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The effects of the job retention program during the Covid pandemic on the Chilean firms and households

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Abstract

During the pandemic, several countries implemented job retention programs with the goal of preserving human capital and supporting a quick recovery. This work uses administrative records to show the impact of the job retention program in Chile across firms of different industries and sizes. Using a calibrated model based on survey data of households and our administrative register of workers-firms, we then show that the Chilean Employment Protection Law increase aggregate consumption by 0.3% and helped to smooth household consumption during the period between March of 2020 and March of 2021.

Resumen

Durante la pandemia muchos países implementaron programas de retención del empleo con el objetivo de preservar el capital humano y apoyar una recuperación económica rápida. Este estudio utiliza datos administrativos para analizar el impacto de la Ley de Protección al Empleo de Chile en las empresas de distintas industrias y tamaños. Utilizando un modelo calibrado con datos de encuestas de hogares y los registros administrativos de empresas-trabajadores, nosotros mostramos que la Ley de Protección al Empleo aumentó el consumo agregado en 0.3% y ayudó a suavizar el consumo de los hogares entre Marzo de 2020 y Marzo de 2021.

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1 Introduction

Job retention programs with components of short-time work and wage support for workers on furlough or with reduced-hours are widespread across OECD countries (Cahuc 2019, OECD 2020). These programs are associated with several positive features relative to unemployment insurance, such as allowing companies more flexibility during downturns, increasing workers' certainty about future employment and allowing firm-workers relationships to preserve their specific human capital for the future (Cahuc 2019, Didier et al. 2021). The adoption of job retention policies was further expanded during the Covid pandemic as several firms had to temporarily close or strongly reduce their activity (OECD 2020, Didier et al. 2021).

This work analyzes the effect of the Employment Protection Law (in Spanish, *Ley de Protección del Empleo*, hence on EPL) for the labor market and household consumption in Chile, which initiated a job retention program in March of 2020 when the Covid pandemic arrived in Chile (Madeira 2021a). The Employment Protection Law allowed workers access to income through the public unemployment insurance system while firms temporarily suspended their activity or retained them on a 50% labor schedule.

We use micro-data from the Unemployment Insurance Administration (in Spanish, *Administradora de Fondos de Cesantía*, hence on AFC) to show the number of firms and workers that benefitted from the EPL. We then use a calibration exercise based on household survey data to estimate the impact of the EPL on household consumption. For this we apply an empirical model shown in Madeira (2021b) that uses the Chilean Household Finance Survey (*Encuesta Financiera de Hogares*, in Spanish, hence on, EFH) to obtain a sample of households with data on their assets, loans and income to calibrate the size of the income losses and public benefits during the pandemic (Madeira 2021a, 2021b).

This work adds into the literature of the effects of the job retention programs (Cahuc 2019), which were especially relevant during the Covid pandemic (OECD 2020) and takes the special case of Chile as a developing economy. This is especially important because the Chilean experience illustrates the impact of a job retention program in a developing economy with a high level of informal employment (28% of the labor force) and few jobs that can be performed remotely[1]. Our

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[1]Dingel and Neiman (2020) estimate that only 25.7% of the jobs in Chile can be performed remotely, much less

work also adds a consumption analysis of the effects of the Employment Protection Law in Chile, with other works focusing on its impact on firm activity (Albagli et al. 2022) and the interaction of the job retention program with credit supply policies during the pandemic (Huneeus et al. 2022).

2 Number of firms and workers participating in the Employment Protection Law (EPL)

We use the AFC microdata, which holds information on around 10 million workers in Chile. At the beginning of March of 2020 there were 9,087,132 workers in the formal labor force (either employed or unemployed). Note that the AFC dataset excludes informal employment. The number of workers covered by the EPL job retention scheme reached a maximum level of 605,879 workers and over 95,000 firms in August of 2020, which represented the peak of the program and a fraction of 6.7% of the pre-pandemic labor force. Around 83.2% of the workers in the EPL program were on furlough, with only 16.8% of the workers being in a reduced-hours schedule.

Figure 1 shows the size and the age of the companies covered by the EPL program. It shows that most firms have more than 10 years of age (that is, more than 120 months) and that more than 50% of the EPL firms have just one worker (the self-employed entrepreneur). Indeed, less than 10% of the firms have more than 20 workers.

Figure 2 shows the share of the firms and workers in each industry that were covered by the EPL program. A fraction of 17%, 6%, 5% and 5.% of the workers, respectively, in Retail and Restaurants, Business Services, Construction, and Transports and Communications benefitted from the EPL program, since these are the industries that require more proximity and direct contact among workers (Dingel and Neiman 2020). Furthermore, over 30% of the firms in Financial Services and over 20% of the firms in Real Estate and Utilities were covered by EPL program. Almost 20% of all the firms in the EPL do not have an industry classification code assigned and more than 50% of the works in such firms participated in the EPL program. Firms and workers by industry look very different, because some industries are dominated by just a few large firms.

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than the rates above 40% in developed economies.

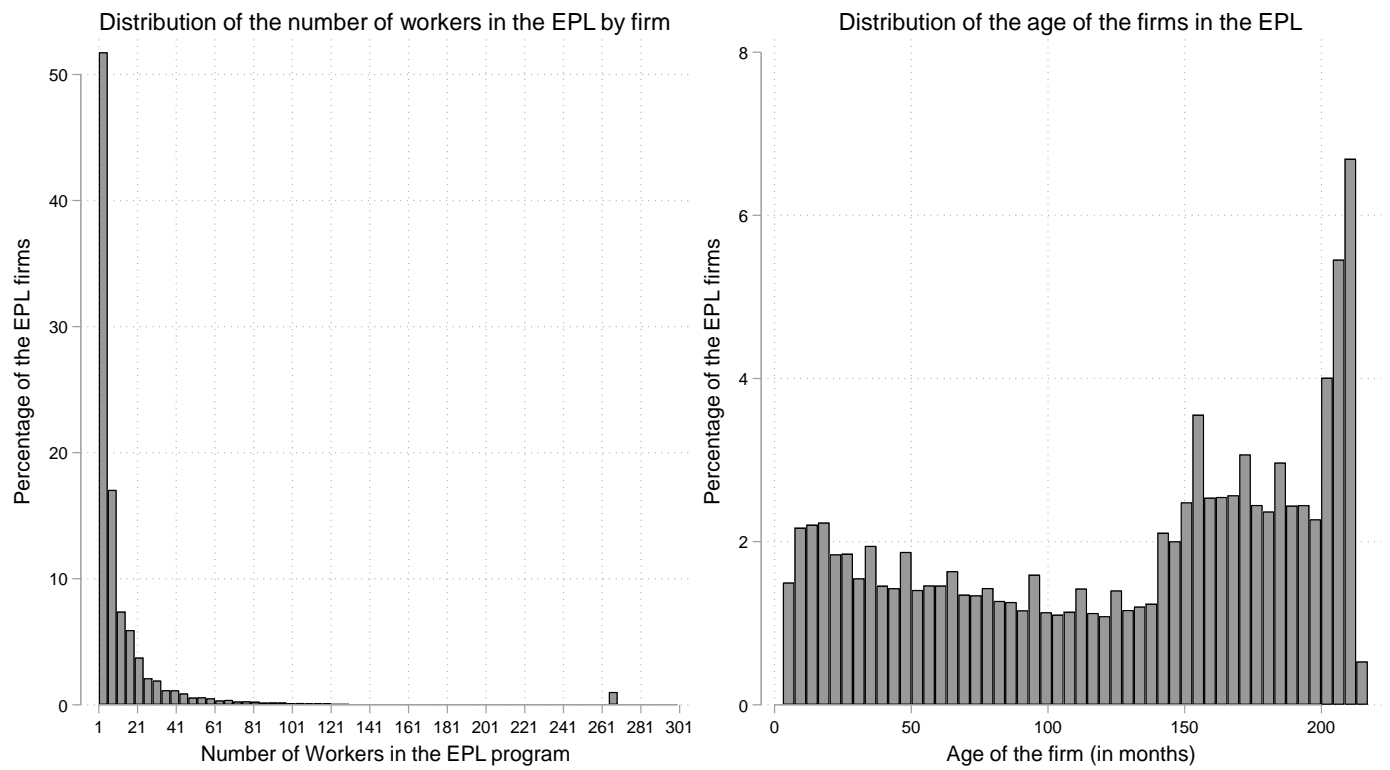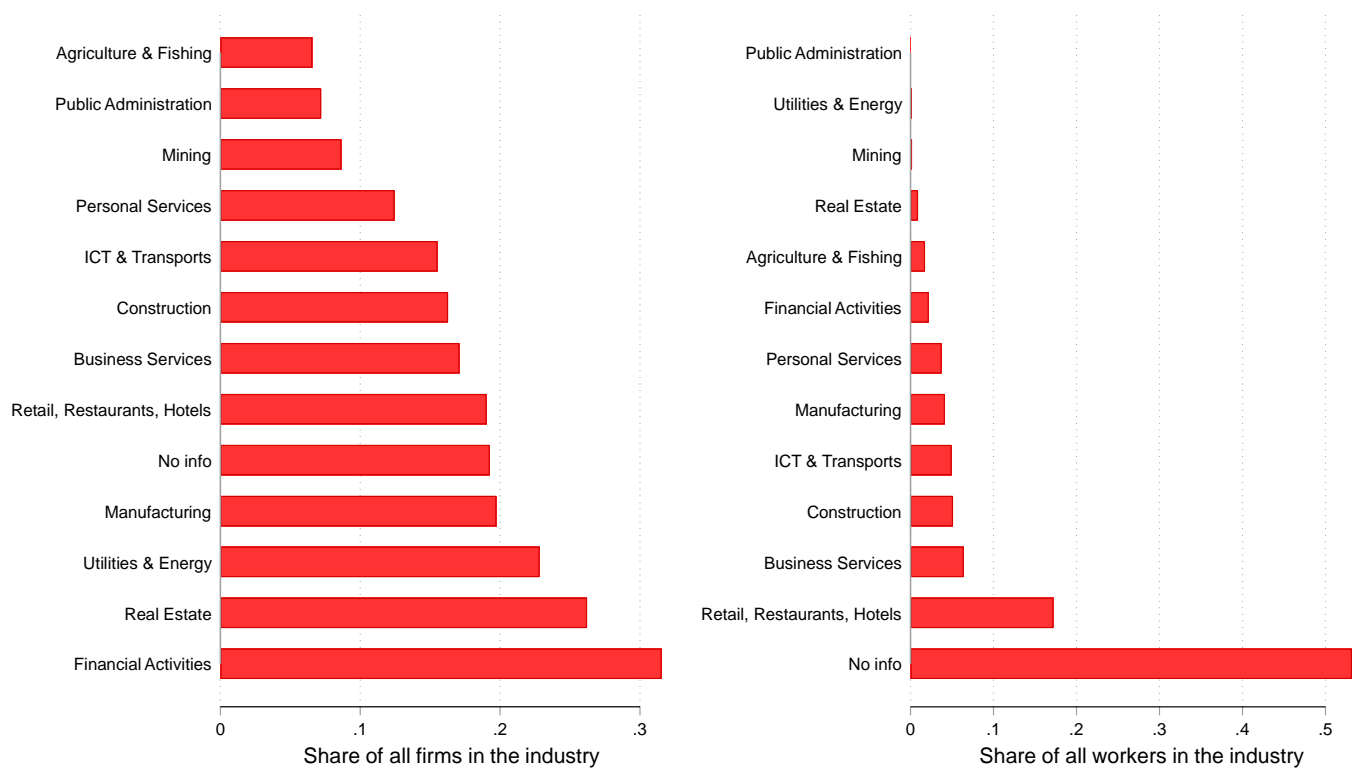Figure 1: Distribution of the age of the firms and the number of workers in the EPL job retention

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Figure 2: Share of firms and workers using the EPL program across different industries

3 Calibration of the EPL impact on income and consumption

Our calibration takes into account both the EPL program benefits for each household ($EPL_{i,t}$) and the other public policies implemented during the pandemic, which include: income transfers targeted at the low income families ($Voucher_{i,t}$), a monetary policy expansion and lower stamp tax ($ST\_MPR_{i,t}$), a public utilities' payment deferral ($Exp_{i,t}$), a deferral of tax debts ($TDD_{i,t}$), a real estate tax deferral ($RETD_{i,t}$), a debt deferral program and tax sponsored loan ($psDs_{i,t}$), and two pension withdrawals ($psPension_{i,t}$). The EFH dataset is an essential tool for calibrating the impact of the different policies, due to its information on households' demographics (necessary for evaluating the income transfers), assets (essential for evaluating the tax deferral), loans (essential to calibrate the debt deferral programs), and pension accounts (essential for evaluating the pension withdrawals). Using the EFH sample of 4,549 households we calibrate the household i's income ($Y_{i,t}$) and public benefits received ($ps_{i,t}$) at time t as:

1) $Y_{i,t} = ps_{i,t} + a_i + \sum_k Y_{k,i} rr USHOCK_{i,k,t} + Y_{k,i}(1 - USHOCK_{i,k,t}),$

2) $ps_{i,t} = EPL_{i,t} + Voucher_{i,t} + ST\_MPR_{i,t} + Exp_{i,t} + TDD_{i,t} + RETD_{i,t} + psDs_{i,t} + psPension_{i,t},$

with $rr = 0.60$ denoting the replacement ratio of income during unemployment, $Y_{k,i}$ being the working income for member k in household i, a_i non-labor income, $USHOCK_{i,k,t} = \max(1(\eta^u_{i,k,t} \leq u_{k,t}), 1(\eta^{FW}_{i,k,t} \leq FW_{k,t}), 1(\eta^{RW}_{i,k,t} \leq RW_{k,t}))$ denotes whether the worker k experienced unemployment (with probability $u_{k,t}$) or a frozen relationship or reduced hour schedule, and $\eta^u_{i,k,t}, \eta^{FW}_{i,k,t}, \eta^{RW}_{i,k,t}$ being pseudo-uniform random numbers. The probability of workers entering into a frozen relationship (FW_t) or a reduced schedule (RW_t) for each month t and worker's industry k was obtained from the Chilean Administrator of the Unemployment Insurance.

The Employment Protection Law (EPL) benefits are calibrated as:

3) $EPL_{i,t} = \sum_k 0.40 \times 1(\eta^{FW}_{i,k,t} \leq FW_t)Y_{k,i}fe_{k,i} + 0.30 \times 1(\eta^{RW}_{i,k,t} \leq RW_t)Y_{k,i}fe_{k,i},$

with $fe_{k,i}$ being a dummy denoting whether worker k has a formal employment contract. Households on furlough and reduced-hours receive, respectively, a maximum amount equivalent to 40% and 30% of their income.

Using a sample of around 15,000 households in the Family Expenditure Survey, we estimate an empirical model of household consumption for each d of the 12 product divisions (see Table 1):

4) $\ln(c_{i,d}) = \beta_d \left[\ln(Y_i), \ln(P_i), z_i \right] + \varepsilon_{i,d}$,

where i denotes the household, Y_i its monthly income of the household, P_i the monthly permanent income, z_i a vector of demographic information (such as ownership of the main household home, ownership of other real estate properties, five-year dummies for the age of the household head, dummies for the highest education obtained by the household head, plus the number of adults aged 19 to 65, children and senior members in the family), and $\varepsilon_{i,d}$ is an iid term.

We then apply the estimated models (β_d) to the EFH households to obtain the counterfactual impact on consumption of the policies p for each month t between March of 2020 and March of 2021:

5) $c^p_{i,t,d} = (1 + PP_{i,t} CovCS_d) \exp(\beta_d \left[\ln(Y_{i,t}(ps^p_{i,t})), \ln(P_i), z_i \right])$, with $c^p_{i,t,sum} = \sum_{d=1}^{12} c^p_{i,t,d}$,

where $CovCS_d$ is an exogenous pandemic shock affecting spending. We use county level data at a monthly frequency for the Chilean quarantine phase program "Step by step". For the county of each household i at time t, we build a weight $PP_{i,t}$ that is equal to 0, 0.25, 0.40 and 0.66, according to if the quarantine of the county in that month is complete, second open phase, third open phase and fourth open phase.

Our analysis considers different scenarios p: i) households receive the total public transfers $ps^p_{i,t} = ps_{i,t}$, ii) households benefit from all policies except for the EPL $ps^p_{i,t} = ps_{i,t} - EPL_{i,t}$, iii) households only benefit from the EPL $ps^p_{i,t} = EPL_{i,t}$, and iv) households do not receive any transfers $ps^p_{i,t} = 0$. We summarize the household and the aggregate consumption impact of each scenario p on consumption divisions d by standardizing the ratios relative to the year before the pandemic:

6) $AC^p_{i,d} = \frac{\sum_{t=2020:03}^{2021:03} \tilde{c}^p_{i,t,d}}{13 \times c^{2019}_{i,d}}$, with $AC^p_{i,Sum} = \frac{\sum_d \sum_{t=2020:03}^{2021:03} \tilde{c}^p_{i,t,d}}{13 \times \sum_d c^{2019}_{i,d}}$,

Table 1: Impact (AC_d) of the EPL program on aggregate consumption (in %)

AC_d: ratio relative to aggregate consumption in 2019

Period March 2020-March 2021

| Consumption Division	No policy	Only EPL policy	All policies minus the EPL	All policies (including EPL)
1: Food	103.9	104.2	107.1	107.3
2: Alcohol	91.9	92.1	94.0	94.1
3: Clothing	79.3	79.7	84.0	84.4
4: Housing	98.0	98.3	99.7	99.9
5: Furnishings	85.0	85.4	89.5	89.9
6: Health	98.5	99.2	107.7	108.3
7: Transport	73.9	74.2	76.6	76.8
8: Communications	97.2	97.6	102.2	102.5
9: Recreation	79.1	79.5	83.5	83.8
10: Education	76.2	76.5	80.0	80.2
11: Restaurants	79.4	79.8	83.0	83.3
12: Other	84.3	84.8	90.8	91.3
Sum (AC_{Sum})	89.8	90.1	93.5	93.8

7) $AC_d^p = \frac{\sum_i \sum_{t=2020:03}^{2021:03} \tilde{c}_{i,t,d}^p}{13 \times \sum_i c_{i,d}^{2019}}$, with $AC_{Sum}^p = \frac{\sum_d \sum_i \sum_{t=2020:03}^{2021:03} \tilde{c}_{i,t,d}^p}{13 \times \sum_d \sum_i c_{i,d}^{2019}}$.

4 Results

Table 1 shows the impact of the EPL program on the household consumption between March of 2020 and March of 2021.The simulations for the scenario of no policies predict a fall in consumption of 10.2% for this period, but with all the policies implemented the fall in aggregate consumption was estimated to be just 6.2%. The EPL job retention program would have increased aggregate consumption by 0.3% relative to a no policies scenario or in relation to a scenario in which only the EPL policy was not implemented. The consumption of all products expanded after the EPL policy, but Health goods was the one increasing the most, having grown by 0.7% and 0.5% with the EPL program in relation to a scenario with no policies or with all the public policies except for the EPL.

Figure 3 shows the heterogeneous policy impact on the distribution of the households' consumption relative to their individual consumption in 2019 $(AC_{i,Sum}^p)$ in the first panel and the individual consumption growth relative to the scenario with no policy support $(\frac{AC_{i,Sum}^p - AC_{i,Sum}^{NoPolicies}}{AC_{i,Sum}^{NoPolicies}})$ in the second panel, with both probability density functions estimated with an Epanechnikov kernel

Figure 3: Simulated household consumption after the Covid shock (March 2020-March 2021) with and without the Employment Protection Law (EPL)
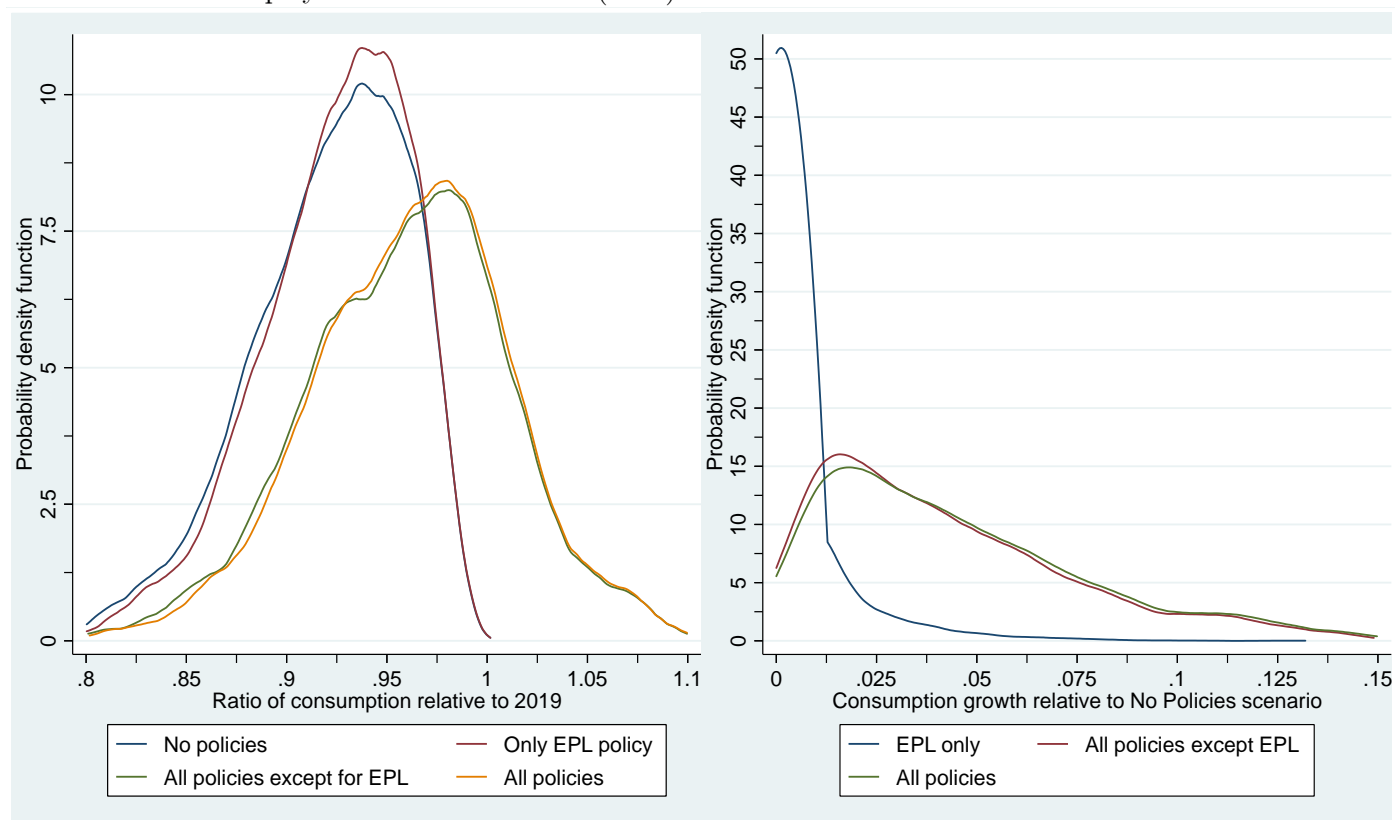
using the Silverman's bandwidth rule. The distribution of consumption of households during the pandemic was between 80% and 100% of its 2019 level, but in the absence of other policies the EPL program would have increased substantially the fraction of households with a 95% consumption ratio relative to its pre-pandemic level. Even after all the policies are implemented, including the EPL program reduces a bit the fraction of households with a consumption loss above 10%. Relative to a situation with no public policies implemented during the pandemic, the EPL only scenario increases consumption by less than 1.25% for most households (which makes sense, because the EPL program only impacted 6.7% of the labor force), although some households increased their consumption by 2.5% or even 5% more just with the EPL program. Again, after all the public policies were implemented, there is little difference between including the EPL or not. This is because the other policies targeted a larger number of households with both formal and informal income and also implied a large support for households with large debts or with a lot of accumulated pension savings.

5   Conclusions

Using a mix of administrative records and survey data, we calibrate a consumption model to show that the Chilean job retention policy may have increased overall household consumption by 0.3% and helped many households to smooth consumption, with a stronger impact on Health expenditures.

References

[1] Albagli, E., A. Fernandez and J. Guerra (2022), "Anatomy of firms' margins of adjustment: Evidence from the Covid pandemic," Central Bank of Chile, mimeo.

[2] Cahuc, P. (2019), "Short-time work compensations and employment", *IZA World of Labor*, http://dx.doi.org/10.15185/izawol.11.

[3] Didier, T., F. Huneeus, M. Larrain and S. Schmukler (2021), "Financing firms in hibernation during the COVID-19 pandemic," *Journal of Financial Stability*, 53, 100837.

[4] Dingel, J. and B. Neiman (2020), "How Many Jobs Can Be Done at Home?" NBER WP 26948.

[5] Huneeus, F., J. Kaboski, M. Larrain, S. Schmukler and M. Vera (2022), "The Distribution of Crisis Credit: Effects on Firm Indebtedness and Aggregate Risk," NBER Working Papers 29774.

[6] Madeira, C. (2021a), "The double impact of deep social unrest and a pandemic: Evidence from Chile," *Canadian Journal of Economics*, forthcoming.

[7] Madeira, C. (2021b), "The impact of the Covid pandemic public policies in Chile on consumption," *Economía*, forthcoming.

[8] OECD (2020), "Job retention schemes during the COVID-19 lockdown and beyond," OECD, Paris.

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