Globalisation and the Chilean economy

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Abstract

This note describes and analyses Chile's economic integration into the global trading system, including the impact on goods, services, capital and labour. This was a gradual process starting in the mid-1970s. Currently Chile is a very open economy, even though immigration is a relatively new phenomenon which is already having an impact at the macroeconomic level. During this period, there have been significant institutional developments, notably the establishment of the central bank's independence, with a clear mandate to control inflation and a ban on funding of the government. New fiscal rules are designed to isolate the public finances from short-term cyclical fluctuations and volatile copper prices. The adoption of inflation targeting with a free flotation policy in the early 2000s has become a cornerstone of the macroeconomic policy framework. Financial integration has helped to significantly reduce the cost of capital in the country, while providing pension funds with a valuable way of diversifying risks. Chile exhibits some of the largest measures of financial markets depth among emerging market economies (EMEs). Finally, inward FDI has made a large contribution to the development of the country's productive capacity. In recent years, outward FDI, especially within the region, has helped major Chilean corporations, mostly in the service sector, to expand beyond the limits imposed by the small size of the domestic market.

Keywords: Trade liberalisation, financial opening, floating exchange rate, inflation targeting, immigration

JEL classification: E58, F22, F41, F62.

1 Member of the Board, Central Bank of Chile. Andrea Mostajo provided very able and enthusiastic help.

Introduction

This note describes and analyses the process of Chile's economic integration into the global trading system, including the impact on goods, services, capital and labour. This process started in the mid-1970s, after the country abandoned the so-called import substitution model of development. The impact on Chile of similar processes in other EMEs is also discussed, especially the emergence of China as a major industrial centre, with a focus on the main macroeconomic variables of interest for the central bank.

The note is organised as follows: Section 1 presents a summary review of Chile's integration into the global economy. Since this was a gradual process, several phases are distinguished. Section 2 assesses the effects of globalisation on the main macroeconomic variables and policies, with a particular focus on inflation and monetary policy. Section 3 presents evidence on the characteristics and impact of migration. Section 4 is devoted to the analysis of the potential economic effects of a move towards more protectionism in the advanced economies. The last section concludes.

Chile's integration into the global economy

After the 1930s Depression, Chile embraced an import substitution strategy for development, erecting a large and cumbersome set of trade restrictions, including both tariff and non-tariff barriers and restrictions on access to foreign exchange. The banking system was subject to quantitative controls and interest rates were regulated. That crisis and the ensuing default meant that Chile remained excluded from external financial markets for more than 40 years, while various nationalisations discouraged FDI. By the end of the 1960s, the economy was suffering periodic foreign exchange crises, followed by devaluations and high inflation, fuelled in part by fiscal deficits financed by monetary expansion. High and volatile inflation became a distinctive feature of the Chilean economy and, by the mid-1960s, economic growth had slowed significantly. In terms of per capita GDP, the country was losing ground against not only the advanced economies, but also within the region. Rapid population growth put pressure on the social and political system. Even though there were major advances in the coverage of education, health services and housing, social and political tensions culminated in a breakdown of democratic institutions in the mid-1970s.[2] A massive programme of economic liberalisation and markets reforms was enacted under military rule after the coup in 1973, starting Chile's re-integration into the global economy.[3]

a. Phase 1. 1975–90: the initial opening of the economy amid general economic liberalisation and macroeconomic stabilisation

[2] For further details on the Chilean experience with import substitution, see Ffrench–Davis (1973), Collier and Slater (1996) and Meller (1998). At the time, most countries in the region followed similar policies. See for instance, Thorp (1998) and Dornbusch and Edwards (1991).

[3] See for instance Larraín and Vergara (2000) and Ffrench-Davis (2010). For a more specific focus on trade liberalisation and exports, Meller (1996). On reforms and macroeconomic performance, Schmidt-Hebbel (2006).

The collapse of the political system in 1973 took place in the midst of a major economic crisis, reflected in widespread shortages of all kind of goods, and inflation running above 500%. The opening of the economy took place at the same time as other reforms and a severe stabilisation programme were implemented. In this period most non-tariff barriers were abolished, tariffs were brought down and unified at 10% in 1977, and most exchange controls were eliminated. FDI restrictions were lifted after a new law was enacted in 1974.[4] The central bank set the value of the exchange rate, with periodic adjustments to keep up with inflation. In 1979 it was set at a fixed nominal value (inflation was still running above 30% at the time), while at the same time the capital account was liberalised.

The combination of financial liberalisation with a fixed exchange rate ended badly in 1982, after a worsening in international conditions made it impossible to finance huge current account deficits. The economy fell into the deepest recession since the 1930s, and the financial system collapsed after large devaluations that year.

There was a partial reversal of trade liberalisation after tariffs were increased to 35%, but then they were gradually brought down to 15% at the end of the decade. FDI flows began to pick up in this period. In addition to some large copper mining projects, foreign capital also went to recently privatised state companies, such as telecoms. An aggressive programme of debt-equity swaps also attracted foreign (and domestic) investors to all sectors of the economy.

By the end of the decade the economy had experienced a major transformation as shown in the charts in Annex A, with a larger participation of foreign trade in GDP, a significant diversification of exports and imports, in terms of both their composition and international partners. However exports remained biased towards natural resources-based goods and there was very little integration into global value chains. The end of protectionism meant that consumers and firms had access to wide range of products and services previously prohibited or too expensive. As expected, imports displaced domestic manufactures, especially in durable goods, with a significant impact on employment. Traditional agriculture, oriented towards the production of highly protected food (grains, meat) had to readjust, but in most cases this sector benefited from new opportunities for exports of higher value products such as fruit. The expansion of forest plantations to support future exports also created value in non-arable areas. Strong export demand for products such as fish and seafood, as well as wood pulp, put significant pressure on the environment, leading in some cases to over-extraction and even the collapse of some fisheries.[5]

b. Phase 2: 1990–mid-2000s: Free trade agreements, the emergence of EMEs as export markets, financial integration, and the first steps in the internationalisation of Chilean companies

This period marks the consolidation of the economic opening. After the return to democracy, governments maintained and deepened the integration into the world economy. General tariffs were brought down to 11% in 1991, and then to 6% in 1998,

4 This led Chile to withdraw from the Andean pact, a subregional trade pact requiring substantially more restrictive rules for FDI.

5 See for instance World Bank (1994) and Figueroa et al (1996). In the 1990s environmental issues played an increasingly important role in the political and economic agenda, as pollution and other environmental problems associated with sustained economic growth became more evident. Globalisation also played a role here, as international conventions and market reactions provided an impulse to set higher environmental standards.

in response, respectively, to the oil price shock caused by the first Gulf War and to the Asian Crisis. In this period, Chilean governments pursued an active policy of signing free trade agreements, so that by the end of this decade Chile had signed or was negotiating FTAs with all major trade partners.

This period coincided with the emergence of the Asian "tiger" EMEs and then China. This process had a deep effect on Chile. On the exports side, the Asian EMEs became large importers of metals and other industrial raw materials (minerals, timber), and later of consumer goods, such as food and wine. These countries began to gain importance at the expense of other traditional markets such as the United States and Europe. On the other hand, these EMEs also gained a large market share in Chilean imports of low-priced manufactured consumer goods (clothing, electrical appliances, vehicles and computers).

In the late 1980s and early 1990s, some institutional changes took place. The new central bank law established the institution's independence, providing for a monetary policy with the sole objective of controlling inflation. Meanwhile, the Copper Stabilisation Fund was set up with the aim of dampening the traditional cyclical influence of copper prices on fiscal expenditure. The combination of both elements allowed for further reductions in inflation, which came down to international levels by the end of the decade, while turning the public sector into a net creditor

Inflows of FDI were large during this era, especially in mining, other natural resources and services, including energy and financial services. Later, a few large Chilean companies began expanding abroad, especially in services (electricity, retail).

During the second half of this period, Chile's pension funds were allowed to invest a larger fraction of their assets abroad. The outflow began very slowly, due to large interest rate differentials, but as the economy made progress, domestic interest rates fell and institutional investors began to invest abroad more aggressively, especially after the Asian crisis.

c. Phase 3: 2005–present: consolidation of international integration, active expansion of Chilean companies abroad and growing immigration

This later phase is characterised by the consolidation of trade and financial integration, a process that continued in spite of the Great Financial Crisis (GFC) in 2007–09. During this period, China became Chile's main trade partner, both in exports and imports. Also, most major Chilean companies reached the limits of their expansion in the domestic market, and began looking for opportunities abroad, taking advantage of economic reforms in the region.[6] Major Chilean investments in the rest of region are in transportation (airlines), retail, pulp and paper and, to a lesser extent, financial services.

Finally, immigration from neighbouring countries started to gain momentum in the 1990s, especially from Peru at the outset, followed by Argentina after the crisis in the early 2000s, and more recently from Colombia, Venezuela and the Caribbean (Haiti, in particular). Some of these immigrants have high levels of education and have joined Chilean companies in professional-level roles, but most are low-skilled workers

[6] At the same time, companies from other countries in the region, particularly Colombia, Peru and Brazil, began to invest in Chile.

who have helped sectors such as agriculture, construction and services to regain their competitiveness.

Globalisation and its impact on macroeconomic policies

This section, first, reviews the effect of globalisation on the inflation rate, as a result of changes in relative prices of some consumption goods, especially durables. Second, it assesses how policies and institutions dealt with macroeconomic volatility linked to external shocks and, third, it discusses the evidence for changes in the level and volatility of the exchange rate before and after the adoption of inflation targeting and the free flotation of the currency.

a. Direct impact of globalisation on inflation

The elimination of trade barriers is likely to affect short-term inflation – more so in a highly indexed economy as the Chilean one – due to the fall of prices in importable goods. This change could be large in the case of heavily protected industries – such as automobiles, for instance – and as new opportunities for consumption arise, they might become more important as these same goods increase their share in the CPI.

In Chile, this first-order effect was felt in the late 1970s, a period of rampant inflation with severe measurement distortions, so that it would be very difficult to measure the impact accurately. Then, as inflation fell and new low-cost producers such as China emerged in the 1990s and 2000s, displacing former high-cost producers, a second round of relative price reductions in consumer goods took place.[7] These price reductions are easier to quantify.

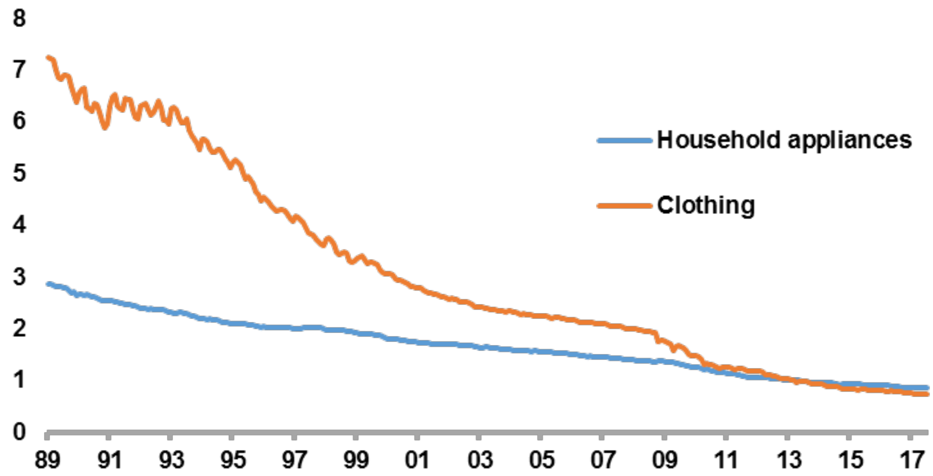
Graph 1 shows the relative price trends of two categories of goods (clothing and household appliances) for which imports gained significant importance over the period.[8] As a denominator, we use a sub-index of the CPI that excludes the most volatile components linked to food and energy prices, and includes only goods. Of the main components of the CPI, this is the one most sensitive to the evolution of the exchange rate, allowing for some measure of control for this variable.

7 A full analysis of these issues would require the use of highly disaggregated data at the level of individual products and suppliers, something that is beyond the scope of this paper, but could be done with the databases available.

8 See Table 1 in Annex B.

Relative prices of selected categories of goods w.r.t. IPCSAEB (*)

Graph 1



(*) Sub-index of the CPI that excludes services and volatile components such as energy and food.

Sources: Central Bank of Chile; National Institute of Statistics (INE).

In both cases we can see a clear falling trend, something that could reflect a higher share of imports combined with the substitution of high-cost suppliers in the advanced economies by low-cost Asian producers.

In any case, this is just preliminary evidence, and further research is needed in order to say more about the importance of globalisation on the reduction of inflationary pressures.

b. Evolution of institutions and policies to deal with macroeconomic effects of external volatility

At the beginning of the 1990s, it was clear that one major factor behind Chilean economic volatility was the large influence of copper prices on both the availability of foreign exchange and public finances. Three attempts to bring down inflation by setting a fixed exchange rate (1961, 1971, 1979) failed when the combination of lower copper prices with the fast real appreciation of the currency ended in an acute foreign exchange crisis, massive depreciations, recessions and high inflation. This led to a consensus that, in order to stabilise the economy, it was necessary: (i) to achieve some measure of exchange rate flexibility, at least to preserve the purchasing power of the currency in an environment of high inflation; (ii) sever the linkage between fiscal expenditures (and future commitments) funded by high (but transient) copper prices; and (iii) put an end to the monetisation of fiscal deficits.

Starting in the 1960s, budgetary institutions were upgraded, giving more power to the Ministry of Finance and the Budget Office (Arellano (2006)) so that fiscal discipline could be adequately enforced. In 1987, a Copper Stabilisation Fund was established as part of the World Bank's Structural Adjustment Loan programme. This was designed to save most of the fiscal windfall when copper prices were higher than their long-term trend, and vice versa. The fund began to accumulate resources in the early 1990s. The government used a large fraction of those savings to prepay its foreign debt, significantly improving the fiscal net asset position. In 1988 and 1989, after the Asian crisis, the fund was also used to finance extraordinary investment expenses as part of a countercyclical fiscal policy.

In 2001, the Copper Stabilisation Fund was expanded and included within a fiscal rule based on a target for the cyclically adjusted budget. This rule made corrections of revenues due to cyclical deviations from potential GDP, as well as from deviations of copper prices from its long-term trend. Independent committees of experts were established to set up the key parameters for the estimation of the cyclical trend for both variables. This rule allowed for a significant increase in savings in the early phase of the commodity boom of the 2000s, and a large fraction of those funds were used to finance fiscal stimulus expenses during the GFC.

However, the rule was adjusted several times after 2007 and it became more complex to apply and evaluate. Things were further complicated by the downturn in commodity prices and mining investment from 2011. These factors were slow to be reflected in the estimation of copper price trends and potential output, causing a deterioration in the fiscal accounts. In 2017, the major credit rating agencies downgraded Chile by one notch, citing rising public debt amid rising fiscal commitments in a slower growth environment.

Central bank independence was implemented at the end of 1989, when the new law for the central bank was enacted. Among other things, the central bank was prohibited from lending money to the government. Initially, the central bank relied heavily on short-term capital controls in order to gain room for monetary policy as part of its plan to bring inflation down to international levels, within a framework of managed adjustment of the exchange rate. This was done at the same time that the government was accumulating resources in the Copper Stabilisation Fund and using them to prepay its foreign debt.

Improved external conditions, coupled with budgetary constraints based on long-term trends and an independent monetary policy, resulted in a gradual reduction in inflation, high economic growth and a general improvement in the overall financial position. The economy remained vulnerable to external shocks, but domestic economic policies helped to reduce their adverse impact.[9]

c. Globalisation and the exchange rate

The central bank applied a semi-flexible crawling peg system in FX markets during the 1990s in order to limit an excessive appreciation of the currency. It was based on a free-floating exchange rate within a band around a reference exchange rate ("dólar acuerdo"). At the time the country was experiencing a large investment boom and large capital inflows (portfolio and FDI), while trying to tighten monetary policy to bring inflation down. Capital controls (reserve requirements for short-term portfolio inflows) were established in order to limit the incentives for carry trade. As time went by, the controls became less effective, and the currency appreciated gradually in real terms. During this period, the methods of calculating the reference exchange rate as well as the width of the band were revised several times, and the central bank intervened frequently within the band. A large fraction of the currency's appreciation reflected the return to normal conditions of access to international markets as well as

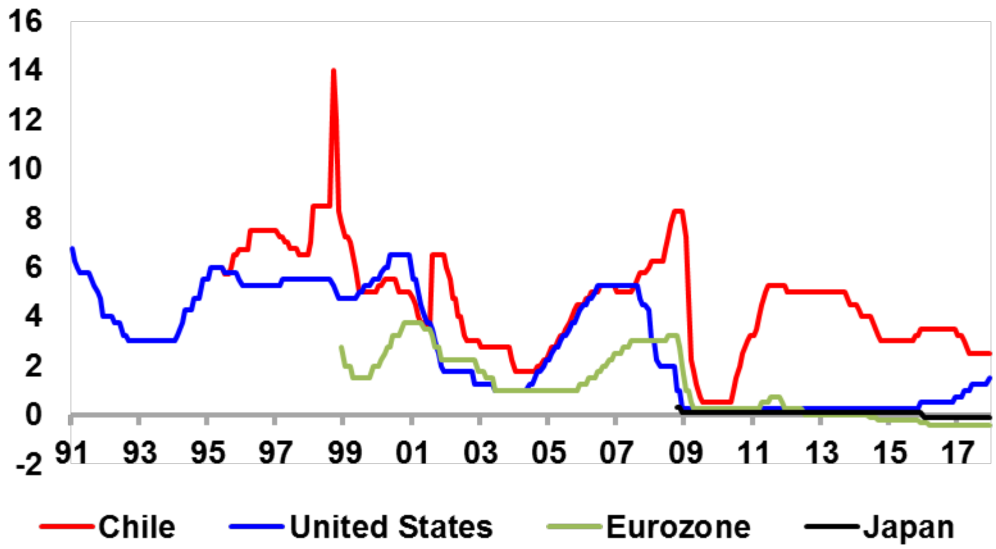
[9] Vegh and Vulletin (2014).

high rates of export growth, especially copper. On the positive side, the real appreciation helped to lock in lower inflation rates.

The Asian crisis made it clear that trying to contain inflation and simultaneously curb "excessive" appreciation was becoming more difficult as the economy became more integrated into international markets. Also, the scale of the pension funds and their investments abroad made it almost impossible to try to control both capital flows and the exchange rate at the same time. In 2001, the central bank moved towards an explicit inflation target (3%, with an acceptable deviation of +/–1%, within a two-year time horizon), with a free-floating exchange rate. Existing capital controls were eliminated, but the central bank reserved the right to reinstate them if necessary. This policy definition did not preclude occasional interventions in the FX market but, in the few cases that this has happened since 2003, interventions have been preannounced with a target for reserve accumulation to be met in a specified period of time, with set targets for daily transactions.

This combination of policies has given a significant degree of flexibility to monetary policy and, in some periods, there have been significant differences between monetary policy rates in Chile and their equivalents in the United States and other major financial centres, at least for limited periods, as illustrated in Graph 2 and further discussed in Naudon and Vial (2016).

Monetary policy interest rates in selected countries or currency areas — Graph 2



Source: Bloomberg.

As free flotation has resulted in volatility of the nominal exchange rate, two issues have been mentioned as a source of concern:

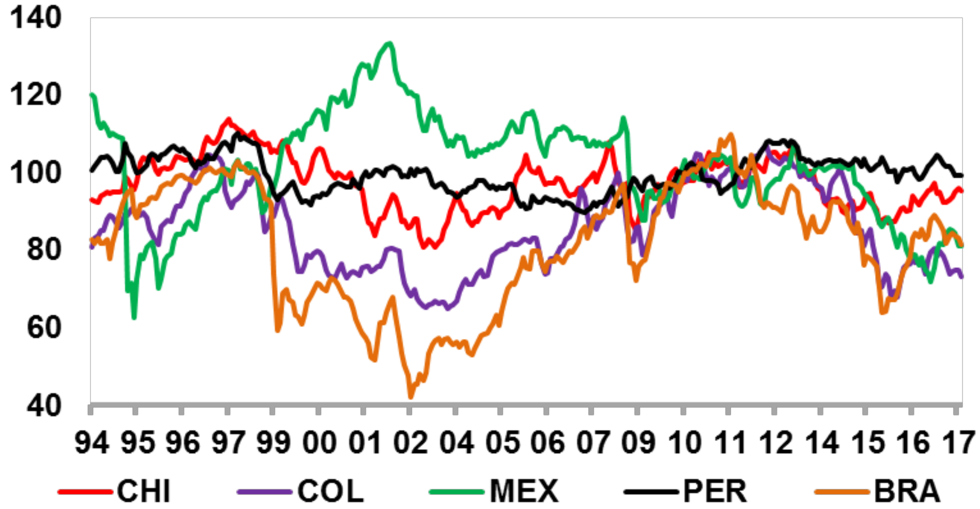
- Has this policy led to an excessive real appreciation of the currency?
- Has it resulted in excessive volatility of the exchange rate?

Comparative studies of the impact of interventions on exchange rates tend to show that they have a limited effect, diminishing if the economy is more financially integrated.[10]

Some preliminary evidence shows that Chile's real effective exchange rate (REER)[11] has appreciated by about 8% in the period 2001–17, compared with 1994–2000.[12] However, the later subperiod is characterised by much higher terms of trade and better financial conditions for EMEs than the previous one, so it can hardly be deemed excessive just because there has been an appreciation.

Real effective exchange rates of selected Latin American Countries[1]

(2010 = 100, Based on monthly data) Graph 3



[1] For the sake of comparability among countries, we use BIS data. In the case of Chile, at least, there are relevant differences between this measure and the one used by the central bank. See Annex C for a graph showing the different paths for both series.

Source: BIS.

A very simple visual comparison shows that the Chilean and Peruvian REERs are the ones with the more stable paths, and without a clear trend over the period. This is quite remarkable, since Peru is one of the most active countries in the group's FX markets, while Chile is the least active.

Very short-term nominal volatility can be distinguished from the volatility of the REER. For the purpose of signalling resource allocation, the latter is more relevant. Very short-term nominal volatility might be even desirable from a monetary policy viewpoint because it might help discourage carry trading. Graph 3 also shows that Peru and Chile are the countries with the lowest volatility in their REERs over the period.

A very simple statistical analysis[13] (excluding Brazil) show that all four countries experienced small but significant changes in mean REERs after 2000s, compared with

[10] See Adler and Tovar (2014).

[11] In order to facilitate comparisons across countries, we use monthly observations taken from BIS data.

[12] The difference is significant at the customary 5%.

[13] See Annex C.

the second half of the 1990s, something that could be explained by changing external conditions (terms of trade, financial access). More interesting, though, is the weaker evidence of changes in volatility in REERs in the second period, characterised by higher globalisation and generally more flexible nominal exchange rates. When we compare the volatility of the REER among countries in the 2001–17 period, variances were found to be higher for Colombia and Mexico than for Peru and Chile, with statistically significant differences between Colombia and Chile, and Colombia and Peru, but not between Chile and Peru.

Labour market globalisation: effects of immigration

Historically immigration has played a significant role in Chile's development, with policies to attract (mostly European) migrants to settle in the southern part of the country in the second half of the nineteenth century. However, in the second half of the last century, there was a net emigration of Chileans. The number of foreign migrants into Chile remained at about 100,000 for most of this period. Starting in the mid-1990s, Chile began to attract a growing number of immigrants from Latin America, first from neighbouring countries (Peru and Argentina), and more recently, from Colombia, Venezuela and some Caribbean countries, notably Haiti. The common factor behind this new trend was better economic opportunities and, to some extent, political crisis and violence in the countries of origin. According to the most recent data, immigrants number about 450,000 people (about 2.6% of the population), mostly young and with high participation rates in the labour market. In terms of education, when we look at averages, immigrants have higher levels of schooling than the average Chilean, even though there are large differences depending somewhat on the countries of origin.[14]

So far there have been no signs of a backlash against immigration, but there is widespread support for the idea of refreshing legislation as well as to improving compliance with the relevant existing laws and regulation.

In terms of their economic contribution, immigrants have a very visible presence in services ranging from household help and other basic jobs to medical doctors, helping to fill a large number of vacancies in the public health services.[15] From a macroeconomic point of view, a recent study by the central bank[16] estimated that trend annual GDP growth for the next 10 years will be about 3.5%. The overall contribution of labour to that figure was 0.8% per year, of which a quarter (0.2% of GDP growth) would be due to immigration.

14 Cabieses and Bustos (2016).

15 Last year more than a third of doctors taking the annual qualification exams to practise their profession in Chile were foreigners.

16 Central Bank of Chile (2017) and the summary in the quarterly monetary policy report for September.

Effects of new barriers to global trade

As Chile is a small and open economy, it is vulnerable to the effects of new trade barriers. The main question then is by how much and through which channels.

Given that Chile exports mostly industrial raw materials and agro-forestry products,[17] and that it has free trade agreements with all main partners, we consider it unlikely that the country might be subject to major trade sanctions.

However, the country might be vulnerable if trade sanctions are imposed on its major import partners. China is the most critical case. Even though there are estimates of the potential impact of trade sanctions on China's economic growth, it would be difficult to estimate the effects on the specific markets that are relevant to Chile.

Another scenario that might have an impact on Chile's competitiveness is the eventual taxation of the greenhouse gas (GHG) emissions of imports. We expect the GHG footprint of the Chilean economy to fall in the future as new-generation renewables and hydro displace coal and diesel in electric power generation. However, the long distance to markets would become a significant disadvantage if transportation emissions were to be taken into account. This is particularly the case with heavy bulk cargo, such as minerals, as well as for exports requiring refrigeration such as fresh fruits, vegetables and seafood.

Final comments

As Chile's re-integration into the global economy was accompanied by major economic and institutional reforms, it is difficult to isolate the specific contribution of globalisation to the improved economic performance. It is worth noting that globalisation has not featured on the political agenda in recent years, even though there have been major controversies about topics such as pensions, labour regulations, environmental issues, wealth and income distribution and so forth. Even immigration has not produced as large a negative reaction as in other countries.

In terms of macroeconomic policies, there is widespread support for fiscal discipline, at least in principle and, if anything, for strengthening the fiscal rule. There is also wide support for the central bank's independence. What is more controversial is the free flotation of the exchange rate, with strong calls from exporters' organisations to intervene whenever the currency appreciates significantly. The evidence shown here suggests that these interventions make little difference in the evolution of the REER, while, in the case of Chile at least, they may result in a severe deterioration of the central bank balance sheet. As Chile is a small economy, globalisation has brought a significant measure of competition to many goods markets that were formerly protected, as well as better access to capital and intermediate goods, making a significant contribution to the overall increase in productivity.

17 Industrial inputs might receive political support from importing companies abroad, while agricultural products are protected by nature, as the main markets are in the northern hemisphere with the opposite growing seasons.

The elimination of trade barriers has resulted in a major increase in exports and imports with a significant structural effect in terms of the composition of goods and services traded. Exports remain highly biased towards natural resources. Factors such as the size of the domestic market as well as the distance to large global markets continue to hinder full integration into global value chains. Improvements to infrastructure and trade process efficiency could help to mitigate these disadvantages.

Financial integration has helped to reduce significantly the country's cost of capital, while providing pension funds with a valuable way of diversifying risk. Chile exhibits some of the largest measures of financial market depth among EMEs.

Finally, FDI has made a large contribution to the development of Chile's productive capacity. In recent years, outward FDI, especially to the region, has helped to sustain major Chilean corporations, mostly in the service sector, to grow beyond the limits of the domestic markets.

References

Adler, G and C Tovar (2014): "Foreign exchange interventions and their impact on exchange rate levels", *Monetaria*, January–June, CEMLA.

Arellano, J (2006): "Del déficit al superávit fiscal: razones para una transformación estructural en Chile", CIEPLAN.

Central Bank of Chile (2017): "Crecimiento tendencial: proyección de mediano plazo y análisis de sus determinantes", September.

Cabieses, B and P Bustos (2016): "Perfil socio-demográfico de migrantes internacionales en Chile" in B Cabieses, M Bernales and A McIntyre (eds), *La migración internacional como determinante social de la salud en Chile: evidencia y propuestas para políticas públicas*, Programa de Estudios Sociales en Salud, Universidad del Desarrollo.

Collier, S and W Sater (1996): *A History of Chile, 1808–1994*, Oxford University Press.

Dornbusch, R and S Edwards (1991): *The Macroeconomics of Populism in Latin America*, University of Chicago Press.

Ffrench-Davis, R (1973): *Políticas económicas en Chile 1952–1970*, CEPLAN, Ediciones Nueva Universidad.

——— (2010): *Economic reforms in Chile. From dictatorship to democracy*, Palgrave Macmillan.

Figueroa, E, G Donoso, G Lagos, G Alvarez and J Muñoz (1996): "Sustentabilidad ambiental del sector exportador chileno", in O Sunkel (ed), *Sustentabilidad ambiental del crecimiento económico chileno*, Universidad de Chile.

Larraín, F and R Vergara (2000): *La transformación económica de Chile*, Centro de Estudios Públicos.

Meller, P (1996): "El modelo exportador chileno. Crecimiento y equidad", CIEPLAN.

——— (1998): "Un siglo de economía política Chilena (1890-1990)", CIEPLAN.

Naudon, A and J Vial (2016): "The evolution of inflation in Chile since 2000", *BIS Papers*, no 89.

Schmidt-Hebbel, K (2006): "Chile's economic growth", *Cuadernos de Economía*, vol 43, May.

Thorp, R (1998): "Progreso, Pobreza y Exclusión. Una historia económica de América Latina en el Siglo XX", IADB.

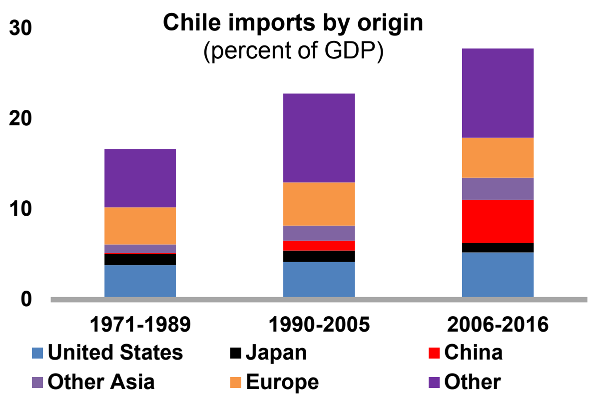
Vegh, C and G Vulletin (2014): "The road to redemption: Policy responses to crisis in Latin America", *NBER Working Papers*, no 20675.

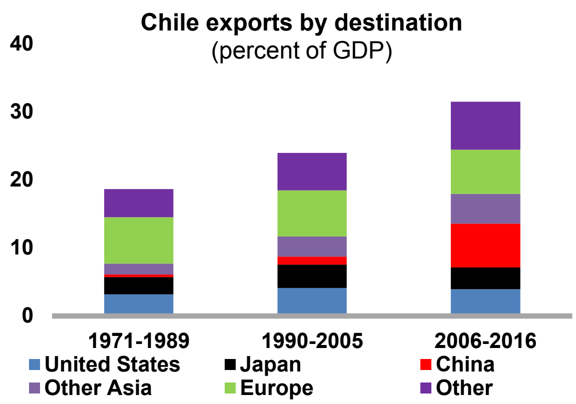
World Bank (1994): "Managing environmental problems: Economic analysis of selected issues", Report, no 13061-CH.

Annex

Indicators of structural changes and performance of the Chilean economy during the re-integration into the world economy

Annex A1



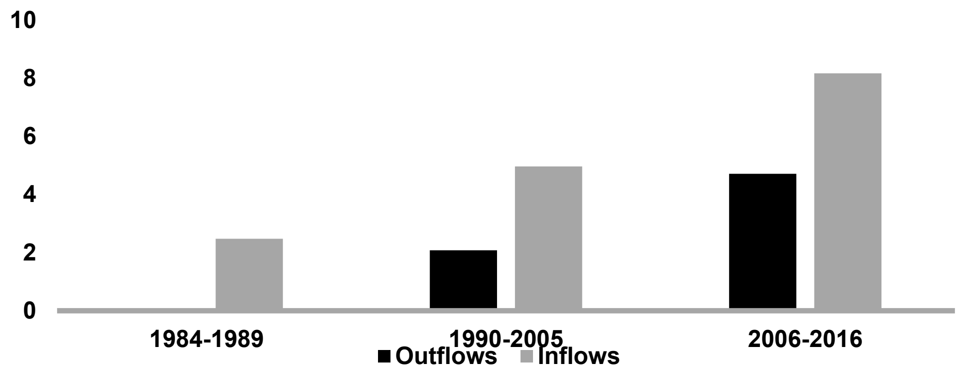


Sources: Central Bank of Chile; World Bank.

Average annual flows of foreign direct investment

(percent of GDP)

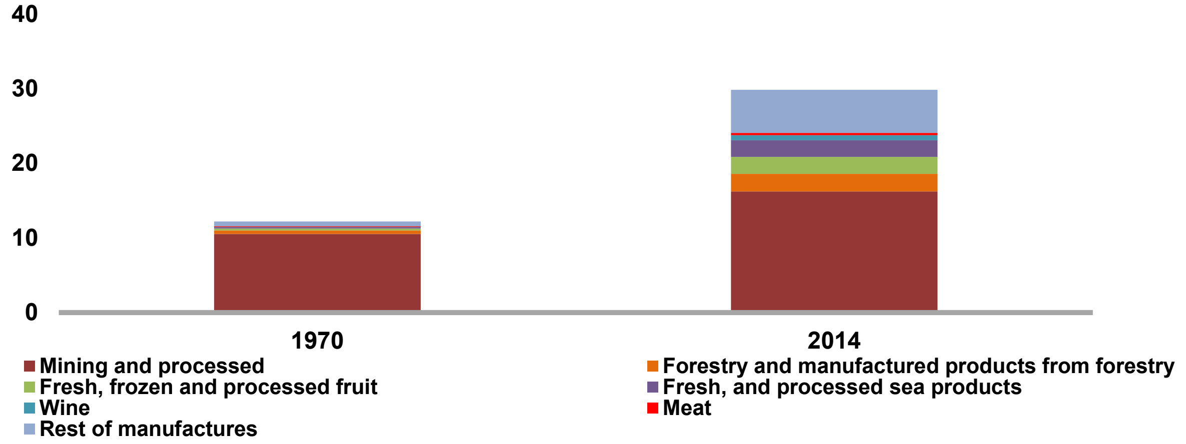
Annex A2



Sources: Central Bank of Chile; World Bank.

Composition of exports

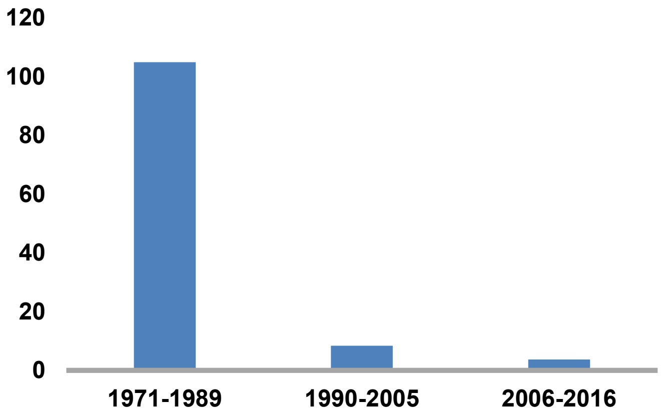
(percent of GDP) Annex A3



Source: Central Bank of Chile.

Average inflation rate for Chile

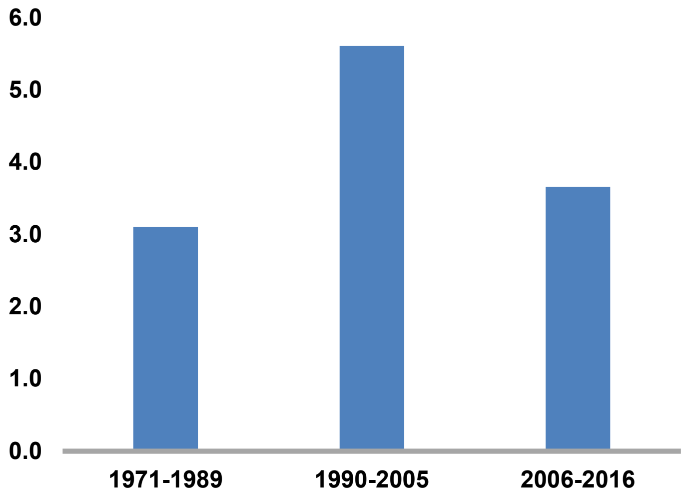
(year on year) Annex A4



Sources: Central Bank of Chile; National Institute of Statistics (INE).

Average GDP growth

(year on year) Annex A5



Source: Central Bank of Chile.

Relative importance of imports in local consumption of selected goods

Annex B

Table 1. Imported origin as a fraction of total expenditure in selected items (%)

	1986	1996	2003	2008	2013
Clothing	13%	27%	51%	64%	73%
Footwear	2%	24%	48%	61%	78%
Household appliances	73%	93%	97%	81%	89%
Automobiles				100%	100%
Selected imports as % GDP	5,5%	6,0%	7,5%	7,3%	12,3%

Sources: Central Bank of Chile; I-O matrices (INE).

Trends and volatility of exchange rates in selected countries (1995–2017)

Annex C

Descriptive statistics

Period I: 1994–2000; Period II: 2001–October 2017

		Chile		Colombia		México		Perú	
		I	II	I	II	I	II	I	II
Nominal exchange rate	Mean	453	579	1321	2315	7.7	12.7	2.8	3.1
	Standard deviation	54	79	451	421	2.1	2.7	0.5	0.3
	N° observations	84	202	84	202	84	202	84	202
Real Exchange rate (BIS)	Mean	103.0	94.7	88.5	84.9	98.2	102.9	101.54	98.613
	Standard deviation	5.4	6.0	8.5	11.8	14.6	12.7	5.02	4.34
	N° observations	84	202	84	202	84	202	84	202

Statistical Test 1, Comparison between periods, same country

Period I: 1994–2000; Period II: 2001–October 2017

		Chile I II	Colombia I II	México I II	Perú I II
Nominal exchange rate	Mean difference (t statistic)	-15.6**	-17.31**	-16.92**	-6.11**
	Variance difference (F statistic)	0.46**	1.14	0.57**	2.73**
Real Exchange rate (BIS)	Mean difference (t statistic)	11.37**	2.87**	-2.54**	4.66**
	Variance difference (F statistic)	0.798	0.51**	1.32*	1.38*

Note: ** means that Null Hypothesis is rejected with 95% confidence. * reflects the same with 90% confidence. T statistics show the result of the mean differences between periods, with the null hypothesis of equal means. F statistics show the result of variance differences between periods, with the null hypothesis of equal variance.

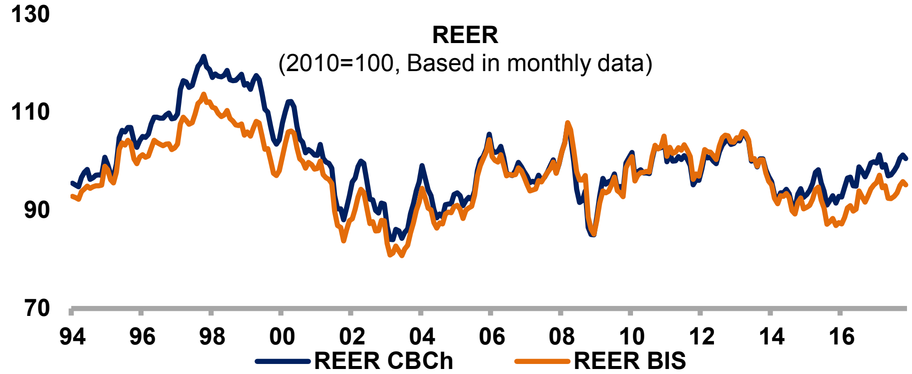
Sources: Bloomberg; BIS.

Statistical Test 2, Differences in REER volatility among countries over the 2001–17 period

Variance difference tests, Chile's REER versus other Latin American countries:

Test	Colombia		Mexico (*)		Peru	
	Value	Prob.	Value	Prob.	Value	Prob.
F-test	3.8	0.00	4.4	0.00	1.94	0.000
Siegel-Tukey	7.7	0.00	6.2	0.00	3.40	0.001
Bartlett	84.7	0.00	102.1	0.00	21.52	0.000
Levene	131.9	0.00	62.2	0.00	24.18	0.000
Brown-Forsythe	96.2	0.00	61.6	0.00	24.14	0.000

Different measures of real effective exchange rates for Chile (BIS and Central Bank of Chile)



(*) Tests results for Mexico are included for completeness but they should be disregarded because the REER for Mexico is not stationary over this period.

Sources: Central Bank of Chile; BIS.