

This issue of Research Highlights reviews the following subjects that have been recently analyzed at the Central Bank of Chile (CBC):

- Is the information channel of monetary policy alive in emerging markets?
- Supply chains disruptions and diversification.
- The finances of Chilean households during the pandemic: An assessment from the 2021 Household Financial Survey.

Is the information channel of monetary policy alive in emerging markets?

Monetary policy decisions affect the economy not only through market conditions when changing interest rates, but also by changing expectations of certain variables. There is an important debate in the literature about which shock is behind monetary policy decisions, since their effects on economic variables, including expectations, are quite different. On the one hand, there is the traditional monetary shock, which is the one that, all else being equal, pushes up the rate (current or future), which reduces the incentive to consume and thus decreases demand and inflation. This channel should therefore have a negative effect on expectations or projections of the latter variables. On the other hand, there is the information shock, where the rate hike is seen as an improvement in macroeconomic conditions and can therefore have a positive effect on inflation and output.

The working paper *“Is the Information Channel of Monetary Policy Alive in Emerging Markets?”* authored by Central Bank researcher [Mariana García-Schmidt](#) contributes to this debate by exploring how short-term inflation and output expectations, measured by surveys to Brazilian and Chilean professionals, react to monetary policy surprises. In particular, the expectations of variables that already took place or of a short horizon do not respond to the monetary policy shock, but they do to the information shock. Unlike other papers, the data used by García-Schmidt meet three necessary and beneficial conditions for this study:

“This paper finds that short-term inflation and output expectations react, on average, positively to changes in the monetary policy rate that exceed expectations.”

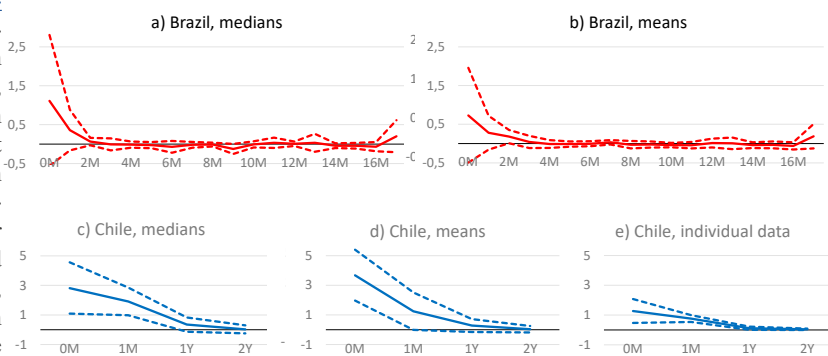
high frequency of collection, short-term horizons for expectations, and common source for the measurement of dependent and independent variables. In addition, for the case of Chile, this paper shows results that use expectations taken from the surveyed agents' individual responses.

The results show that inflation and output expectations increase in the short-run following an unexpected increase in the policy rate, supporting the existence of an information shock behind this policy decision. Panels (a) and (b) of Figure

1 show for Brazil the effect of the surprise on the change in expectations at the median and mean, respectively. Panels (c), (d) and (e) show the case for Chile using the median and mean and, additionally, use individual respondents' data. All the figures illustrate how short expectations (current month and one month ahead) increase the most in the face of a rate surprise, with the subsequent effects being smaller and non-significant.

In addition, recognizing that we live in a world with imperfect information, the study allows the results to vary depending on other features occurring at the same time. These characteristics are the correlation of the surprise with the change in the rate and with the stock market. In the first set of exercises, a distinction is made between a positive correlation, a negative correlation and when the surprise occurs at a time when there is no movement in the rate. In the second case, a separation is made between positive and negative correlation. The results show that the positive effects of the response of short-term expectations to monetary surprises occur even without a change in the rate, are magnified

Figure 1: Responses of inflation expectations in Brazil and Chile



Note: 0M indicates contemporaneous month, XM indicates X months ahead (one to seventeen), 1A and 2A indicate one and two years ahead.

when this change is positively correlated with the surprise, and some are weakened when they are negatively correlated. The paper also finds that, although there are significant changes, the effects are maintained for any stock market response.

Finally, the paper uses a simple New-Keynesian model where the interest rate surprise is allowed to deliver different types of information, which may be about a monetary shock, a natural interest rate

shock and a cost-push shock. The results show that short-run inflation and output expectations increase in response to a positive interest rate surprise, but only when said interest rate delivers sufficient information about the natural interest rate.

Supply chains disruptions and diversification

Until a decade ago, disruptions to international trade were fairly infrequent, allowing firms to reduce costs through outsourcing and “just-in-time” procurement strategies. Recent events, such as the Covid-19 pandemic, geopolitical conflicts, or climate change, have brought increased uncertainty to supply chains.

In this context, Central Bank of Chile researcher [Gustavo González](#), in his paper [“Supply Chain Disruptions and Diversification”](#) coauthored with Ignacia Cuevas and Thomas Bourany, both from the University of Chicago, aims at understanding the effect of supply chain uncertainty on firms’ input supply decisions, considering the particular characteristics of the countries of origin. The paper focuses on trade in intermediate goods as they constitute the bulk of global trade flows.

To answer this question, a structural model of input supply is constructed, with multiple countries and heterogeneous firms, which incorporates uncertainty about the costs of sourcing from each country of origin. In this model, firms seeking to source inputs have to form an expectation about the cost they will end up paying for their intermediate inputs, since they ignore how much the shipping costs from a given origin (the so-called iceberg costs) will be. Firms must also pay a fixed cost to establish a trade relation with a certain country of origin before the uncertainty is resolved. Considering these elements, firms select, ex-ante, the realizations of shipping costs, and an optimal group of suppliers that maximizes their expected profits. After the shocks are revealed, the firms can decide how much they will import from each origin considered in their optimal sourcing strategy.

The model states that uncertainty influences firms’ profits and their supplier choice decisions through five margins. The first is a firm’s overall sourcing capacity, which is derived from a certain input supply strategy. In summary, this strategy delivers the group of countries that the firm has chosen to source inputs from. The strategy is chosen based on the comparative advantages that each country has for producing the different varieties and on the joint distribution of the shipping cost realizations derived from the associated group of

“There is an increase in the number of firms importing from countries where their uncertainty increased, and a fall from those where uncertainty fell. The same occurs with the intensive margin [volume rather than number of countries], finding a positive correlation between the imports amount and the level of uncertainty in the supply chain.”

countries. The higher the average shipping cost, the lower the overall supply capacity, the higher the costs and the lower the expected profits.

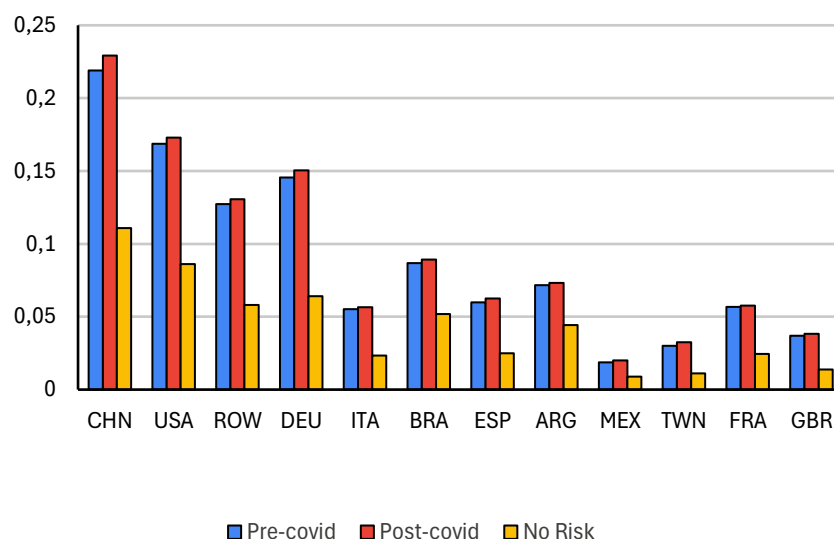
The second margin is the effect that risk has on the firm’s overall sourcing capacity. This effect can be understood as the cost-value of the option to add riskier countries to the sourcing strategy. The firm could end up with lower costs if the countries within its strategy are affected by a positive shipping cost shock. The third is the covariance between the firm’s overall sourcing capacity and the demand it faces for the product it sells. Adding sourcing countries, for which shipping costs tend to fall when demand for the product the firm sells increases, can serve as a hedging tactic against general market swings. The fourth is market demand for the product the firm sells, which is negatively affected by business uncertainty across all firms. And the fifth is the fixed cost of sourcing, which negatively affects expected profits by discouraging firms from adding another country to their input supply strategies.

This model is estimated by using administrative data from the National Customs Service and the Internal Revenue Service, for the period from 2012Q1 to 2019Q4. A counterfactual analysis is performed that studies the predictions of the model for the period 2012Q1-2019Q4, but imposing the uncertainty associated with the period 2020Q1-2023Q4. The authors find that, if in the period 2012Q1-2019Q4 the uncertainty associated with the period 2020Q1-2023Q4 had prevailed, more firms would have imported from countries whose uncertainty was higher in the second period, and fewer firms would have imported from those whose uncertainty was lower. This is depicted in Figure 2, where the blue bars denote the fraction of Chilean firms importing

from each origin, considering the uncertainty of the period 2012Q1-2019Q4; the red bars correspond to the same variable, but evaluated with the uncertainty of the period 2020Q1-2023Q4.

The model predicts that, in practically all countries, the proportion of Chilean firms importing increases, despite the higher uncertainty of the 2020Q1-2023Q4 period. The yellow bars represent the reference level for a scenario without uncertainty. In addition, a positive correlation arises between the amount imported from different countries and the degree of uncertainty associated with their shipping costs. The implication of these findings is that, in this model, the option value effect is higher than the covariance or hedging effect, implying that firms desire a higher risk in their sourcing strategy because of the greater chance of a favorable shock to shipping costs.

Figure 2: Share of importing firms by country



Note: The figure shows the fraction of Chilean firms that currently import products from each country under consideration. The blue bars show the fractions associated with the pre-Covid-19 period. The red bars correspond to the counterfactual scenario in which the supply chain uncertainty of the period starting with Covid-19 is imposed. The yellow bars show the fractions that result when the cross-sectional uncertainty of the firms is eliminated.

The finances of Chilean households during the pandemic: An assessment from the 2021 Household Financial Survey

The Covid-19 pandemic generated a simultaneous shock to household consumption and employment worldwide. In Chile, the policies adopted to mitigate these shocks included job retention schemes and direct transfers to households, like those adopted in advanced economies, albeit with a greater magnitude and impact. During 18 months, direct government transfers and pension fund withdrawals represented a liquidity shock equivalent to 29% of GDP in 2019. This significant financial response offers a unique opportunity to analyze how households react to massive liquidity shocks.

In the working paper *“The Finances of Chilean Households during the Pandemic: an Assessment from the 2021 Household Financial Survey”* Central Bank of Chile researchers [Enzo Cerletti](#), [Alejandra Inzunza](#), [Felipe Martínez](#) and [Patricio Toro](#), together with World Bank researcher Magdalena Cortina, analyze the impact of the pandemic and the household support measures implemented by the government on the households’ consumption decisions and financial situation. The paper explores changes in the composition of household assets, indebtedness, and financial ratios to assess the financial fragility that prevailed during the pandemic and its relation with subsequent macroeconomic outcomes. The authors use the

“As a result of lower debt levels and a higher proportion of liquid assets, the financial resilience of the economy improved toward the last quarter of 2021. Debt-to-income ratios and the level of leverage declined for many households. Also, consumer loan delinquency rates reached historic lows. However, the improvement in the financial situation of Chilean households was short-lived.”

Household Finances Survey (EFH) of the Central Bank of Chile, which provides detailed information on the financial situation of households.

To a large extent, the structure of households’ financial balance sheets determines their ability to cope with negative income shocks. Prior to the pandemic, short-term debts, such as credit cards and credit lines, and to a lesser extent installment loans, weighed more heavily on the financial statements of low-income households. This implied that these households were more exposed to refinancing risks due to possible interest rate hikes, which would increase their financial burden. In contrast, for higher-income households, mortgage debt accounted for 80% of their total debt, making them more vulnerable to falls in house prices or rents.

The sanitary response to the pandemic curtailed economic activity, especially in sectors that depended on face-to-face interaction. These health measures adopted during the pandemic resulted in a 14.8% reduction in GDP and a 22.9% decline in household consumption in the second quarter of 2020. This contraction in GDP was accompanied by an increase in the unemployment rate, which reached 13.1% in the same period, marking a decades-long record in Chile.

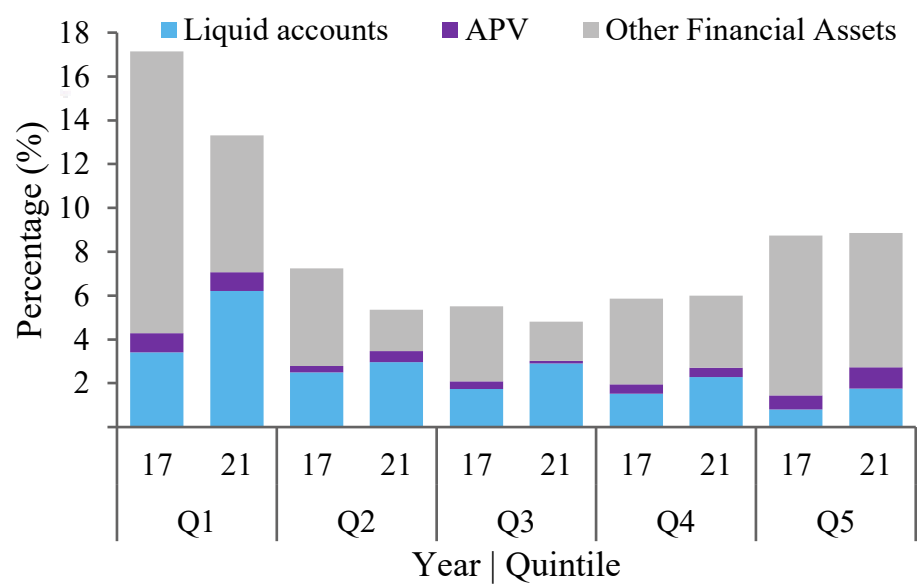
One of the main findings of the EFH is that Chilean households used the extra liquidity provided by government policies to recover their pre-pandemic consumption levels and reduce non-mortgage debt, especially the more costly debt, such as loans from non-banking institutions. In addition, households accumulated liquid assets preemptively in response

to the higher economic uncertainty. Figure 3 shows a significant increase in holdings of liquid financial assets for all households for all income levels between 2017 and 2021. This increase was particularly noticeable for low-income households.

As a result of lower debt levels and a higher proportion of liquid assets, the financial resilience of the economy improved toward the last quarter of 2021. Debt-to-income ratios and the level of leverage declined for many households. Also, consumer loan delinquency rates dropped to all-

time lows. However, this improved financial situation of Chilean households was short-lived. The increase in liquidity generated by transfer policies and early pension withdrawals ended up generating inflationary pressure which, together with the increase in financial costs, rapidly eroded liquid assets and increased the short-term debt burden. Households in the lowest income quintiles were the most affected by these imbalances and their debt and delinquency indicators have gradually returned to pre-pandemic levels.

Figure 3: Financial assets to income ratio, as percentage of anual income



Note: The figure provides liquid assets to income ratio, as a percentage of annual income, by income quintile. Liquid assets: savings accounts and balances held as savings in checking/sight accounts. APV: Voluntary pension savings. Other financial assets: shares, mutual funds, fixed income assets, derivatives and participation in companies. The data was retrieved from the Central Bank of Chile, based on the Household financial survey for the 2014, 2017 and 2021 waves.

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- Albagli, E., Arias, A. & Kirchner, M. (Forthcoming). "Collective Savings Pension Policy in an Economy with Heterogeneity and Informality". *Estudios de Economía*.
- Albagli, E., Canales, M., Syverson, C., Tapia, M., & Wlasiuk, J. (Forthcoming). "Productivity Gaps and Job Flows: Evidence from Censal Microdata". *The Economic Journal*.
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1019	Through Drought and Flood: the past, present and future of Climate Migration	Elias Albagli, Pablo García, Gonzalo García-Trujillo, María Antonia Yung	August 2024
1018	Supply Chain Uncertainty and Diversification	Ignacia Cuevas, Thomas Bourany, Gustavo González	June 2024
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