Data Article

“Dataset of calibrated simulations of the Chilean pensions by cohorts under different policy reforms until 2055”

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Abstract

This article provides data projections of replacement ratios of the pension income relative to the last labor earnings for the Chilean cohorts of retirees between 2015 and 2055. Time series are presented for the percentiles 1, 5, 10, 25, 50, 75, 90, 95 and 99 of each cohort to fully characterize the heterogeneity of the living standards during retirement over the entire period. The datasets are available in Excel and Stata. The dataset is useful for academics, policy makers and financial analysts to plot the impact of policies such as increasing the contribution rate or delaying the retirement age on the pension income of future retirees for each generation between 2015 and 2055. The dataset also shows the heterogeneous impact of those policies including statistics for the mean plus the percentiles 1, 5, 10, 25, 50, 75, 90, 95 and 99 of the population of retirement cohorts.

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DOI of original article: 10.1016/j.jeoa.2021.100326
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https://doi.org/10.1016/j.dib.2021.107152
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Specifications Table

| Subject | Economics, Econometrics and Finance. |
|---------|-------------------------------------|
| Specific subject area | Household Finance. Demographics. Labor Economics. ageing. |
| Type of data | Table (Excel format and Stata dta files) |
| How data were acquired | Data combines publicly available raw data from the Chilean Family Expenditures Survey (EPF, 2012 wave), the Chilean Employment Survey (NENE, 1996–2015 waves) and United Nations (ECLAC 2013) demographic projections for the number of persons and longevity above 60 years of age by gender and age-groups. Using a model of overlapping generations and a life-cycle optimization of consumption and wealth, the article provides projections for the Chilean cohorts of retirees during the period from 2015 to 2055. |
| Data format | Analyzed (RRatios_R65_pcs.xlsx, RRatios_R66_pcs.xlsx, RRatios_R67_pcs.xlsx – same files provided in Stata format, RRatios_R65_pcs.dta, RRatios_R66_pcs.dta, RRatios_R67_pcs.dta). |
| Parameters for data collection | The data are obtained from a model of overlapping generations with contributions for the pension system and voluntary savings for retirement. The model is then calibrated from micro survey data (the Chilean Family Expenditures Survey – wave 2012, the Chilean National Employment Survey – waves 1996 to 2015) and with demographic and life expectancy above 60 years of age for the period 2015 to 2055. |
| Description of data collection | Data consists of time series of the pension income replacement ratios as a fraction of the last labor earnings of the household. Time series are available for the percentiles 1, 5, 10, 25, 50, 75, 90, 95 and 99 of each cohort of retirees for the period between 2015 and 2055. |
| Data source location | Instituto Nacional de Estadísticas (INE, in English, Bureau of Official Statistics), Santiago, Chile. United Nations Economic Commission for Latin America and the Caribbean (ECLAC), Santiago, Chile. [https://www.ine.cl/estadisticas/sociales/ingresos-y-gastos/encuesta-de-presupuestos-familiares](https://www.ine.cl/estadisticas/sociales/ingresos-y-gastos/encuesta-de-presupuestos-familiares) (EPF) [https://www.ine.cl/estadisticas/sociales/mercado-laboral/ocupacion-y-desocupacion](https://www.ine.cl/estadisticas/sociales/mercado-laboral/ocupacion-y-desocupacion) (ENE) [https://estadisticas.cepal.org/cepalstat/portada.html?id=idioma=english](https://estadisticas.cepal.org/cepalstat/portada.html?id=idioma=english) (ECLAC demographic projections for Chile) |
| Data accessibility | With the article. Data is uploaded on Mendeley Data in Madeira [8] |
| Related research article | Madeira [1] “The long term impact of Chilean policy reforms on savings and pensions”. *Journal of the Economics of Ageing*, 19, 100,326. [https://doi.org/10.1016/j.jeoa.2021.100326](https://doi.org/10.1016/j.jeoa.2021.100326) |

Value of the Data

- The data can be used to study the evolution of the Chilean retirees’ pension income as a replacement ratio of their last labor earnings over the period between 2015 and 2055 (see Madeira [1], OECD [7], and references therein). The data also shows how the replacement ratios are affected by different policies such as an increase in the contribution rate, delaying of retirement age or both options.
- The data also shows how the households’ savings rate may evolve with the demographic changes over the period between 2015 and 2055, which is particularly important due to the low savings in Latin America relative to other continents (see Cavallo and Serebrisky [4] and Higgins [5]).
- The data shows the distribution of the percentiles 1, 5, 10, 25, 50, 75, 90, 95 and 99 for each cohort-year of retirees to fully document the heterogeneous impact of the pension reforms (see Madeira [1], Attanasio and Brugiavini [2], and Attanasio and Rohwedder [3]).
- The data contains projections of the impact of demographic change on the unemployment risk, the natural logarithm of labor earnings, plus the annual volatility of the labor earnings, of the households’ labor force for the period 2015 to 2055 (see Madeira [6]).
1. Data Description

Three data files are included: RRatios_R65_pcs.xlsx, RRatios_R66_pcs.xlsx, RRatios_R67_pcs.xlsx. The same datasets are available in Stata: RRatios_R65_pcs.dta, RRatios_R66_pcs.dta, RRatios_R67_pcs.dta. Each dataset contains time series of the pension income replacement ratios as a fraction of the last labor earnings of the household under both the baseline contribution rate of 10% (current policy) and an increase of the contribution rate to 13%. Time series are available for the percentiles 1, 5, 10, 25, 50, 75, 90, 95 and 99 of each cohort of retirees for the period between 2015 and 2055. Each dataset assumes a different official value of the retirement age (R65, R66, R67), corresponding to 65 years (the current policy in Chile), 66 years and 67 years, respectively.

2. Experimental Design, Materials and Methods

The data consists of simulations from a model that calibrates the individual contribution accounts of the Chilean pension system, plus the public retirement benefits provided to the lowest income families. Furthermore, it accounts for the marriage and fertility choices of the new households, plus the life-cycle optimization problem of the households to smooth their income and wealth within a framework of no uncertainty and no credit constraints (similar to previous literature, such as Attanasio and Brugiavini [2], Attanasio and Rohwedder [3]). The estimation uses the Chilean Family Expenditures Survey (in Spanish, Encuesta de Presupuestos Familiares, hence on EPF) to build a representative sample of the population and of the new generation of workers arriving to the labor market each year. The dynamics of labor force participation, formal versus informal work and unemployment are calibrated from the Chilean Employment Survey (in Spanish, Encuesta Nacional de Empleo, hence on ENE), according to the workers’ sex, age, education and industry. The life expectancy and population weights of households with different ages are then adjusted over time using forecasts from the United Nations (ECLAC 2013).

Users can download (at no cost) the raw data of all the EPF and ENE surveys from the website of the Chilean Institute of National Statistics.

ENE: https://www.ine.cl/estadisticas/sociales/mercado-laboral/ocupacion-y-desocupacion.

EPF: https://www.ine.cl/estadisticas/sociales/ingresos-y-gastos/encuesta-de-presupuestos-familiares.

Users can also download the demographic projections of urban population and life expectancy above 60 years of age from the United Nations Economic Commission for Latin America and the Caribbean (ECLAC) website (https://estadisticas.cepal.org/cepalstat/portada.html?idioma=english).

Table 1
Description of the analyzed datasets (RRatios_R65_pcs.xlsx, RRatios_R66_pcs.xlsx, RRatios_R67_pcs.xlsx, plus its Stata .dta versions) provided in this article.

| Analyzed dataset                                  | Description                                                                 |
|---------------------------------------------------|------------------------------------------------------------------------------|
| RRatios_R65_pcs.xlsx (RRatios_R65_pcs.dta)        | Replacement ratios of pension income (all percentiles available) under a contribution rate of 10 and 13%. All time series assume an official retirement age of 65 years (which is the current official value). |
| RRatios_R66_pcs.xlsx (RRatios_R66_pcs.dta)        | Replacement ratios of pension income (all percentiles available) under a contribution rate of 10% and 13%. The time series assume an official retirement age of 66 years. |
| RRatios_R67_pcs.xlsx (RRatios_R67_pcs.dta)        | Replacement ratios of pension income (all percentiles available) under a contribution rate of 10% and 13%. The time series assume an official retirement age of 67 years. |
All the methods (in Stata do-files) are published in a RunMyCode companion website.

CRediT Author Statement

Carlos Madeira: Conceptualization, Methodology, Software, Validation, Formal analysis, Investigation, Resources, Data curation, Writing – original draft, Writing – review & editing, Validation, Supervision, Project administration, Funding acquisition.

Declaration of Competing Interest

The author declares that he has no known competing financial interests or personal relationships which have or could be perceived to have influenced the work reported in this article. I received no funding from any institution besides my employer which is the Central Bank of Chile. Furthermore, there are no patents or impediments to publication, with respect to the intellectual property of the article or the associated dataset.

Acknowledgments

The author thanks comments and suggestions from Alfonso Sousa-Poza, Mariano Bosch, Eduardo Cavallo, Solange Berstein, Olga Fuentes, Klaus Schmidt-Hebbel, Eleonora Pierucci, Rodrigo Fuentes, and Ximena Quintanilla. All errors are my own.

Supplementary Materials

Supplementary material associated with this article can be found in the online version at doi:10.1016/j.dib.2021.107152.

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