

Codes for the Article “The double impact of deep social unrest and a pandemic: Evidence from Chile”, Canadian Journal of Economics, 2021.

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Overview

This code package replicates the analysis of the article “The double impact of deep social unrest and a pandemic: Evidence from Chile” and its online appendix using Stata.

Data Availability and Provenance Statements

The Chilean Household Finance Survey (in Spanish, *Encuesta Financiera de Hogares*, hence on EFH) is the main dataset used in the article and its appendix. It is freely available at the website of the Central Bank of Chile (<https://www.bcentral.cl/web/banco-central>), specifically in its Statistics Division section (<https://www.efhweb.cl/ES/Account/Login>, email contact: efh@bcentral.cl).

The article collects information from other surveys which are use to create “generated regressors” that are applied to the EFH dataset. The first supplementary dataset is the Chilean Employment and Income Survey (in Spanish, *Encuesta Nacional de Empleo* (ENE) and *Encuesta Suplementaria de Ingresos* (ESI)). The second supplementary dataset if the Family Expenditures Survey (in Spanish, *Encuesta de Presupuestos Familiares*, hence on EPF). Users can apply for the raw data of all the ENE/ESI and EPF surveys by filling the respective forms on the website of the Chilean Institute of National Statistics (<https://www.ine.cl/>).

Statement about Rights

- ☐ I certify that the author(s) of the manuscript have legitimate access to and permission to use the data used in this manuscript.

The code is licensed under a Creative Commons/CC-BY-NC/CC0 license (see LICENSE.txt, CC BY 4.0).

Summary of Availability

- ☐ All data are publicly available.

Details on each Data Source

(Main Data, Supplementary - Data 2, Data 3, Data 4, Data 5)

Note: Although these files are all easily available for download at no cost, their use requires registration, therefore the author is not the legal distributor of the data. However, I can provide the formatted data files for interested users after they have provided confirmation of their original data source registration.

Public and free use data with required registration, extract not provided

Main data: Chilean Household Finance Survey (in Spanish, Encuesta Financiera de Hogares, hence on EFH)

Format: .dta (Stata).

Dictionary: The paper uses data from the 2017 wave of the Chilean Household Finance Survey (Banco Central de Chile, 2017). Data is subject to a redistribution restriction, but can be freely downloaded after registration from: <https://www.efhweb.cl/ES/EFH/>. This dataset is self-described with variable and value labels. Furthermore, readers can also find the publicly available the data documentation, field methodology, user guide and extensive glossary/dictionary at the website <https://www.efhweb.cl/ES/EFH/>. See also the survey waves prior to 2017 and their dictionaries at the link: <https://www.efhweb.cl/ES/EFH/EncuestasAnteriores>.

Supplementary Data 2: Chilean Employment Survey (in Spanish, Encuesta Nacional de Empleo (ENE))

Format: .dta (Stata).

Dictionary: I use the Chilean Employment Survey waves of the years 2019 and 2020 (Instituto Nacional de Estadísticas, 2021). These datasets are self-described with variable and value labels. Readers can also find the publicly available the data documentation, field methodology and glossary/dictionary at the website <https://bancodatosene.ine.cl/>. The dataset Employment and Income Survey (*Encuesta Suplementaria de Ingresos* (ESI)) is available at the same source (Instituto Nacional de Estadísticas, 2020) and it is the same dataset as the ENE, but with a slightly different formatting for the fourth quarter of each year.

Supplementary Data 3: Chilean Family Expenditures Survey (EPF)

Format: .dta (Stata).

Dictionary: I use the Chilean Family Expenditures Survey (EPF) wave of the year 2017 (Instituto Nacional de Estadísticas, 2018). This dataset is self-described with variable and value labels. Readers can also find the publicly available the data documentation, field methodology ([https://www.ine.cl/docs/default-source/encuesta-de-presupuestos-familiares/metodologia/viii-epf---\(julio-2017---junio-2017\)/metodolog%C3%ADa-viii-epf.pdf](https://www.ine.cl/docs/default-source/encuesta-de-presupuestos-familiares/metodologia/viii-epf---(julio-2017---junio-2017)/metodolog%C3%ADa-viii-epf.pdf)) and glossary/dictionary at the website <https://www.ine.cl/estadisticas/sociales/ingresos-y-gastos/encuesta-de-presupuestos-familiares>.

Supplementary Data 4: Base de datos 7 (the time series datasource of the Central Bank of Chile, similar to FRED in the United States)

Format: .dta (Stata).

Dictionary: The dataset for the economic activity indexes and stocks of bank credit is from Base de Datos 7 (Banco Central de Chile, 2021). This dataset is self-described with variable and value labels. It is publicly available at the website of the Central Bank of Chile, <https://si3.bcentral.cl/Siete>. This data was only used to create the time series for the economic activity indexes and stocks of bank credit (Figure 2 in the article).

Public use data with required registration (registration is paid), extract not provided

Supplementary Data 5: Bloomberg

Format: .dta (Stata).

Dictionary: The time series for the equity prices of the 41 main Chilean firms and the IPSA stock market index come from Bloomberg (2021). The dataset is self-described with variable labels. It is widely available in universities and companies. This data was only used to create Figure 2 in the article, which shows the log of the stock prices for the IPSA (Chile's major stock index) and its 41 individual companies.

Dataset list

Data files	Source	Notes	Provided
EFH_17_allvars.dta (Main EFH 2017 dataset)	BCCH	Public use data with required registration	No
BASE_PERSONAS_VIII_EPF.dta (Supplementary EPF dataset)	INE	Public use data with required registration	No
eneCS_“year”_“qr”.dta (Supplementary ENE and ESI datasets)	INE	Public use data with required registration. Year and quarter stand for the period of the survey. Years 2019 and 2020 were used in the article. Years 1996 to 2019 were used for exercises in the Appendix.	No
EFH_selection2017_dtbc3.dta (formatted version of the EFH dataset with 114 variables created from the raw data)	Author	Data is available upon request by showing confirmation that registration for the public use EFH was done with the BCCH. 4.74 GB in size (if the researcher wants all of the 1,000 bootstrap replicas). 4.9 MB size (EFH sample only).	No
IPSA.dta	Bloomberg / Author	Time series can be provided upon request In Stata format: 148 KB size.	No
eneCS_all.dta (formatted version of the ENE with 102 variables for all the year-qr dates of 2019 and 2020)	Author	Data is available upon request by showing confirmation that registration for the public use ENE was done. 90 MB size.	No

Abbreviations:

BCCH = Banco Central de Chile (Central Bank of Chile)

INE = Instituto Nacional de Estadísticas (Chilean Institute of National Statistics)

Computational requirements

Stata is required to run all the codes. The codes were run on a notebook with a processor Intel(R) Core(TM) i7-9750H CPU @ 2.60GHz, 2601 Mhz, 6 Core(s), 12 Logical Processor(s).

Software Requirements

- Stata (all codes were last run with version 15.1, MP-6)

Memory and Runtime Requirements

Summary

Approximate time needed to reproduce the analyses on a standard (2021) desktop machine:

- ☐ 1-3 days

Details

The code was last run on a 6-core Intel-based laptop with OS Microsoft Windows 10 Pro

The EFH formatting takes approximately 30 mins to implement. The EPF formatting takes approximately 5 minutes to implement. The ENE formatting and analysis takes approximately 6 hours. Estimating the delinquency models with 1,000 bootstrap replicas takes approximately 24 hours. The summary analysis of the data description tables (Tables 1, 2, 3) takes approximately 5 minutes. The Stress Test simulation of the 1,000 bootstrap replicas takes approximately 6 hours. The analysis of the Stress Tests (tables 9, 10 and 11 in the article, plus tables A.5, A.6, A.7 in the appendix) takes approximately 90 minutes.

Description of programs/code

- The Master_Covid_SocialExplosion.do in folder README_files is the master program that calls each algorithm and data formatting file and then provides the results at the end. It uses global paths for each directory; therefore, you should change the globals to the folders in your computer where you wish to store the raw data and where you want to keep the results (tables, figures). It takes 3-4 days to run.
- Programs in README_files\Time_series_Figures uses the aggregate activity and stocks of credit from the BasedeDatos7 (Central Bank of Chile) to build Figure 1 in the article. It also uses the time series for the IPSA data and its 41 stocks (from Bloomberg) to build Figure 2 in the article. This code runs alone.
- Programs in README_files\ENE_format_summary formats the ENE data for 2019 and 2020 which is later used to build the scenarios of the stress tests. These codes also create Table 6 and Figure 3 in the article plus Table A.1 in the appendix. Master_Covid_SocialExplosion.do runs these codes.
- Programs in README_files\EPF_formatting format the EPF data which is used to generate the regressor of credit constraints that is used in the stress test (this is required to build table 11 in the article, Tables A.4 and A.6 in the appendix). Master_Covid_SocialExplosion.do runs these codes.
- Programs in README_files\other_ado include the outreg2 package that is freely available for download by Wada (2005).
- Programs in README_files\EFH_formatting format the EFH data (waves of 2007, 2008, 2009, 2010, 2011, 2014, 2017) which is used to format all the EFH waves in a similar format, so that they can be used as pooled cross-section. These codes also import the statistics from the ENE and EPF datasets with a match based on households and workers of similar characteristics (age, education, gender, region and industry). Master_Covid_SocialExplosion.do runs these codes.
- Programs in README_files\Delinquency_models_estimation uses bootstrap replicas of the ENE and EPF datasets to estimate the delinquency models used in the stress tests and to obtain Table 5 in the article. The codes also run bootstrap replicas of the ENE/EPF and EFH samples to estimate the models and provide table A.2 in the appendix. Master_Covid_SocialExplosion.do runs these codes. (Note: these codes

- Programs in README_files\Appendix_ST generate Table 1 and 2 in the article, plus the Figure 1 and Table A.4 in the appendix and the tables all tables and figures in the main body of the article. The program Master_Covid_SocialExplosion.do will run them all (besides running other analysis).
- Programs in README_files\Stress_Test_modeling implements all the stress test modeling described in section 4 of the article. It also builds Table 3 and Table 7 in the article plus Table A.3 in the appendix. Master_Covid_SocialExplosion.do runs these codes.
- Programs in README_files\SummaryTables_Graphs format the results after the stress tests to create Tables 9, 10 and 11 in the article plus Tables A.5, A.6 and A.7 in the appendix. Master_Covid_SocialExplosion.do runs these codes.
- Programs in README_files\Master_Short_version provides a shorter Master code, which only runs the stress test modeling described in section 4 and then creates the results in section 5 of the article. This code creates Tables 9, 10 and 11 in the article plus Tables A.5, A.6 and A.7 in the appendix. M_Covid_SocialExplosion_short.do runs these codes. It should take 7 hours in total.

License for Code

The code is licensed under a Creative Commons/CC-BY-NC/CC0 license. See LICENSE.txt for details.

Instructions to Replicators

- Edit the global paths in Master_Covid_SocialExplosion.do in folder README_files.
- Run README_files\Master_Covid_SocialExplosion.do to run all steps in sequence. It should take 3-4 days in total. (Each section only needs to be run once. If the researcher wishes he can run each code in a sequence line by line in the order of the Master_Covid_SocialExplosion.do).

Instructions to Replicators who ask the author for the formatted versions of the datasets

(EFH_selection2017_dtbc3.dta, IPSA.dta, eneCS_all.dta)

- Edit the global paths in README_files\Master_Short_version\M_Covid_SocialExplosion_short.do
- Run README_files\Master_Short_version\M_Covid_SocialExplosion_short.do to run all steps in sequence. It should take only 7 hours in total.

List of tables and programs

The provided code reproduces:

- ☐ All tables and figures in the paper

Figure/Table #	Program	Line(s) Number	Output file
Figure 1	graphs_stocks_debt_un.do	75	Chilean_BankCredit_aug2019_march2020.emf
Figure 2	graphs_stocks_debt_un.do	111	Chilean_stocks_17Oct19_4May20.emf
Figure 3	Graphs_final.do	115	Hours_TSeducSector.emf
Table 1	Graphs_Stress.do	47, 62,	ST_DemoMotPay_all.xls, Motives_DT.xls

Table 2	Graphs_Stress.do	205, 237, 242	ST_DebtorPop_allEst.xls, ST_RDebt_all.xls, ST_RDebt_allEst.xls
Table 3	FinAssets_description.do	33, 37, 67	AssetsD_Est.xls, AssetsD_All.xls, AssetsD_MortgagesConsumerD.xls
Table 5, Table A.2 (appendix)	select_data_ST.do	10, 20	BSbetaM_`df'.dta
Table 6	Tables_labmkt.do	168, 319	Hemp_EducBsexes.xlsx, Hemp_sexEduc.xlsx
Table 7, Table A.3 (appendix)	Covid_Policies.do	116, 122	CovidPolicies_all.xls, CovidPolicies_Est.xls
Table 8	No code required (calibration summary)		
Table 9	BS_SE_Cov_summary.do	16, 30, 46	darDT_SE0.xls, darDT_SE1.xls, darDT_CovBeg\${Mit}.xls
Tables 10 and 11, Tables A.6 and A.7 (appendix)	BS_summarize.do	26, 30	dar_Total_estrato`RopN'.xls, dar_Total`RopN'.xls
Figure 1 (appendix)	Graphs_Stress.do	318	ST_pdf_UNh_JOBfh.emf
Table A.1 (appendix)	Tables_labmkt.do	207	Hemp_ActEducBsexes.xlsx
Table A.4 (appendix)	Graphs_Stress.do	68	DF_DT.xls
Table A.5 (appendix)	BS_stds.do	102, 120	SD_dar_Total_estrato`RopN'.xls, SD_dar_Total`RopN'.xls

References

(Data references and its documents are only available in the Spanish language)

Banco Central de Chile. 2017. “Encuesta Financiera de Hogares (EFH) 2017 [dataset], plus Results Report (Documento de Resultados), User Guide (Guía de usuario), Glossary (Glosario), Methodology (Metodología), Questionnaire (Cuestionario).” Santiago, Chile. <https://www.efhweb.cl/ES/EFH/>

Banco Central de Chile. 2021. “Base de datos 7 [dataset].” Santiago, Chile. <https://si3.bcentral.cl/Siete>

Bloomberg. 2021. “IPSA and its 41 firm equity members: stock prices daily time series [dataset].” New York, USA.

Instituto Nacional de Estadísticas. 2018. “Encuesta de Presupuestos Familiares (EPF) 2017 (VIII wave) [dataset] plus Results Report, Manual, Questionnaire.” Santiago, Chile, Instituto Nacional de Estadística (INE). <https://www.ine.cl/estadisticas/sociales/ingresos-y-gastos/encuesta-de-presupuestos-familiares>

Instituto Nacional de Estadísticas. 2020. "Nueva Encuesta Suplementaria de Ingresos (NESI) [dataset] plus Manual, Methodology, User Guide." Santiago, Chile, Instituto Nacional de Estadística (INE). <https://www.ine.cl/estadisticas/sociales/ingresos-y-gastos/encuesta-suplementaria-de-ingresos>

Instituto Nacional de Estadísticas. 2021. "Nueva Encuesta Nacional de Empleo (NENE) [dataset] plus Manual, Methodology, User Guide." Santiago, Chile, Instituto Nacional de Estadística (INE). <https://bancodatosene.ine.cl/>

Wada, Roy. 2005. "OUTREG2: Stata module to arrange regression outputs into an illustrative table," Statistical Software Components S456416, Boston College Department of Economics, revised 17 Aug 2014. <https://ideas.repec.org/c/boc/bocode/s456416.html>