into domestic value chains, through their purchases from domestic suppliers and their sales to other Chilean companies, in particular SMEs (OECD, 2022<sup>[49]</sup>). Chile does not currently have a mechanism to review inbound foreign investment with the goal of safeguarding national security goals. OECD Council Guidance from May 2009 recommends members adopt such an FDI review mechanism “based on principles of non-discrimination, transparency, predictability, and accountability” to safeguard national security. Chile should continue to explore adoption of such an investment review mechanism, while preserving its open investment climate.

Figure 1.27. Mining continues to play a significant role for Chile's exports



Source: Central Bank of Chile.

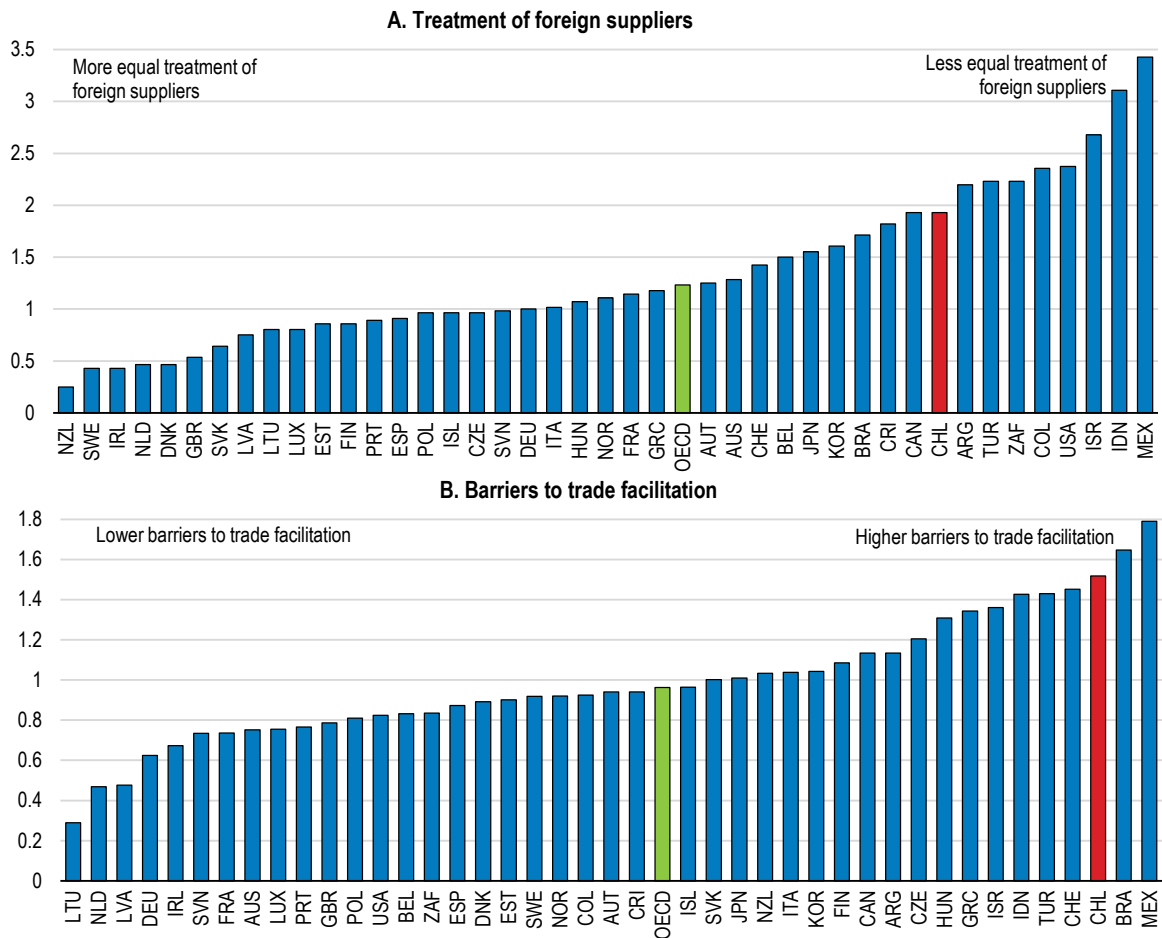
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Despite this positive backdrop, foreign suppliers face significant discrimination in public procurement processes (Figure 1.28, Panel A), and higher barriers to entry in key network and services industries (OECD, 2018<sup>[50]</sup>). One example is cabotage maritime transport, where the whole crew must be national and foreign competition is effectively ruled out by law. Current discussions in Congress to lift these foreign participation restrictions should be accelerated. Chile's peculiar geography affords a promising role to cabotage in domestic cargo transport, and higher transport costs limit inter-regional competition and the competitiveness of Chile's exporters, besides hurting consumers through higher prices. Regulatory reforms that can help to reduce prices would be particularly useful in the current high-inflation context (see above).

There is also scope to reduce barriers to trade facilitation (Figure 1.28, Panel B). These reflect complex technical and legal procedures ranging from border procedures to the simplification and harmonisation of trade documents, in addition to a lack of cooperation between different agencies. A single window for international trade transactions was created to harmonise paperwork and reduce administrative burdens, but only part of exports and imports are being handled by this new facility. Requirements regarding documents could be simplified, while wider use of advance rulings could enhance regulatory transparency.



Figure 1.28. Regulations affecting international trade and investment could be improved



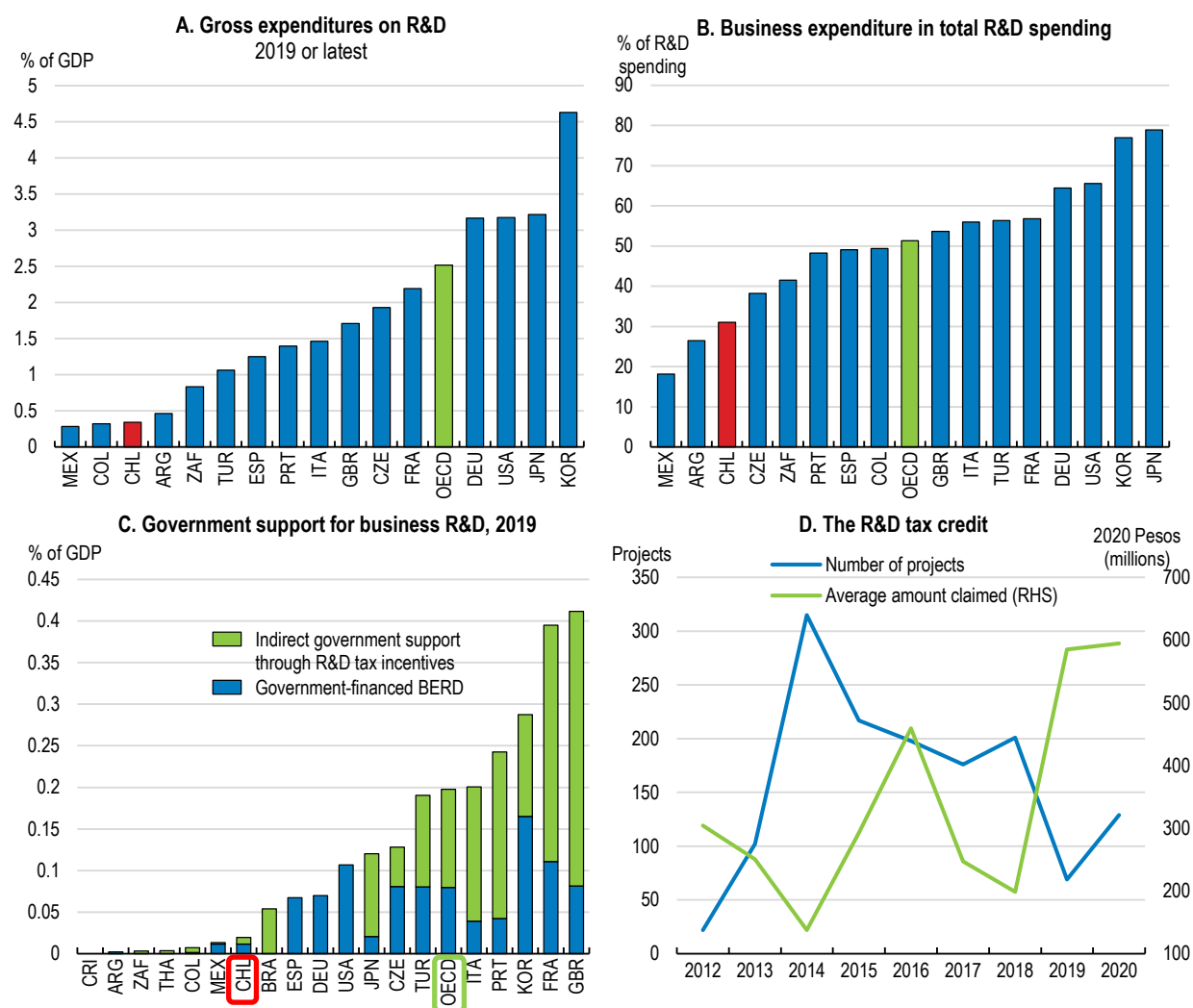
Source: OECD Product Market Regulation database 2018, available at <http://oe.cd/pmr>.

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### Enhancing innovation and research

Overall spending on research and development (R&D) and innovation is relatively low, and only a minor fraction of this spending comes from the business sector (Figure 1.29, Panels A and B). Main instruments include direct subsidies (around 60% of overall public support funds) and an R&D tax credit (around 40% of support), which is a balanced mix, but overall government support levels are low and could be raised further (Figure 1.29, Panel C). Policies to promote business R&D could not only be strengthened and receive additional funding, but also be better coordinated and aligned with strategic priorities such as sustainability, as they currently suffer from significant fragmentation, as highlighted in the 2018 OECD Economic Survey of Chile (OECD, 2018<sup>[35]</sup>).

Figure 1.29. R&amp;D and innovation spending and support remain low



Source: OECD, Main Science and Technology Indicators database; OECD, R&D tax expenditure and direct government funding of BERD database; CORFO (2018), Informe de Gestión 2014 - 2018, Logros y resultados de INNOVA CORFO.

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Among direct support programmes, one programme managed by the Chilean National Development Agency CORFO, the main provider of innovation support, provides financing for innovation projects carried out within private firms. A separate programme managed by the National Science and Technology Council (CONICYT) provides funding for collaboration with external academic and technology institutions (Crespi et al., 2020<sup>[51]</sup>). Empirical evidence suggests that while both of these programmes have led to higher R&D expenditures in recipient firms, as would be expected, only the collaboration with external institutions has generated positive spill-over effects on non-participating firms (Crespi et al., 2020<sup>[51]</sup>). These spill-over effects suggest the presence of positive externalities that are not taken into account by the recipient firms since they benefit other firms. This means that social returns exceed private returns and constitutes a strong argument for public policy support. This result suggests substantial benefits a stronger focus of direct R&D funding on collaboration with external institutions. The scope for this kind of collaboration has been enhanced by Chile's successful attempts to attract a total of 13 R&D centres through public support, including eight leading international universities or public research institutes and five multinational enterprises from seven different countries (Guimón et al., 2018<sup>[52]</sup>).

This empirical work, and the differences across programmes that it detected, also highlights the importance of more regular policy impact evaluations than currently undertaken, with a view towards expanding R&D support programmes that are proven to work, and closing down or adjusting ineffective ones. More regular evaluation would likely require enhanced data collection efforts and more independent studies, as recommended in the 2018 OECD Economic Survey of Chile (OECD, 2018<sup>[35]</sup>).

The take-up of the R&D tax credit has generally fallen short of expectations, despite having increased over the last decade (Figure 1.29, Panel D). The tax credit was broadened substantially in 2012 to apply to internal expenditures, in addition to an increase in the annual tax credit ceiling, simplified administrative requirements and eased domestic and international collaboration. Still, some of its certification procedures of R&D expenses remain lengthy and complex. Delays in the certification of R&D expenditures by the National Development Agency, for example, have led to the need to rectify tax declarations ex-post, which may trigger tax audits and reduce the attractiveness of applying for the tax credit in the first place. For young firms that typically lack taxable profits for the first years of operation, the R&D tax credit will only provide an effective incentive if it is made refundable. Refundable tax credits have become increasingly common in other OECD countries, such as Australia, Canada, Denmark, Norway and the United Kingdom. In addition, more could be done to remedy a lack of awareness of the tax credit among small enterprises, as in the case of direct support. At the same time, adding incremental incentives based on their past R&D spending could improve its effectiveness for larger firms (Appelt et al., 2016<sup>[53]</sup>).

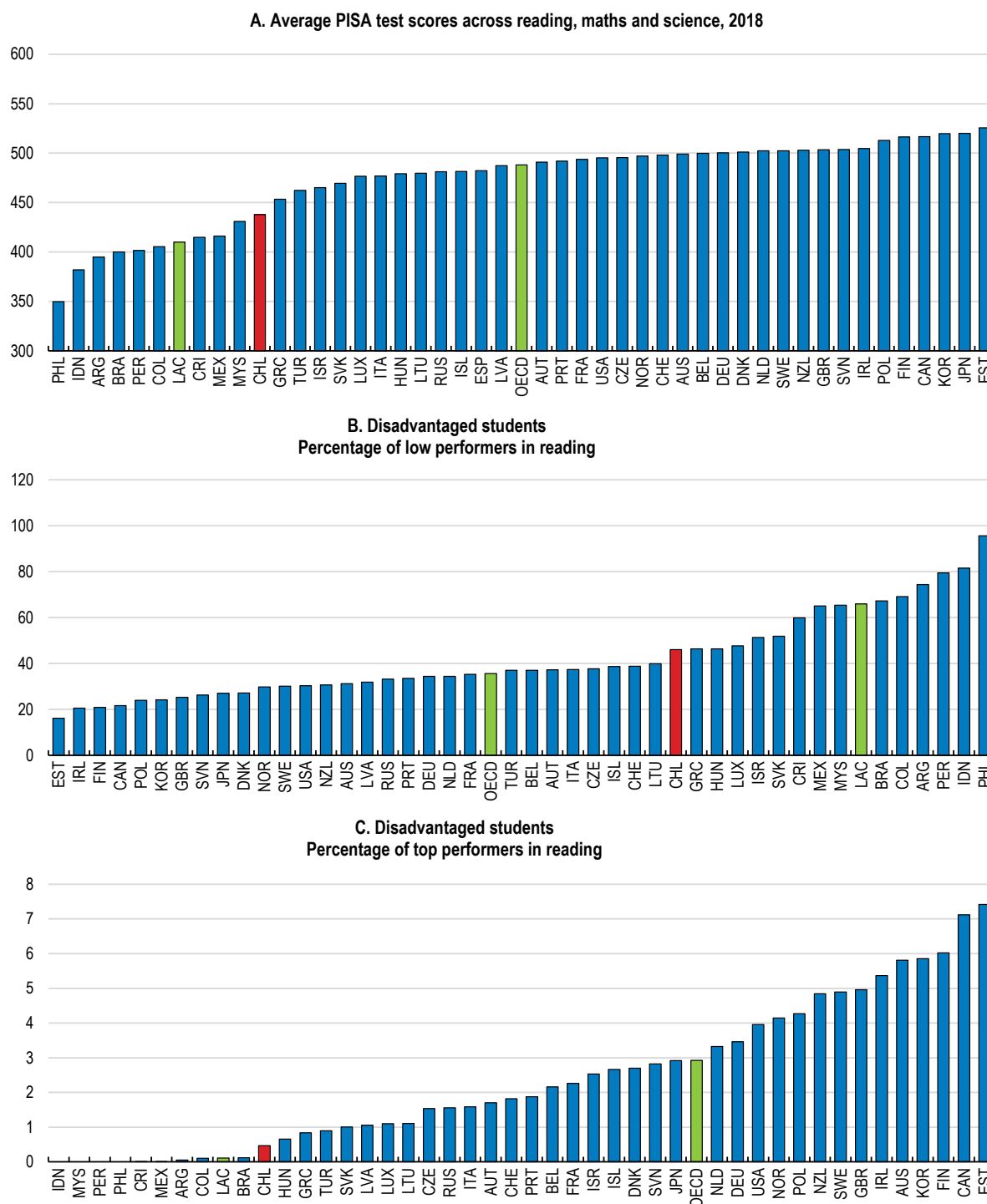
To address some of these concerns, a draft tax reform submitted to Congress in 2022 includes new modifications to the R&D tax credit, including higher ceilings, simplifications of the application procedure for these benefits, measures to reduce the uncertainty in the process and to lower administrative barriers, as well as making the tax credit refundable for SMEs with low or negative profits. Specific incentives for sustainability-related R&D are also set to be strengthened. In addition, companies that have invested in productivity-enhancements or have carried out R&D activities will be able to reduce their effective corporate tax burden by up to 2%.

### ***Improvements in education can foster productivity and equity***

Education is key for raising productivity and reducing inequalities at the same time. A better educated workforce will also allow further reductions in labour informality, given that higher labour productivity makes jobs less sensitive to the higher wage and non-wage labour costs prevalent in the formal sector. The education system has made substantial progress in improving coverage and performance in the last decade, but substantial challenges related to quality and equity remain. Learning outcomes remain well below the OECD average (Figure 1.30). Pandemic-related school closures have exacerbated these longstanding challenges, as only 27% of students from vulnerable backgrounds used digital tools to remain connected to education, compared to 89% of students from high-income households (CEM, 2020<sup>[54]</sup>). Chile has already implemented some targeted pilot programmes to reverse the negative impact of school closures and re-engage those who dropped out, these should be expanded nationwide.

Expanding access to quality early childhood education is a key priority. Quality early education supports children's outcomes later in life, including in labour market participation, reduction of poverty, increased intergenerational social mobility and social integration (OECD, 2018<sup>[55]</sup>). It is also one of the most effective ways to address future drop-outs (Heckman and Masterov, 2007<sup>[56]</sup>; OECD, 2016<sup>[57]</sup>). In addition, expanding universal early education would also improve female outcomes in the labour market, which continue to be lagging behind other countries. Coverage for 4 and 5 year olds reached 86% and 96% respectively, in 2019, close to the OECD average. Still, for children aged 3, coverage, at 58%, remains far below the OECD average of 77% (OECD, 2021<sup>[58]</sup>). Substantial expansions of public early education capacity have been announced and should be implemented swiftly, especially for low-income families and in rural areas.

Figure 1.30. Learning outcomes remain relatively low and dependent on socio-economic status



Note: Disadvantaged students are defined as those in the bottom quarter of the economic, social and cultural status. Low performance is defined as scoring below the minimum proficiency of level 2, top performance is defined as level 5 and above.  
Source: OECD, PISA 2018 Database.

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Early childhood education is fragmented, with different financing mechanisms and teacher career developments depending on the type of institution in charge, and this gives rise to entrenched inequities. Public institutions co-exist with a large number of contract nurseries and kindergartens, often operated by municipalities, which receive some central government funding and account for the bulk of enrolment from

ages 0 to 4. However, their overall funding is lower than that of public institutions, with implications for quality. Improving the funding of current contract institutions with central government funds would likely deliver better outcomes, perhaps with a view towards unifying these fragmented parallel systems in the future. Furthermore, unifying the system of evaluation, continuous training and salary benefits for teachers and principals to the National System of Professional Development would improve the quality of early childhood education.

In primary and secondary education, a 2015 reform improved equity by putting an end to the widespread practice by which school that receive public funds selected students, requested co-payments and aimed for profits. The reform also increased teacher performance incentives by providing them with better career prospects at all levels of education. Authorities should continue to monitor and discourage school-level practices that stand in the way of equal opportunities for all students (OECD, 2017<sup>[59]</sup>). Efforts to develop stronger professional pathways for teachers and principals should be continued, and would likely need to include better remuneration, especially at the entry level where salaries are 32% below the OECD average, and shorter working hours, as current statutory working hours are the highest of all OECD countries (OECD, 2019<sup>[60]</sup>). As more disadvantaged schools and areas often lack high-quality teachers, improving the incentives for high-quality teachers to relocate at least temporarily can help to reduce inequalities, and Chile should build on its successful advances in this area (Bertoni et al., 2018<sup>[61]</sup>; Elacqua et al., 2019<sup>[62]</sup>).

Higher education enrolment increased significantly over the last decades, which will slowly improve a legacy of low tertiary attainments. Disparities in access to tertiary institutions reflects inequalities at the earlier stages of education (World Bank, 2021<sup>[1]</sup>). Students from low-income families attend low-quality schools and often fail to reach the levels of competencies that would allow them to enter the best universities (Schwartzman, 2021<sup>[63]</sup>). Since 2016, a “tuition-free policy” provides free tuition for students in the lower 60% of the family income distribution, however enrolment among these students has not dramatically increased (World Bank, 2021<sup>[1]</sup>). Academic catch-up and support programmes for students from vulnerable backgrounds should become a priority, and resources under the free education policy should focus on the most disadvantaged students. For students from middle class backgrounds, government-backed student loans should become the instrument of choice, with repayment terms based on future income.

### ***Strengthening institutions and fighting corruption***

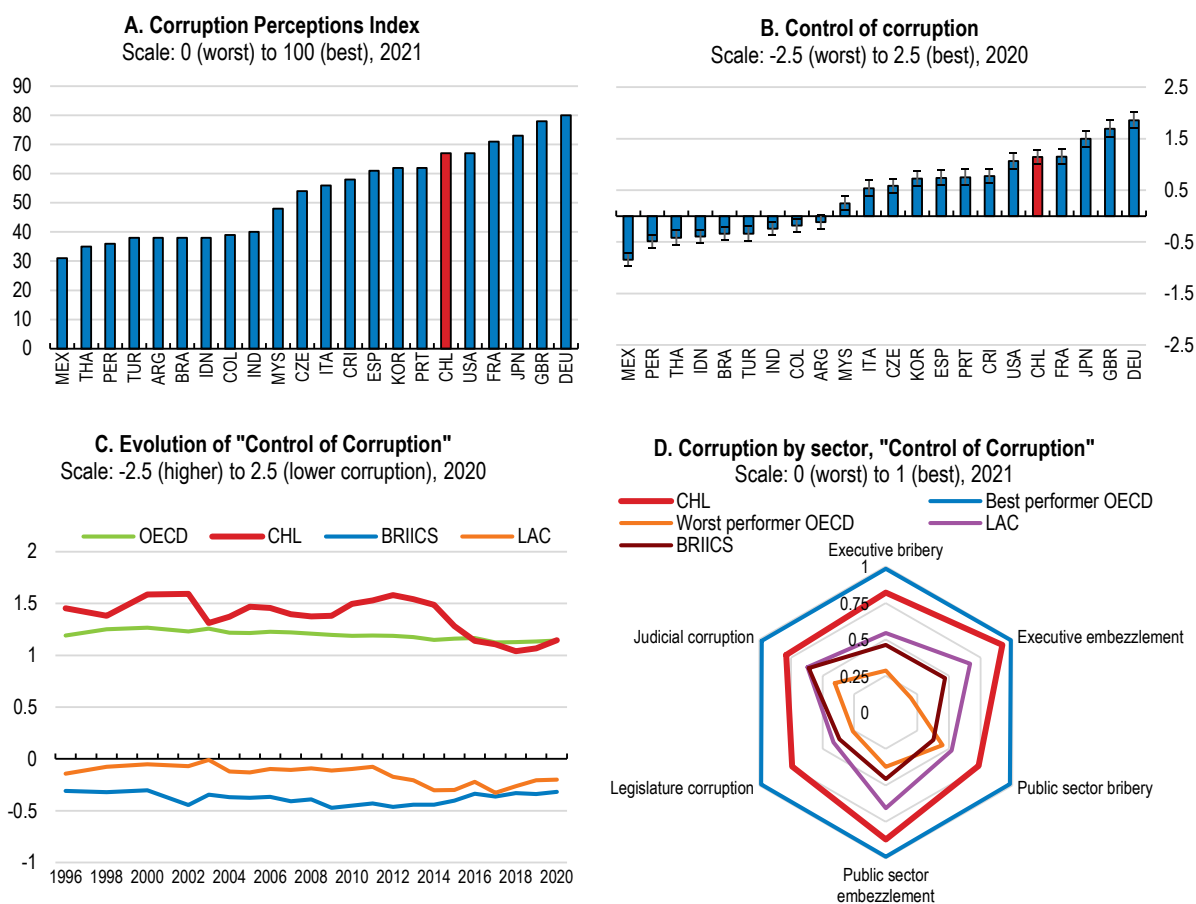
Productivity also hinges on strong governance and institutions. Corruption indicators point to a strong position of Chile’s institutions in several dimensions, including subjective corruption perceptions, measures to control corruption, and also indicators reflecting more detailed aspects of integrity efforts (Figure 1.31). Among regional peers, Chile’s performance compares particularly well. This reflects firm steps taken to strengthen integrity and transparency policies, especially since the recommendations of the “Engel Commission” in 2015 (Consejo Anticorrupción, 2015<sup>[64]</sup>).

Mitigating the risks of undue influence in policymaking by strong private interests is fundamental for a fair and clean business environment, and to safeguard trust in public institutions. Chile has comprehensive regulations in the areas of lobbying, conflict of interest, financing of political parties and election campaigns, but accountability could be strengthened by eliminating barriers that currently prevent citizens and non-citizens from accessing relevant information. In particular, Chile could ensure that all members of government, congress and highest bodies of the judiciary comply with the obligation to submit their interest declarations without exceptions and that this information be made available to the public. In addition, the Electoral Service of Chile could improve the collection of relevant information to provide data about the financing of political parties and election campaigns.


Public procurement and infrastructure projects are typical high-risk areas for corruption. Harnessing competition among potential providers is crucial, and requires an even playing field and full transparency. Chile’s procurement framework affords a preference to public tenders, but fails to set and enforce rules for

when direct purchases, which are less transparent, can be used instead. A review of 400 randomly selected public procurement cases by the Competition Authority revealed widespread use of direct purchases with weak justifications for sidestepping public tenders and substantial difficulties in access to information (Fiscalía Nacional Económica, 2020<sup>[65]</sup>). Where tenders were used, they often included elements that hamper competition such as explicit reference prices, short tender periods, the definition of a preferred brand and few competing participants. A recent draft law that aims to clarify the rules and strengthen enforcement is currently discussed in Congress. Approving it swiftly would likely allow substantial cost savings, given the significant waste of public resources documented.

Figure 1.31. Corruption indicators



Note: Panel B shows the point estimate and the margin of error. Panel D shows sector-based subcomponents of the "Control of Corruption" indicator by the Varieties of Democracy Project.  
Source: Panel A: Transparency International; Panels B & C: World Bank, Worldwide Governance Indicators; Panel D: Varieties of Democracy Project, V-Dem Dataset v12.

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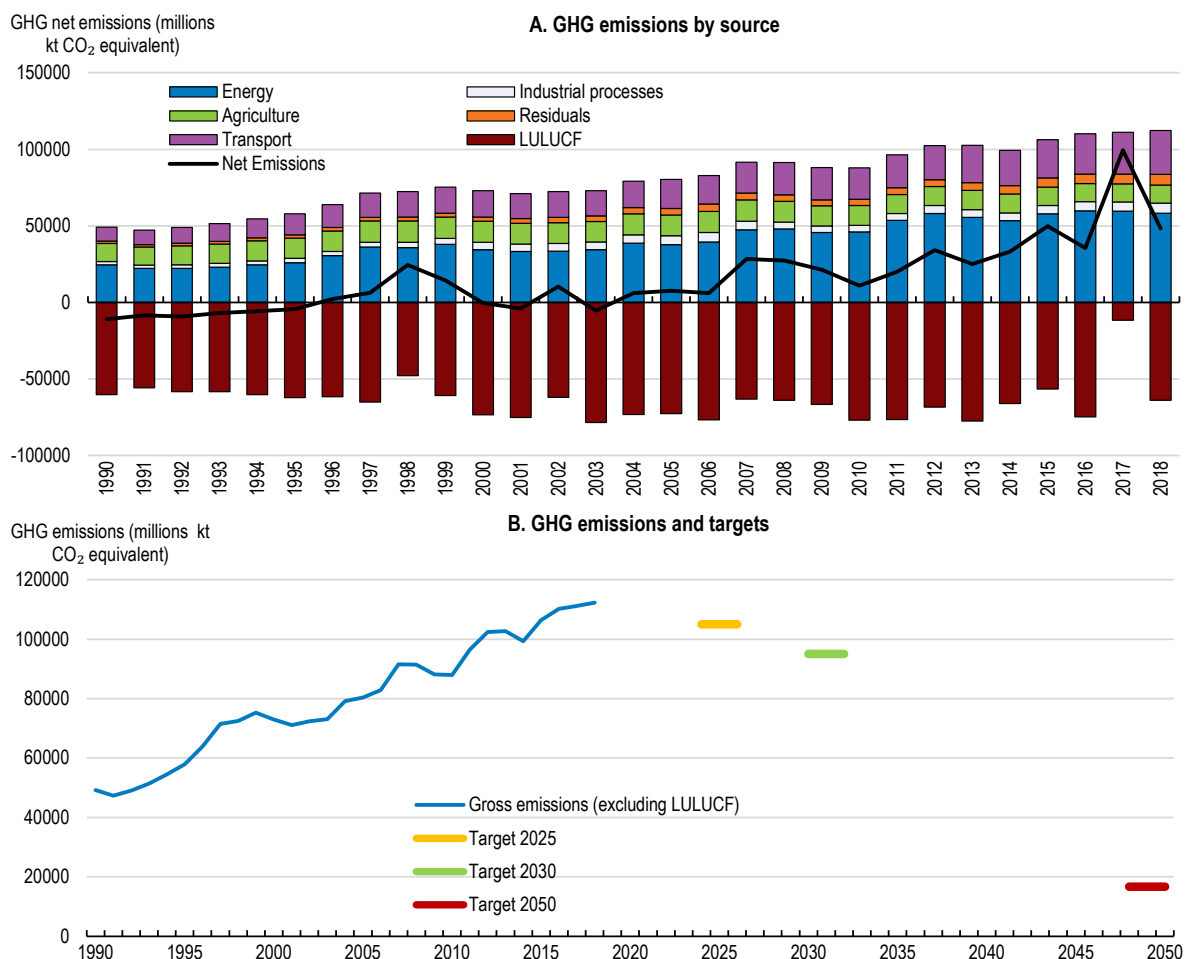
## Fostering sustainable and green growth

Chile has made substantial progress in making growth more sustainable, and its 2022 Framework Law on Climate Change made it the first Latin American country to make emission targets legally binding. Nonetheless, current progress is still falling significantly short of the country's potential to contribute to the global energy transition, especially with respect to renewable energy and green hydrogen. An expansion of these activities could also foster job creation and support economic transformation and a diversification of exports, which has been declared a priority by the current administration.

### Further efforts are needed to decarbonise the economy

In the context of its National Determined Contribution (NDC) to the Paris Agreement, Chile has committed to achieve carbon neutrality by 2050 and an absolute total greenhouse gas (GHG) emission target of 95 MtCO<sub>2</sub>e by 2030, excluding emissions or removals from the land use, land use change and forestry (LULUCF) sector. This implies a 30% reduction in emissions intensity by 2030 compared to 2017 levels. A GHG emissions budget of 1,100 MtCO<sub>2</sub>e between 2020 and 2030 results in an implicit estimated target of around 105 MtCO<sub>2</sub>e for 2025, when emissions are supposed to peak (CAT, 2021<sup>[66]</sup>). Total emissions increased significantly between 1990 and 2018, when they reached 121 MtCO<sub>2</sub>e. This suggests that under current policies, the 2030 target is unlikely to be met (Figure 1.32). However, planned policies under Chile's Long-term Climate Strategy would cause emissions to peak before 2025, overachieving the 2030 NDC targets and putting Chile's emissions on a declining trend slightly above the 1.5-degree compatible pathway range (CAT, 2021<sup>[66]</sup>).

Figure 1.32. Energy and transport are the major source of GHG emissions



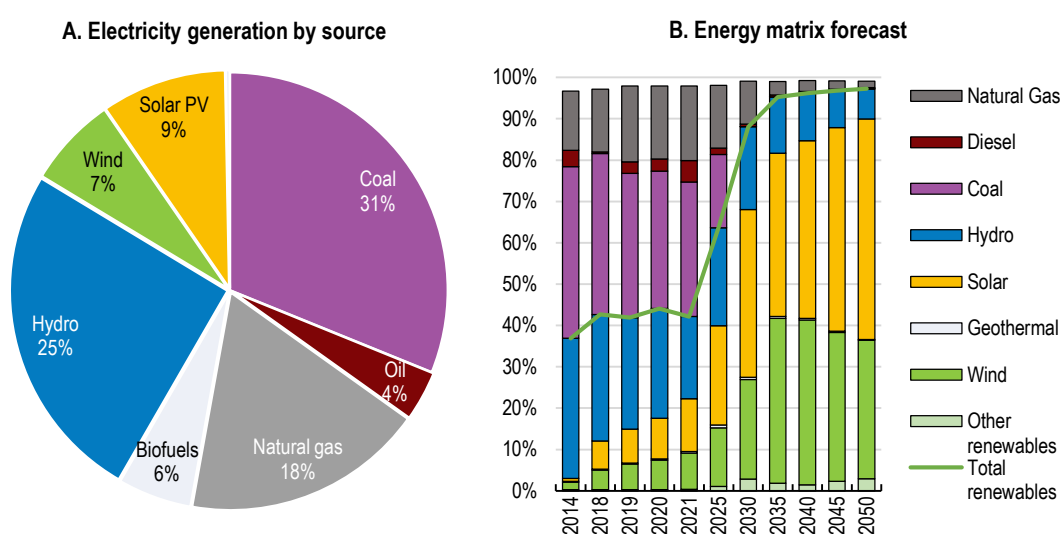
Note: The term «Net GHG emissions» refers to the sum of national GHG emissions, expressed in CO<sub>2</sub> eq. On the contrary, the total GHG emissions term excludes emission sources and removals from the land-use change and forestry sector. LULUCF stands for land use, land-use change and forestry.

Source: Inventario Nacional de Gases de Efecto Invernadero (INGEI). [https://snichile.mma.gob.cl/documentos/Inventario\\_Nacional\\_de\\_GEI-1990-2018.xlsx](https://snichile.mma.gob.cl/documentos/Inventario_Nacional_de_GEI-1990-2018.xlsx).

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Energy is responsible for 52% of GHG emissions, followed by transport with 25%, while the land use category has consistently absorbed CO<sub>2</sub>. All of these sectors present significant further mitigation potential (INGEI, 2020<sup>[67]</sup>). The burning of fossil fuels for electricity generation and heavy transport is one main source of emissions. Coal remains the major source of electricity and accounts for 31%, some 10 percentage points above the OECD average (Figure 1.33, Panel A). At the same time, renewable sources produce 47% of electricity. Since 2014, however, the role of fossil fuels has declined while solar and wind energy have steadily gained importance, a development that is set to accelerate over the next decades (Figure 1.33, Panel B). The 2021 Energy Efficiency law has become the main legal framework, generating over 2% of emission reductions per year until 2030, while the coal phase-out plan of 2019 was strengthened (CAT, 2021<sup>[66]</sup>).

**Figure 1.33. Fossil fuels still represent an important share of the energy matrix**



Source: IEA Electricity Information <https://www.iea.org/data-and-statistics/data-product/electricity-information>; Ministerio de Hacienda, available at [https://energia.gob.cl/sites/default/files/documentos/pelp2023-2027\\_informe\\_preliminar.pdf](https://energia.gob.cl/sites/default/files/documentos/pelp2023-2027_informe_preliminar.pdf).

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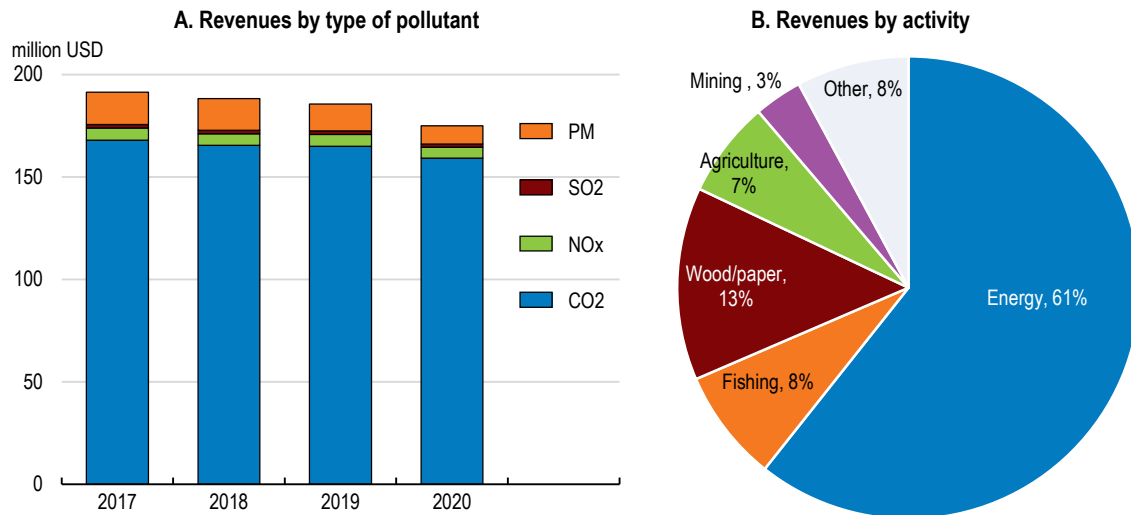
Chile has a unique potential in the generation of electricity from renewable energy sources. Sun radiation in the country's desert north is among the highest on earth, and the total solar power potential has been estimated at 1800 Gigawatts (GW), to which the best onshore wind resources in the world, concentrated in the south, add around 37 GW (Ministerio de Energía and GIZ, 2014<sup>[68]</sup>; IEA, 2018<sup>[69]</sup>). Chile's current total electricity generation capacity is around 25 GW. Not surprisingly, Chile has been a top recipient of foreign direct investment inflows in renewable energy. Better cross-border interconnection would allow exporting more electricity within the region (Timilsina, Deluque Curiel and Chattopadhyay, 2021<sup>[70]</sup>). Electrification of the vehicle fleet also has strong potential to reduce emissions from transport, in addition to green hydrogen, which can be used to power heavy vehicles, for example in the mining sector.

Further progress in decarbonising the economy will require both more stringent regulations and more consistent price signals. In terms of regulations, the recent decision to close all coal-fired power plants by 2030 is an ambitious step that addresses a key source of GHG emissions. In the transport sector, only zero-emission vehicles can be sold after 2035, including light vehicles, public transport and machinery, including mining trucks. There is also scope to strengthen environmental impact evaluations to adjust existing regulations to environmental objectives, and to consistently apply the price of greenhouse gas emissions in public sector cost-benefit analyses, for example by using an explicit shadow price for Greenhouse gas (GHG) emissions.



On the price dimension, the gap with current international best practice remains significant. Taxes on emissions of pollutants were introduced in 2017 and a large share of its revenues come from a carbon tax on fixed sources of CO<sub>2</sub> emissions, at a level of USD 5 per ton of CO<sub>2</sub> emitted (Figure 1.34). This is very low compared to commonly used international benchmark of EUR 60 per ton (OECD, 2021<sup>[71]</sup>).

**Figure 1.34. Green tax revenues come from the most polluting industries**



Source: OECD calculations based on (Bernal, 2019<sup>[72]</sup>; Oronoz et al., 2021<sup>[73]</sup>; Fundación Terram, 2021<sup>[74]</sup>).

StatLink  <https://stat.link/z68fwd>

The limited impact of the carbon tax may be related not only to its low level, but also to its limited coverage. Power plants, which are major emitters, can receive partial carbon tax reimbursement of around 20%, and even those that use renewable sources are taxed. A recent 2020 reform entirely exempts power plants using renewable sources from the carbon tax as of 2025, but this implementation could be anticipated to accelerate the transition towards renewables.

The reform also introduces the possibility to offset CO<sub>2</sub> emissions with government-certified GHG abatement certificates from other companies. This will pave the way for a more sophisticated carbon market and provide incentives for carbon capturing, in line the recommendations of the Paris Agreement. A cap and trade system, planned to be set up by 2026, will limit emissions at the level of each power plant and allow them to exchange permits among each other through trade and auctions (Ministerio de Energía, 2022<sup>[75]</sup>; WWF Chile, 2021<sup>[76]</sup>). The current level of the carbon tax, however, limits these certificates to abatement efforts whose cost is below USD 5 per ton of CO<sub>2</sub>.

Future efforts in carbon pricing should be concentrated on establishing a gradual timeline towards higher levels of the carbon tax and wider implementation of cap and trade systems. A medium-term objective of a carbon price of at least USD 35 would better reflect the true social cost of polluting, although even that would likely still be insufficient (IMF and OECD, 2021<sup>[77]</sup>; García and Poblete, 2020<sup>[78]</sup>; OECD and CEPAL, 2016<sup>[79]</sup>). Higher carbon prices are crucial to accelerate the transition towards sustainable energy sources, where Chile has a significant potential for future growth.

During the transition, there is a risk that consumer electricity prices may rise, although renewable energies are already the cheapest source of electricity generation and their cost competitiveness will limit such effects to the short term. Meanwhile, the purchasing power of low-income households could be protected through targeted cash transfers, as done to cushion the impact of the Russian aggression on Ukraine. This would be preferable over non-target price subsidies.

A wider discussion about climate objectives and trade-offs involved could help to improve political acceptance of higher carbon prices, and could be fostered through the use of climate advisory boards, as has been done in the United Kingdom for example, or other institutionalised channels for climate policy dialogue. Drawing specific groups into the discussion in an institutionalised way could also help, especially young people, for whom climate risks are creating profound uncertainties (INJUV, 2018<sup>[80]</sup>; OECD, 2020<sup>[81]</sup>). For example, Chile's youth council ("Gabinete Juvenil") operated by the National Institute of Youth (INJUV) brings together over 155 young people aged 15-29 and could be involved more in discussions about climate policies.

Chile has been at the vanguard of leveraging debt management for sustainable growth, which has allowed a broadening of the investor base. Environmental Sustainable Governance (ESG) bonds have been issued since 2019 and constitute 29% of the sovereign debt stock, with half of them linked to social initiatives. Green bonds make up 26% of ESG issuance and include clean transport, renewable energy, water resources management and green buildings, but could be expanded to finance carbon sinks in forests and oceans. More recently, Sustainability-Linked Bonds are not earmarked for financing specific projects, but instead their coupon is linked to the country's performance on sustainability goals such as GHG emission reduction commitments (Ministerio de Hacienda, 2022<sup>[82]</sup>). For example, a failure to meet the commitment of sourcing 60% of electricity from renewables would trigger a coupon penalty for these bonds.

### ***Harnessing the potential of green hydrogen***

Chile's extraordinary renewable energy potential makes it well-placed to become a major producer and exporter of green hydrogen, whose main virtue lies the possibility of transforming, storing and transporting energy obtained from renewable sources (Box 1.2). Green hydrogen could represent 21% of the emission reductions required for carbon neutrality (GIZ, 2020<sup>[83]</sup>), and is the only technology known so far that can decarbonise some hard-to-abate processes in heavy industry (Cammerraat, Dechezleprêtre and Lalanne, 2022<sup>[84]</sup>). Its exceptional climatic conditions could allow Chile to provide the most affordable green hydrogen in the world, which could generate new employment. Estimates suggest a potential 70% decrease in production cost by 2030 in Chile, which would give it a 20% cost advantage over competitors (ICCT, 2020<sup>[85]</sup>; McKinsey & Company, 2020<sup>[86]</sup>).

#### **Box 1.2. Green hydrogen: A novel technology with many applications**

Hydrogen can be used as an energy vector, like electricity or heat, and provide stored electricity when needed, besides other more direct applications in manufacturing, agriculture and long-distance transportation (Richel, 2022<sup>[87]</sup>).

Currently, most of the world's hydrogen supply is produced through steam methane reforming, a mature production process in which high-temperature steam is used to separate hydrogen from a methane source, such as natural gas. This process generates so-called "grey hydrogen", involving significant CO<sub>2</sub> emissions.

A more novel process of generating hydrogen called electrolysis uses electricity to split water into hydrogen and oxygen. To the extent that this electricity comes from renewable sources, the process produces so-called "green hydrogen" (World Economic Forum, 2021<sup>[88]</sup>). Green hydrogen currently only accounts for 0.1% of the total hydrogen production, given the high cost of the electrolysis process.

Chile has formulated a national strategy for green hydrogen to develop a local hydrogen market in industries such as oil refineries, ammonia production and freight trucks. There is a risk, however, that the development of hydrogen gets slowed down by the uncertainty surrounding both supply and demand. On one hand, total renewable electricity capacity is still insufficient to supply large amounts of hydrogen at this

point. On the other hand, demand for hydrogen is still limited and the adoption of hydrogen-using technologies will depend on sufficient supply and the supporting infrastructure coming online in a timely way (IEA, 2021<sup>[89]</sup>). As a result, there may be a case for developing a market for hydrogen with some support from the public sector. In June 2022, a new “Committee for the Development of the Green Hydrogen Industry” was established to accelerate the development of this industry. Over ten ministries coordinate their actions in the Committee to address issues of local demand, land planning, project financing and development, permits and potential risks. Its functions include the implementation of the National Green Hydrogen Strategy, research and development, capacity building and promotion instruments.

Fostering the emergence of a hydrogen market could involve different policy efforts. Expanding renewable energy production, including through a higher carbon price, is one way forward. Tightening command-and-control regulations, for example in the mining sector, may be a way to achieve costly but feasible investments in hard-to-abate sectors, and could create a reliable source of demand. Replacing fossil fuels in mining trucks with hydrogen, for example, is the most promising way to reduce the industry’s CO<sub>2</sub> emissions. Public mining companies could take the lead on this path.

In addition, a reliable regulatory framework will be needed to provide more certainty for investors. Regulation should minimise entry barriers for new competitors and define standards on equipment specifications, guarantees of origin, hydrogen purity and infrastructure requirements. Adopting ISO standards related to hydrogen could send a positive market signal (OECD, 2022<sup>[90]</sup>; IEA, 2021<sup>[89]</sup>). Likewise, developing indicators to quantify the emission reductions of switching to green hydrogen will be key for a wider adoption, as this will allow the issuance of credible and tradable emission reduction certificates.

Green hydrogen technologies are still incipient and require additional technological progress in several areas. Converting hydrogen back into electricity, for example, is still subject to substantial inefficiencies and losses. Public policies could provide specific incentives for research collaboration between research institutions and investors on hydrogen-related technologies.

Developing a competitive green hydrogen industry may also help to further diversify Chile’s export base. Given the novelty of the technology and the yet largely undeveloped global market for green hydrogen, these endeavours may benefit from a coordinating role for the public sector, including fostering the allocation of credit to this incipient sector through a planned public development bank. However, the experience of other Latin American countries, in particular Brazil, suggests that transparent credit allocation criteria are crucial, and where credit subsidies are involved, these should be temporary and tied to clear performance indicators, with regular ex-post evaluations. Otherwise, there is a risk that credit subsidies grow rapidly and fail to effectively promote stronger investment and productivity growth (Bonomo, Brito and Martins, 2015<sup>[91]</sup>; Pazarbasioglu-Dutz et al., 2017<sup>[92]</sup>; OECD, 2018<sup>[93]</sup>). There should also be a well-defined exit strategy from policies to promote green hydrogen, in case that the technology does not live up to current expectations.

Table 1.4. Past OECD recommendations on structural policies

Recommendations	Actions taken since the 2020 Survey
Step-up investment in high-quality early childhood, primary and secondary education. Enhance the provision of childcare and early childhood public structures.	Announced policy packages aim for additional investments of 0.04% of GDP in public education, including through improvements in education infrastructure and training with digital tools.
Strengthen the redistributive impact of the personal income tax by lowering the thresholds at which the bottom and top bracket apply.	A tax reform has been submitted to Congress. Among other things, the reform will enhance the progressivity of personal income taxes, but it will not reduce the basic deduction.
Increase digital literacy in schools giving digital skills more prominence in the national curriculum, and enhancing the digital skills of teachers and school-directors.	No action taken. A national education plan aims to promote access to IT devices and improve the digital skills of teachers.
Embark on a full revision of firm-provided training programmes to increase relevance and quality of training and better target participation to vulnerable workers.	No action taken.
Streamline permits and their process by implementing a zero-licensing procedure to encourage investment and simplify regulations for SMEs.	Progress has been made at the central government level, but municipal licenses continue to be burdensome. A programme for SMEs called 'Pyme Ágil' has been creating a digital channel for the management of centralized municipal license applications since 2020.
Boost public support to SMEs, in cooperation with the private sector, through targeted programmes to facilitate the adoption of digital tools.	Courses for workers and small enterprise owners have been created to increase digital toolkit adoption and usage.
Foster a collaborative digital innovation ecosystem by strengthening business collaboration and fostering open-innovation practices.	No action taken.
Ensure low barriers to entry to the communication sector by replacing the existing regulation for concessions.	No action taken. A project has been announced to address regulations in the telecommunication sector.
Carefully screen the environmental impacts of stimulus measures in the wake of the outbreak to avoid unintended environmental consequences. Condition direct financial support measures for pollution-intensive sectors that may be particularly affected by the crisis to cost-efficient and verifiable environmental improvements.	No action taken.

Table 1.5. Policy recommendations from this chapter (Key recommendations in bold)

MAIN FINDINGS	RECOMMENDATIONS
<b>Refining macroeconomic policies and reforming taxation</b>	
Inflation has risen above 14 percent and inflation expectations over a 2-year horizon now exceed the inflation target, despite timely monetary tightening.	<b>Maintain a restrictive monetary policy stance to ensure the return of inflation to target.</b>
Public debt has risen, the economy has recovered strongly from the pandemic-related downturn and inflation has risen significantly above target.	<b>Keep the pace of fiscal consolidation in line with current fiscal plans including a strong reduction of public expenditure during 2022.</b>
The current tax intake of 21% of GDP is insufficient for achieving sizeable improvements in social protection and public services such as health and education, and for achieving more inclusive and sustainable growth.	<b>Mobilise additional tax revenue through a comprehensive reform of personal income taxes, property taxes and improvements in tax administration.</b>
Traditionally deep financial markets have been affected by extraordinary pension fund withdrawals, resulting in shorter maturities and higher rates.	<b>Ensure that part of future pension contributions are saved and invested in the capital market.</b>
The fiscal rule has failed to prevent a rise in public debt and lacks a formal escape clause, leaving details about departures from the rule undefined.	<b>Enhance the fiscal rule with a debt anchor and an escape clause that defines conditions for departing from it, and a trajectory to return afterwards.</b>
Significant scope exists for improving the efficiency of public expenditures without prejudice to achieving policy objectives.	Strengthen spending efficiency, including by unifying fragmented income support schemes and re-organising innovation and research support programmes.
<b>Strengthening productivity and competition</b>	
Lengthy and tedious municipal licensing procedures continue to hamper entrepreneurship and competition. Research and development spending is low.	<b>Streamline and unify municipal licensing procedures and foster the digitalisation of relevant procedures.</b>
Many regulations may have become obsolete and digitalisation provides plenty of opportunities to reduce compliance costs.	<b>Review of the stock of existing regulations and their competition impact. Move towards "zero-licensing" schemes wherever possible.</b>
Weakly defined rules for approving large investment projects have given rise to uncertainty about outcomes, often at the end of the administrative process.	Define clear rules for approving large investment projects.
Regulatory impact assessments have become mandatory for new regulations, but compliance is low.	Ensure a more consistent use of legally required regulatory impact assessments through stronger sanctions for non-compliance.

The competition authority has been undertaking market studies of key sectors, which revealed significant need for action.	<b>Ensure an adequate budget for the Competition Authority, in particular for the funding of market studies.</b>
Notaries are needed for more than 200 procedures and the sector is characterised by high entry barriers.	Reduce the mandatory recourse to notaries and extend the use of electronic signatures.
Foreign providers still face significant additional burdens when participating in public procurement processes.	Reduce the differential treatment of foreign suppliers in public procurement.
Current rules mandate that the whole crew must be national in cabotage transport, and places severe limits on the participation of foreign vessels.	Lift foreign participation restrictions in cabotage maritime transport.
Technical and legal procedures for international trade are complex and can act as trade barriers.	Improve trade facilitation through simplification of procedures, better inter-agency coordination and wider use of single windows and advance rulings.
Support for research and development is fragmented into several programmes which lack systematic and regular evaluations.	<b>Enhance R&amp;D support focusing on the most effective programmes, maintaining a balanced mix between direct support and tax credits.</b>
<b>Improving opportunities and outcomes in education</b>	
Early childhood education is key for improving learning outcomes later in school, but funding is highly unequal across institutions. Female labour market participation is low, partly due to a lack of care facilities.	<b>Expand access to early childhood education to all children from age three. Expand the central government funding of pre-school educational institutions that are not managed by the central government.</b>
Low remuneration and long working hours make the teaching profession less attractive than in other OECD countries, and disadvantages schools struggle to attract highly skilled teachers.	Improve teacher remuneration and working conditions, and strengthen incentives to attract good teachers to disadvantaged schools.
Covid-related school closures have exacerbated inequities in the education system, as students from vulnerable backgrounds struggled to access digital tools to remain connected to education.	Expand efforts to reverse the negative impact of pandemic-related school closures and re-engage those who dropped out of school.
<b>Strengthening economic governance and the fight against corruption</b>	
Tender calls are meant to be the standard form of public procurement, but there are no clear rules when direct contracting can be used instead.	<b>Clarify the rules for using tender calls in public procurement and strengthen compliance with these rules.</b>
Chile has comprehensive regulations in the areas of lobbying, conflict of interest, financing of political parties and campaigns, but not all relevant information is publicly available.	<b>Ensure that all members of government, congress and highest bodies of the judiciary submit their interest declarations without exceptions.</b>
<b>Making growth more sustainable and greener</b>	
Total emissions increased significantly between 1990 and 2018. Existing regulations are not always aligned with environmental objectives. The carbon tax is too low to drive the transition towards wider use of renewable energy sources and hampers emission-trading schemes.	<b>Accelerate progress in decarbonising the economy through more stringent regulations and more consistent price signals, using both carbon taxes and cap and trade systems, while protecting the purchasing power of vulnerable households.</b>
Power plants using renewable energy sources currently pay the same carbon tax per output as those generating carbon emissions.	<b>Consider accelerated exemptions for power plants using renewable energy sources from the carbon tax.</b>
Environmental impact evaluations are not widely used to adjust existing regulations and decision criteria to environmental objectives.	Consistently apply the price of greenhouse gas emissions in public sector cost-benefit analyses, for example by using an explicit shadow price for greenhouse gas emissions.
The development of hydrogen may get slowed down by the circular uncertainty surrounding both supply and demand.	Explore measures to develop a market for hydrogen, including by creating demand through regulations, for example in the mining sector.
Evaluating the effects of the carbon tax on emission reductions is difficult to a lack of relevant data.	Publish information on tax collection and emissions at the level of individual emitters.
The issuance of tradable certificates for emission reductions resulting from hydrogen adoption hinges on clear quantification guidelines.	Develop indicators to quantify the emission reductions of switching to green hydrogen.
Green hydrogen technologies are still incipient and require additional technological progress in several areas.	Provide specific incentives for collaboration between research institutions and investors on hydrogen-related technologies.

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