

**Top Incomes in Chile: A Historical Perspective of
Income Inequality (1964-2015)
Appendix**

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Oct 2018



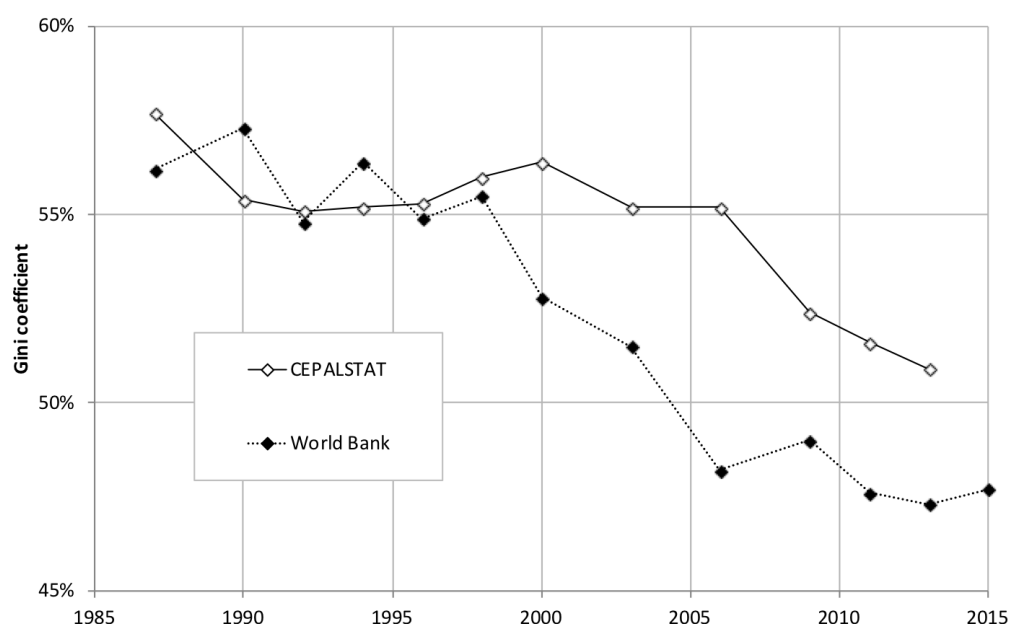
World Inequality Lab

A Appendix

A.1 Trends in local Household Surveys

In Chile the study of personal income inequality is based predominantly on survey data. The CASEN Survey is considered to be the most precise, mainly because of its large samples which extend nationwide across both urban and rural areas. However, it only started in 1987, and for methodological reasons, some editions are often judged to be incomparable to each other. Despite this, World Bank and CEPALSTAT (ECLAC) – both international data banks – have used the CASEN Survey to build internationally comparable Gini coefficients for Chile since 1987, as shown in Figure A.1.

Figure A.1: Gini coefficient by CEPALSTAT and World Bank (1987-2015)



Source: CEPALSTAT and World Bank. Note: the World Bank series was updated in 2017 in response to the release of uncorrected CASEN Survey databases. Previous series were used to counter-adjust official estimates to recover an approximation of the originals (in order to avoid building income estimates that were scaled to fit National Accounts aggregates).

Each of these institutions treats the original data differently, which explains the observed differences in trend and level. In particular, CEPALSTAT has historically applied a specific adjustment that scales aggregates of different types of income present in the survey to fit values from national accounts. The gap between national accounts and survey aggregates is imputed proportionally throughout the distribution to declared income and separately for each type, with the exception of capital income, which is only imputed proportionally to the top quintile of the distribution. This modification is noteworthy for three reasons. First, it is the main factor behind the substantial differences observed in Figure A.1 (there are differences in the management of missing values as well, but the

impact is marginal). Second, until recently, public CASEN Survey databases included these adjustments as standard, without displaying uncorrected data. Consequently, most research and official estimates on personal income and inequality to date include it. The issue is non-trivial – as Bourguignon (2015) discusses in greater depth – because this kind of adjustment has potentially significant distorting effects on the estimated distribution of income, especially when original data is already biased (as generally happens, at least at the top). Third, one of the reasons for applying such corrections is that most income aggregates from survey data are relatively low compared to both national accounts and fiscal estimates.

From a more descriptive point of view, it appears that trend interpretation is not necessarily clear in the short run, as the gap between the two estimates is not constant and does not even hold strictly to positive or negative values. In fact, it is easy to identify points in Figure A.1 where CEPALSTAT and World Bank estimates follow opposite directions from one year to the next. However, at least since the year 2000, World Bank (unadjusted) estimates appear to be around 3 points lower than those of CEPALSTAT (adjusted). In the medium term of Chilean income inequality, there is a degree of consensus among scientific and political narratives as to a generally decreasing trend in income inequality between the return to democracy (1990) and recent years.

In order to explain inequality trends more precisely, (Contreras and Ffrench-Davis, 2012) base their interpretations on a combination of the CASEN Survey and the employment survey conducted by the Universidad de Chile (EOD). The latter is considered to be more consistent over time – hence should be more precise for short-term interpretations – but has some important drawbacks. It only refers to what happens in the capital city, its samples are considerably smaller, and it is designed primarily to study employment, focusing essentially on labor income. Taking previous considerations into account, they conclude that Chile is more unequal nowadays than it was before the dictatorship. They also find that the peak of personal income inequality was somewhere in the mid-1980s, and since the return of democracy, inequality has decreased. In the short term, they find a fast drop in wage dispersion following the return to democracy, and explain this phenomenon by the decline in poverty driven mainly by increasing employment, the minimum wage, and expansion of social security. Nevertheless, this progression started to stagnate around the Asian crisis (1999) as inequalities began rising. Finally, another period of decreasing inequality begins around 2003, with improvements in poverty levels supposedly caused by increasing public spending and counter-cyclical measures during the 2009 crisis.

Clearly, the available personal income datasets present many limitations. However, the main conclusions we can draw from them should be trusted to a certain degree in terms of a fair portrayal of labor income, and their historic analysis and observed trends do help to contextualize our findings.

A.2 Changes in tax legislation and income definition.

1964 (Feb): Tax reform, law n° 15,564.

- Defines for the first time what *income* is in legal terms.
- Taxes are declared according to 2 categories instead of 6.

Source: Boletín del Servicio de Impuestos Internos XI(123), February 1964: 3780-3839. This includes both Law 15,564 and the document 'Comentarios e Instrucciones' written by the SII, which compares the new dispositions with previous legislation.

1965 (Aug): Minimum presumed income tax.

- Special and transitory tax which was applied in tax years 1965, 1966 and 1967. It is based on net disposable wealth. It affects natural persons exclusively.

Source: Boletín del Servicio de Impuestos Internos XII(141), August 1965: 4603-4607, 4608-4632.

1972 (Nov): Single law n° 17,828.

- Those who perceive wages or pensions as a single source of income are no longer obliged to declare personal income tax (*Global Complementario*).

1974 (Jan) (Dec): Tax reform (under dictatorship).

- The wealth tax is removed
- Decree Law n° 824: Tax brackets are now defined in terms of Annual Tax Units (UTA) instead of *sueldos vitales*. Tax unity is periodically updated according to variations in the Consumer Price Index.
- Value Added Tax (VAT) is introduced.

Source: Cheyre (1986)

1984 (Jan): Tax reform in favor of savings and investment, law n° 18,293.

- Income declarations by business owners include only distributed profits.
- Corporate taxes can be used as a credit against personal income tax.
- Retained profits are no longer in businesses' taxable base (FUT mechanism. It is a taxable profit fund. According to Fairfield and Jorratt De Luis (2016), it allowed for keeping track of "how much tax credit (corporate tax paid by the firm) owners are due when they eventually withdraw these profits and pay individual income taxes. Total FUT profits reported at the end of 2012 were equivalent to Chile's GDP. FUT funds imputed to taxpayers in our datasets make up 56–61 percent of the total".

1990 (Jun): Tax reform, law n° 18,985.

- Income that has been withdrawn from a company and is reinvested in another one is not subject to personal income tax (art. 1, 2).

1998-2001 (Jul): Transitional article n° 2, law n° 19,578.

- Capital gains made from selling stocks by highly traded corporations can choose to pay an alternative lower tax (Impuesto Unico de Primera Categoría).

2001 (Nov): Capital market reform (MKI), laws n° 19,768 and n° 19,769.

- Capital gains made from selling stocks by highly traded corporations are tax-exempt (for stocks bought before April 2001) (art. 1 – 1 – b).
- Capital gains made from short selling are tax-exempt (art. 1 – 3).
- Stocks of some emergent companies (defined by their growing potential) can be considered as “highly traded”. Hence, capital gains made from selling their stocks can be tax-exempt for 3 years (Transitional art. n° 4, law 19,768).
- The range of financial products authorized as voluntary pension savings, which are deducted from the taxable base, is widened. Within a maximum of 48UF, people can chose to invest in AFPs, mutual funds, Investment funds, and life insurances, among other products.

2002 (Apr): Single article (completing MKI) Law n° 19,801.

- Capital gains that became tax-exempt with MKI do not need to be declared.

2007 (Jun): Capital market reform (MKII), law n° 20,190.

- Capital gains made from selling some venture capital shares are tax-exempt (Transitional Art. 1).

2012: Tax Reform, law n° 20,630.

- Access to special regimes of taxation is limited to more strict conditions, especially to *renta presunta*, which was often used to inflate declared costs of companies or professionals (thus, lowering declared profits/revenue).
- Increase in First Category Tax rate (*Impuesto Único de Primera Categoría*): this rate (20%) was a provisional measure decided by the government in the wake of the 2010 earthquake to finance reconstruction. The reform reenacted the provisional measure, establishing it as a permanent rate.

- Reduction of personal income tax rates. The rates dropped to between 20% and 4.10% at each end of the scale. The top tax bracket was not reduced, but the tax burden on the highest incomes decreased, as it is a marginal tax rate.

2014: Tax Reform, law n° 20,780.

- Corporate tax is modified. Companies have to choose between an attributed tax regime and a semi-integrated one. The former is based on a 25% tax rate on profits and firms cannot gain tax credits against the tax paid by business owners. The semi-integrated tax regime has a 27% tax rate, though firms can receive a tax credit that represents up to 65% of the tax payment.
- A rule to tackle avoidance is introduced to give the *Servicio de Impuestos Internos* greater control to enforce and sanction aggressive tax planning.

A.3 Additional tables and figures

Table A.1: Adult population, total and taxable

YEAR	POPULATION SHARES					TOTAL TAX DECLARATIONS (% of adult population)		DECLARATIONS OVER TAXABLE THRESHOLD (% of adult population)	
	Population Total (20 y.o. and over)	10%	1%	0.1%	0.01%	GC Series	GC+USC Series	GC Series	GC+USC Series
1962	4,140,085	414,009	41,401	4,140	414	1.2%		1.2%	
1963	4,229,695	422,970	42,297	4,230	423	3.8%		1.0%	
1964	4,323,028	432,303	43,230	4,323	432	3.9%		1.1%	
1965	4,419,437	441,944	44,194	4,419	442	4.4%		1.4%	
1966	4,511,536	451,154	45,115	4,512	451	4.8%		1.6%	
1967	4,606,805	460,681	46,068	4,607	461	5.2%		2.0%	
1968	4,706,118	470,612	47,061	4,706	471	6.2%		2.3%	
1969	4,811,300	481,130	48,113	4,811	481	6.6%		2.7%	
1970	4,923,628	492,363	49,236	4,924	492	6.7%		3.5%	
1971	5,033,942	503,394	50,339	5,034	503	7.7%		4.3%	
1972	5,154,466	515,447	51,545	5,154	515	0.2%		0.2%	
1973	5,282,679	528,268	52,827	5,283	528	1.4%		1.2%	
1974	5,414,875	541,488	54,149	5,415	541	1.9%		1.8%	
1975	5,549,289	554,929	55,493	5,549	555	1.7%		1.3%	
1976	5,692,169	569,217	56,922	5,692	569	1.6%		1.6%	
1977	5,834,759	583,476	58,348	5,835	583				
1978	5,979,359	597,936	59,794	5,979	598	2.5%		2.2%	
1979	6,129,161	612,916	61,292	6,129	613	2.5%		2.2%	
1980	6,285,271	628,527	62,853	6,285	629	2.4%		2.3%	
1981	6,443,122	644,312	64,431	6,443	644	2.2%		2.0%	
1982	6,605,725	660,573	66,057	6,606	661				
1983	6,773,640	677,364	67,736	6,774	677				
1984	6,946,805	694,681	69,468	6,947	695				
1985	7,124,933	712,493	71,249	7,125	712				
1986	7,306,223	730,622	73,062	7,306	731				
1987	7,492,910	749,291	74,929	7,493	749				
1988	7,682,445	768,245	76,824	7,682	768				
1989	7,872,732	787,273	78,727	7,873	787				
1990	8,062,479	806,248	80,625	8,062	806	8.8%		2.9%	
1991	8,244,490	824,449	82,445	8,244	824	9.1%		3.0%	
1992	8,431,444	843,144	84,314	8,431	843	10.1%		3.3%	
1993	8,619,650	861,965	86,197	8,620	862	10.4%		3.7%	
1994	8,804,596	880,460	88,046	8,805	880	10.8%		3.9%	
1995	8,984,617	898,462	89,846	8,985	898	12.2%		4.3%	
1996	9,169,195	916,920	91,692	9,169	917	12.4%		6.2%	
1997	9,345,988	934,599	93,460	9,346	935	13.0%		6.6%	
1998	9,519,263	951,926	95,193	9,519	952	13.8%		6.2%	
1999	9,694,975	969,498	96,950	9,695	969	14.1%		6.2%	
2000	9,875,973	987,597	98,760	9,876	988	14.4%		6.5%	
2001	10,054,711	1,005,471	100,547	10,055	1,005	15.8%		7.6%	
2002	10,237,743	1,023,774	102,377	10,238	1,024	15.8%		7.7%	
2003	10,426,873	1,042,687	104,269	10,427	1,043	16.0%		7.9%	
2004	10,623,302	1,062,330	106,233	10,623	1,062	16.3%	62.7%	8.6%	9.9%
2005	10,827,647	1,082,765	108,276	10,828	1,083	16.8%	64.9%	9.1%	10.3%
2006	11,031,536	1,103,154	110,315	11,032	1,103	17.0%	66.6%	7.1%	10.9%
2007	11,245,406	1,124,541	112,454	11,245	1,125	17.0%	67.7%	10.2%	11.6%
2008	11,466,511	1,146,651	114,665	11,467	1,147	17.0%	68.8%	8.2%	11.7%
2009	11,691,082	1,169,108	116,911	11,691	1,169	16.7%	67.8%	8.1%	12.4%
2010	11,916,457	1,191,646	119,165	11,916	1,192	17.5%	69.1%	7.2%	13.4%
2011	12,133,631	1,213,363	121,336	12,134	1,213	18.1%	71.0%	7.7%	14.3%
2012	12,353,033	1,235,303	123,530	12,353	1,235	21.8%	72.4%	10.6%	15.4%
2013	12,573,206	1,257,321	125,732	12,573	1,257	21.6%	72.4%	11.0%	16.7%
2014	12,792,746	1,279,275	127,927	12,793	1,279	21.4%	72.4%	11.4%	16.9%
2015	13,010,453	1,301,045	130,105	13,010	1,301	22.1%	72.6%	11.9%	17.3%

Total adult population from World Bank. Taxable individuals are those who declare income above the minimum taxable threshold

Table A.2: Undistributed Profits

year	as a share of GDP	as a share of total fiscal income	total In current pesos (millions)	per adult (real 2015 pesos)
1990	4.8%	11%	464,747	226,224
1991	4.8%	11%	614,364	240,138
1992	4.8%	11%	778,732	257,859
1993	4.8%	11%	931,033	267,510
1994	4.8%	11%	1,119,313	282,523
1995	4.8%	11%	1,367,304	312,478
1996	4.8%	11%	1,508,727	314,698
1997	5.9%	14%	2,052,014	395,654
1998	4.1%	9%	1,500,796	270,292
1999	3.4%	7%	1,252,789	214,384
2000	3.9%	9%	1,686,499	272,827
2001	3.9%	9%	1,789,975	274,618
2002	3.9%	9%	1,900,493	279,405
2003	3.0%	7%	1,628,456	228,643
2004	6.2%	15%	3,773,292	514,566
2005	5.6%	14%	3,900,090	506,363
2006	6.9%	18%	5,672,819	699,193
2007	8.7%	23%	7,825,294	906,205
2008	5.7%	14%	5,305,391	554,233
2009	9.7%	24%	9,380,210	960,402
2010	12.5%	32%	13,855,518	1,372,429
2011	10.2%	25%	12,318,115	1,159,573
2012	8.9%	21%	11,545,557	1,036,385
2013	8.3%	19%	11,387,809	986,646
2014	8.6%	20%	12,763,526	1,041,105
2015	10.0%	23%	15,739,323	1,209,744

Note: undistributed profits are estimated using National Accounts. The amount is equal to the net primary income of the corporate sector (including both the financial and non financial). National Accounts are detailed enough to estimate undistributed profits since 1996; for previous years we estimate them as a fixed proportion of GDP.

Table A.3: Top shares including undistributed profits (Upper Bound)

Year	Income in 2015 pesos				Share of total income			
	Top 10%	Top 1%	Top 0.1%	Top 0.01%	Top 10%	Top 1%	Top 0.1%	Top 0.01%
1990		56,663,724	207,686,008	357,789,602		25.5%	9.4%	1.6%
1991		57,681,205	209,183,254	336,849,375		24.5%	8.9%	1.4%
1992		60,544,854	217,635,897	339,205,558		23.9%	8.6%	1.3%
1993		63,356,812	223,507,085	332,740,017		24.1%	8.5%	1.3%
1994		65,147,748	230,419,058	334,775,913		23.5%	8.3%	1.2%
1995		71,577,503	251,766,618	355,931,622		23.4%	8.2%	1.2%
1996		74,361,174	260,043,469	389,438,019		23.0%	8.0%	1.2%
1997		81,930,950	295,669,802	401,301,739		24.7%	8.9%	1.2%
1998		74,036,416	251,749,674	427,866,402		22.7%	7.7%	1.3%
1999		68,353,836	222,901,295	391,890,248		22.1%	7.2%	1.3%
2000		72,565,270	245,224,636	384,401,297		21.2%	7.2%	1.1%
2001		75,075,490	252,573,677	420,248,787		21.5%	7.2%	1.2%
2002		75,210,114	252,173,387	415,043,589		21.2%	7.1%	1.2%
2003		71,482,031	236,806,775	479,380,599		19.3%	6.4%	1.3%
2004	22,656,411	96,013,437	356,780,444	473,763,510	56.9%	24.1%	9.0%	1.2%
2005	23,335,900	97,878,894	363,078,919	524,106,807	55.1%	23.1%	8.6%	1.2%
2006	25,742,250	112,804,643	435,317,201	560,479,688	56.2%	24.6%	9.5%	1.2%
2007	28,791,943	129,582,345	514,302,936	613,723,301	60.2%	27.1%	10.8%	1.3%
2008	25,648,048	103,866,745	374,099,124	558,349,399	56.5%	22.9%	8.2%	1.2%
2009	29,803,593	131,651,010	508,925,033	588,196,457	59.8%	26.4%	10.2%	1.2%
2010	34,901,145	163,407,316	666,978,405	693,532,903	61.7%	28.9%	11.8%	1.2%
2011	34,137,056	152,443,661	605,807,128	715,218,708	58.8%	26.3%	10.4%	1.2%
2012	34,291,174	147,808,656	568,363,236	724,930,580	57.9%	25.0%	9.6%	1.2%
2013	34,922,940	146,889,422	557,809,604	709,567,793	57.4%	24.1%	9.2%	1.2%
2014	36,395,915	155,391,823	592,924,873	756,611,693	58.7%	25.1%	9.6%	1.2%
2015	38,532,075	170,318,257	670,753,685	869,040,942	60.2%	26.6%	10.5%	1.4%

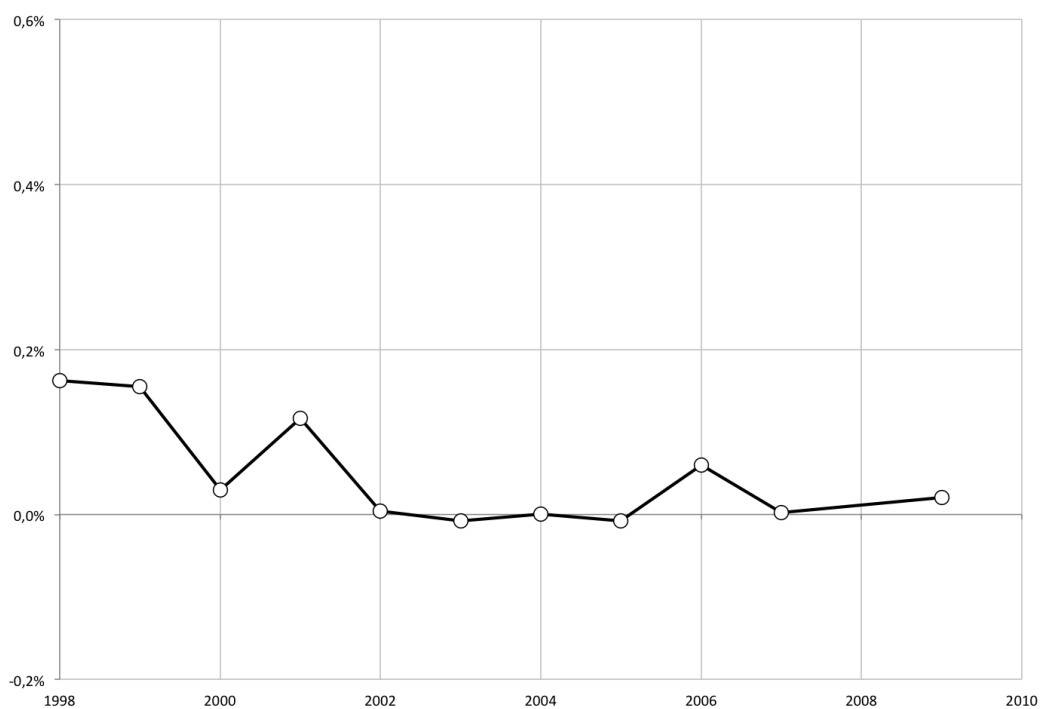
Note: undistributed profits are estimated using National Accounts. The construction of both upper and lower bounds is in Section 3.2

Table A.4: Top shares including undistributed profits (Lower Bound)

Year	Average income in 2015 pesos				Adjusted share of total income			
	Top 10%	Top 1%	Top 0.1%	Top 0.01%	Top 10%	Top 1%	Top 0.1%	Top 0.01%
1990		50,957,520	176,404,650	342,375,599		23%	8%	1.5%
1991		51,624,040	175,977,927	320,487,330		22%	7%	1.4%
1992		54,040,704	181,980,205	321,636,087		21%	7%	1.3%
1993		56,609,220	186,516,845	314,512,943		22%	7%	1.2%
1994		58,021,481	191,352,919	315,525,932		21%	7%	1.1%
1995		63,695,664	208,558,446	334,640,638		21%	7%	1.1%
1996		66,423,333	216,528,296	367,995,759		21%	7%	1.1%
1997		71,951,095	240,960,323	374,343,445		22%	7%	1.1%
1998		67,218,645	214,374,710	409,449,753		21%	7%	1.3%
1999		62,946,293	193,257,190	377,283,008		20%	6%	1.2%
2000		65,683,558	207,499,153	365,811,928		19%	6%	1.1%
2001		68,148,615	214,600,604	401,537,418		20%	6%	1.1%
2002		68,162,484	213,538,337	396,006,028		19%	6%	1.1%
2003		65,714,805	205,190,890	463,801,757		18%	6%	1.3%
2004	20,343,249	83,034,197	285,628,363	438,703,064	51%	21%	7%	1.1%
2005	21,059,614	85,106,567	293,061,130	489,605,288	50%	20%	7%	1.2%
2006	22,560,098	95,535,070	341,729,896	514,731,084	49%	21%	7%	1.1%
2007	24,617,062	107,674,903	397,017,312	556,881,391	52%	23%	8%	1.2%
2008	23,063,767	90,758,827	304,820,232	525,084,424	51%	20%	7%	1.2%
2009	25,271,827	109,440,610	393,125,574	533,151,617	51%	22%	8%	1.1%
2010	28,281,674	130,233,258	489,388,120	607,469,237	50%	23%	9%	1.1%
2011	28,422,982	123,202,249	445,527,491	636,247,623	49%	21%	8%	1.1%
2012	29,075,771	120,590,055	415,965,411	648,758,147	49%	20%	7%	1.1%
2013	29,854,671	119,945,448	404,019,045	631,728,490	49%	20%	7%	1.0%
2014	30,939,039	125,872,054	421,458,483	668,859,638	50%	20%	7%	1.1%
2015	32,064,796	134,751,915	460,837,618	760,548,640	50%	21%	7%	1.2%

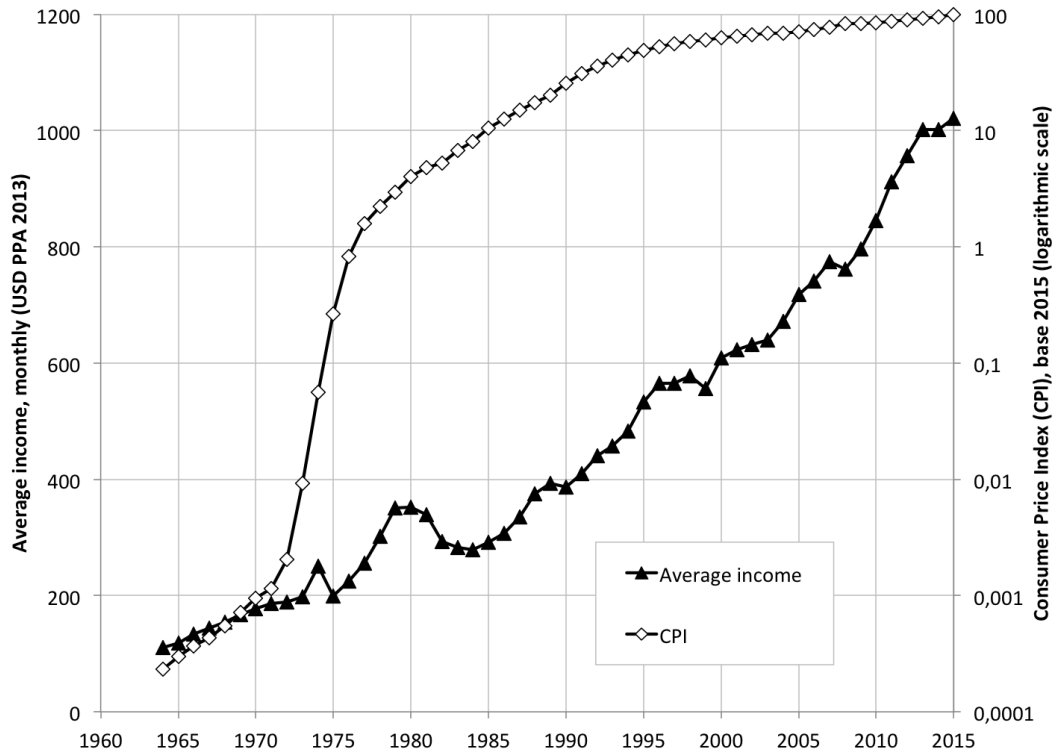
Note: undistributed profits are estimated using National Accounts. The construction of both upper and lower bounds is in Section 3.2

Figure A.2: Difference in Top 1% Share, with and without Capital Gains (1998-2009)



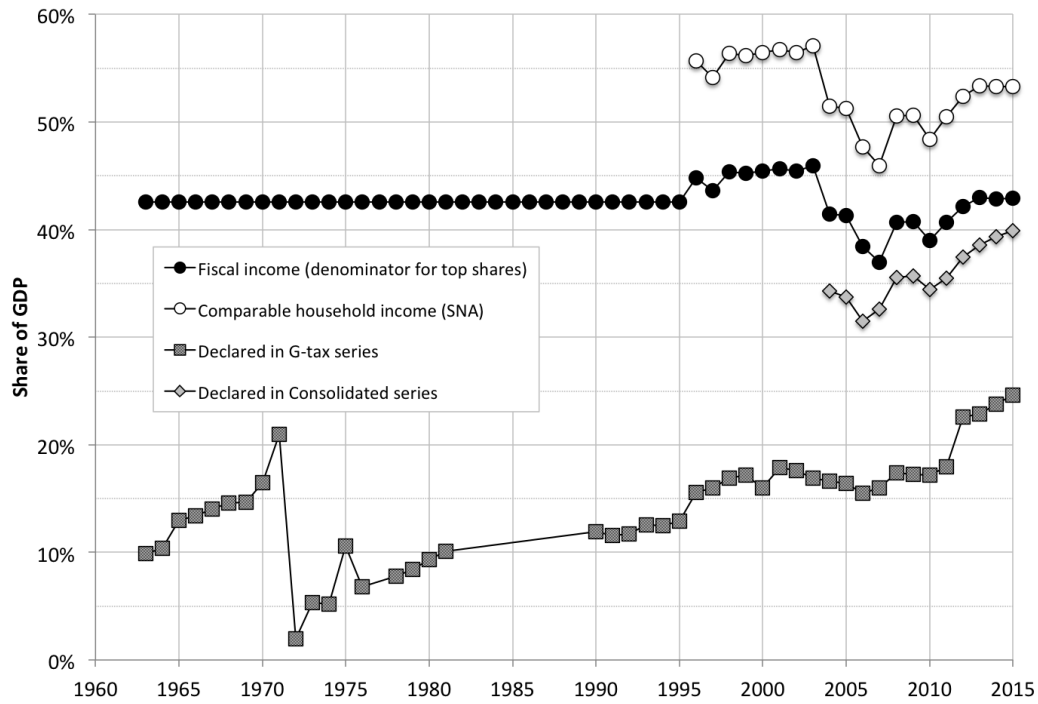
Own estimates based on the short detailed series of IGC tabulations that include capital gains declared by income-bracket (See Section 2.1.1). Reading: in 1998, the top 1% share estimate including capital gains is higher of only 0.16 percentage points compared to the one not including them. After 2002, the difference is generally close to 0. Differences are calculated without applying any adjustment to the series.

Figure A.3: Average Real Income (in 2013 USD PPA) and CPI (base 2015)



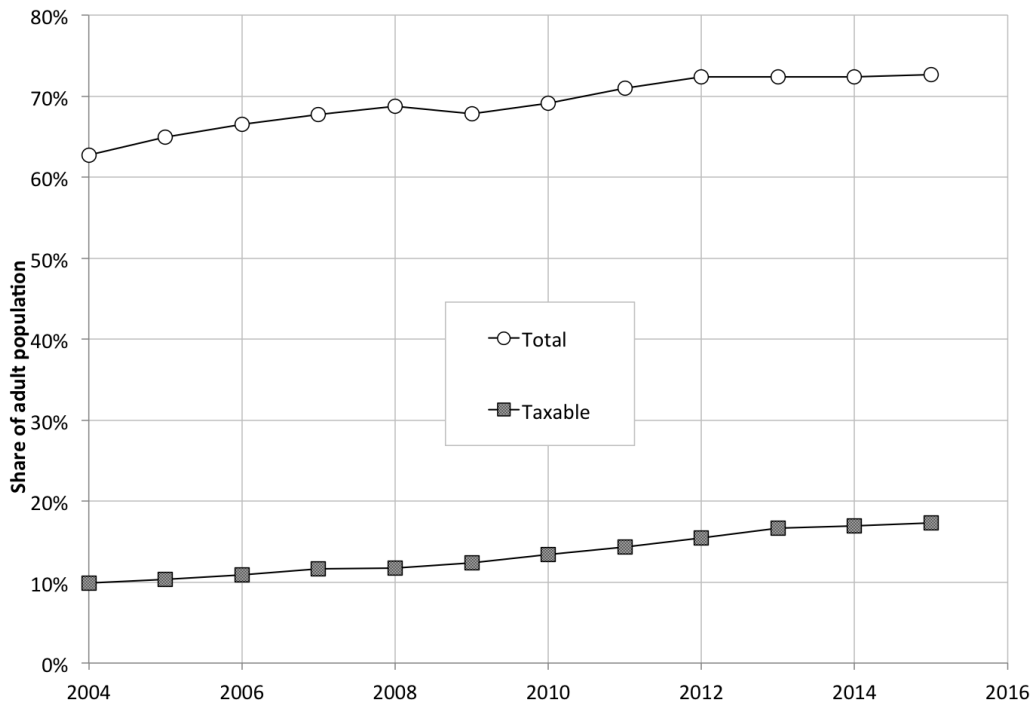
Source: Average real income based on a combination of National Accounts and Tax data (see Section 2.1.3). CPI based on World Bank data

Figure A.4: Comparison of aggregate income concepts



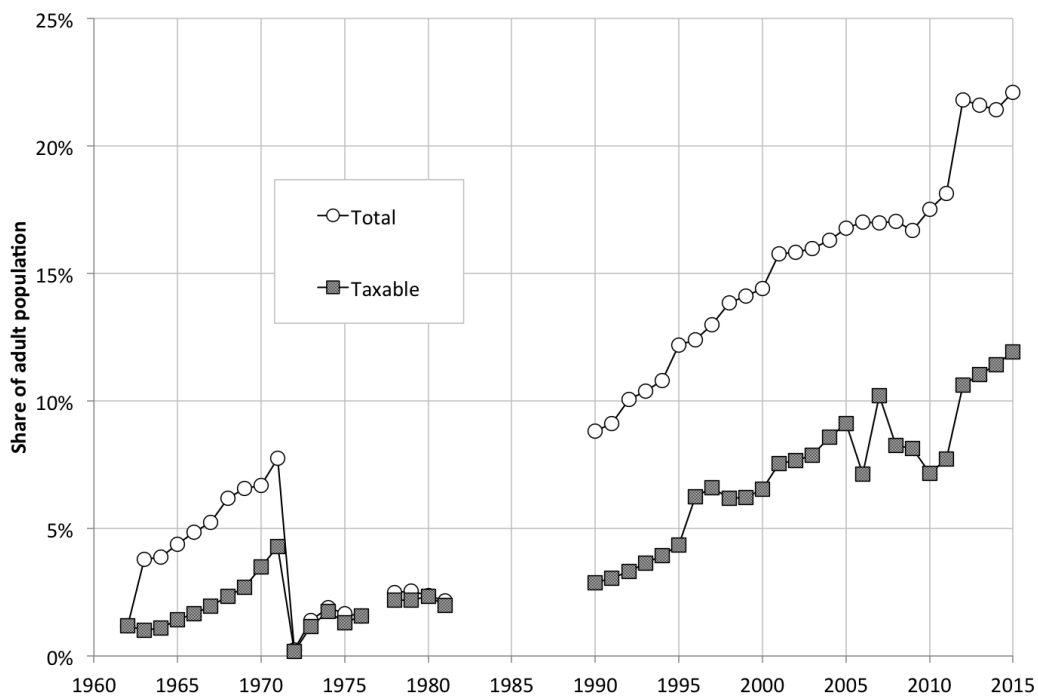
Source: authors' calculations using tax data and national accounts.

Figure A.5: Individual Tax Declarations as a Share of the Adult Population, *Consolidated Series* (2004-2015)



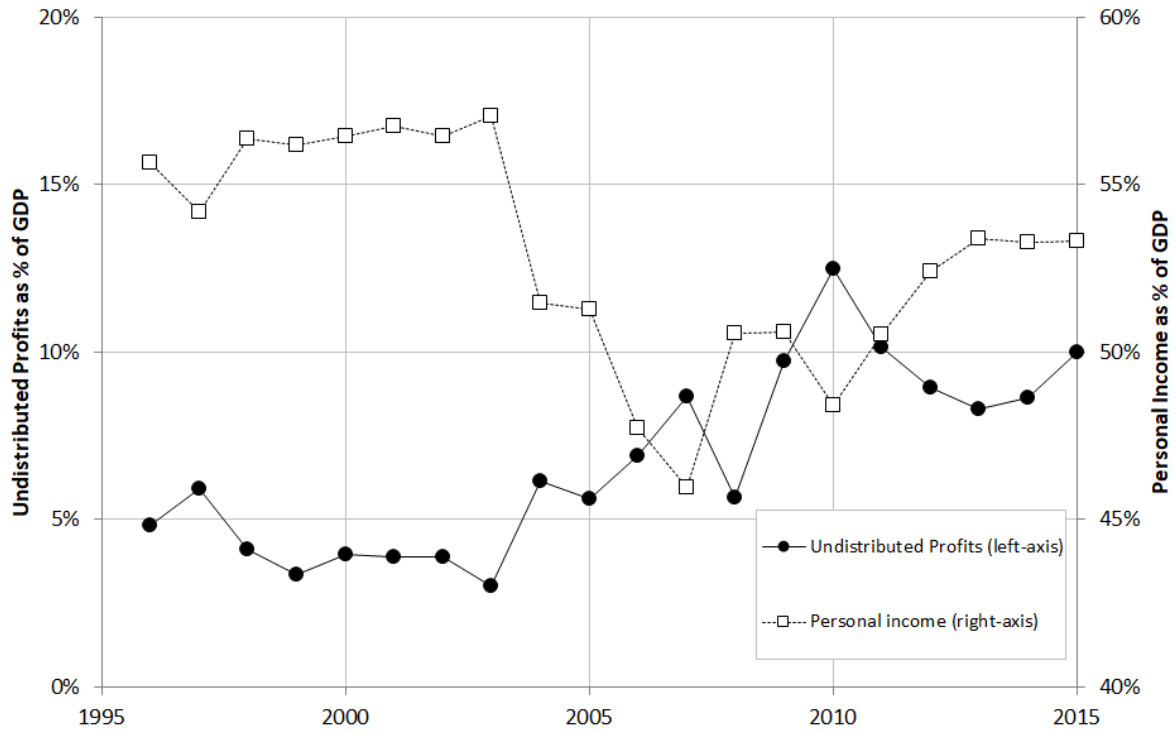
Author's estimates using tax tabulations and population estimates from World Bank. *Taxable* are those declaring income above the minimum taxable threshold. In this series, the 'taxable' population is always above or equal to 10% of the adult population

Figure A.6: Individual Tax Declarations as a Share of the Adult Population, *Global Complementary Series* (1964-2015)



Author's estimates using tax tabulations and population estimates from World Bank. *Taxable* are those declaring income above the minimum taxable threshold.

Figure A.7: Undistributed Profits and Personal Income (1996-2015)



Authors' estimates using National Accounts.

Figure A.8: Real income growth. Top 0.1% in tax data vs. median income in CASEN

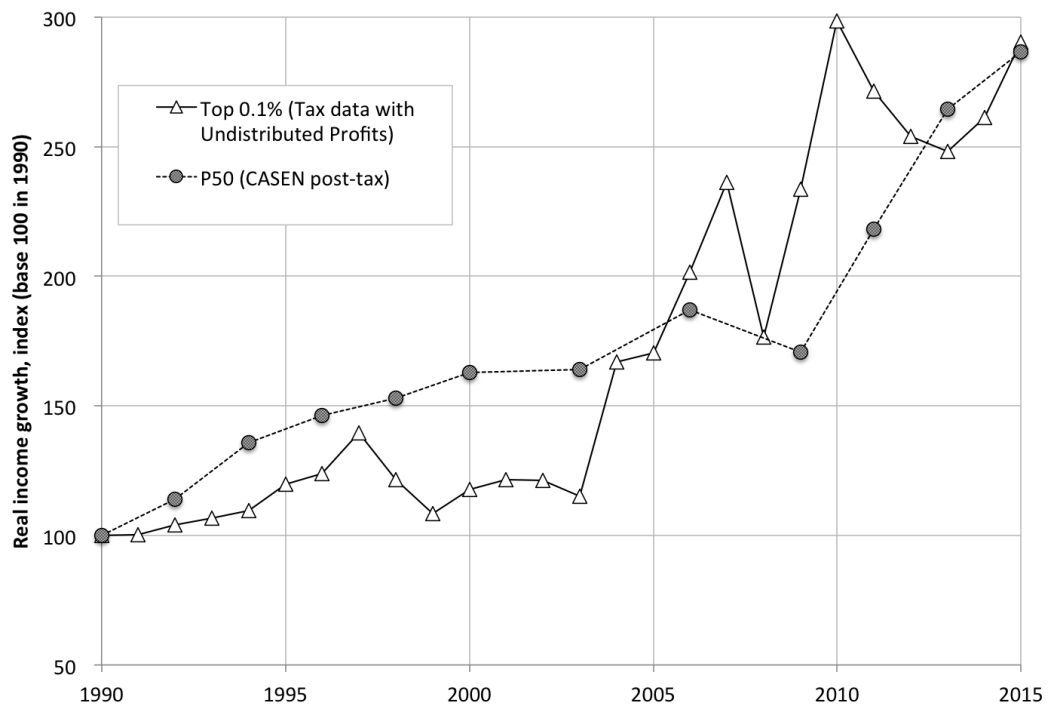
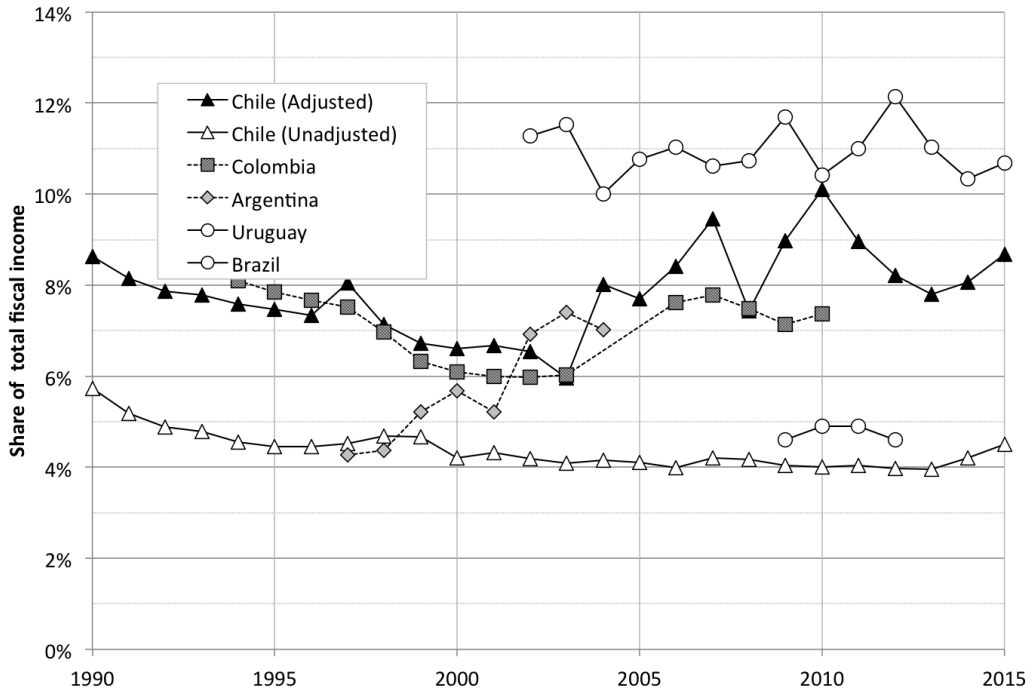
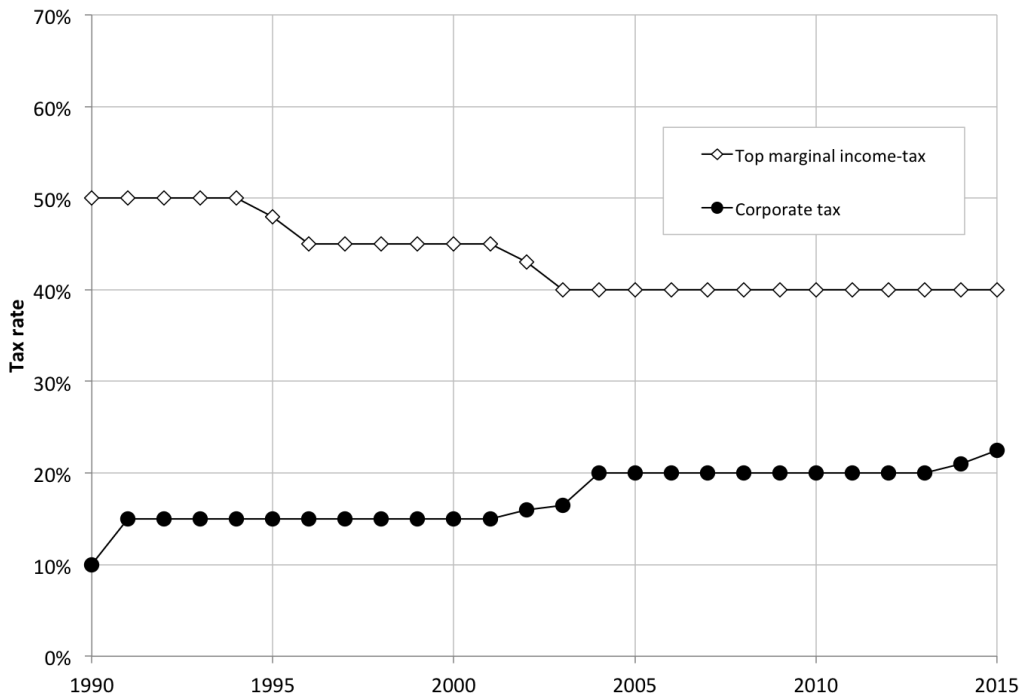


Figure A.9: Top 0.1% Share in Latin America (1990-2015)



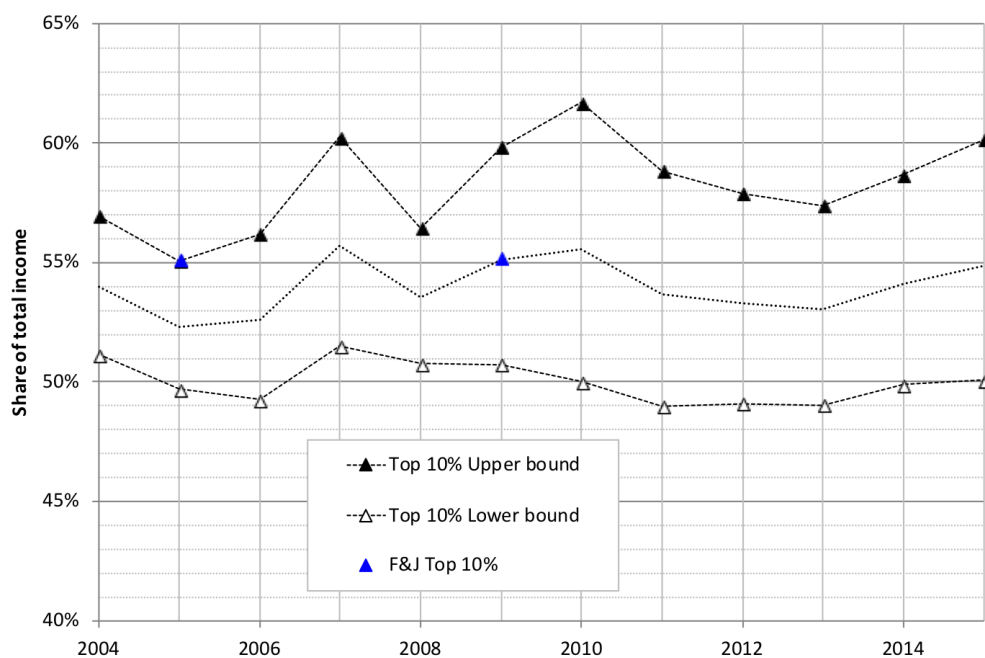
Authors' estimates for Chile, Alvaredo (2010) for Argentina, Morgan (2017) for Brazil, Alvaredo and Londoño-Vélez (2013) for Colombia, and Burdín et al. (2014) for Uruguay.

Figure A.10: Corporate tax rate vs. Top Marginal income tax rate (1990-2015)



Corporate tax refers to the *Impuesto de Primera Categoría*, which is the tax on Capital income. Thus, it is paid primarily but not exclusively by corporations.

Figure A.11: Top 10% with pre-tax undistributed profits, upper and lower bounds (1990-2015)



Source: authors' estimates using tax data, detailed National Accounts (1996-2015) and (Fairfield and Jorratt De Luis, 2016). Note: in each situation, the total value of undistributed profits is imputed to the fiscal income distribution. Upper bounds assume yearly flows of undistributed profits are as concentrated in top groups as is the cumulated stock from 1984 (F.U.T.). Lower bounds assume flows to be two thirds as concentrated as the stock. The dotted line represents a central tendency, which is estimated as a geometric average of upper and lower bounds. In the absence of detailed National Accounts prior to 1996, the amount of undistributed profits in those years is estimated at nearly 4.8% of GDP, which is the estimate for 1996. Estimates from (Fairfield and Jorratt De Luis, 2016) using their definition $Y_{AcrdProf}$ are displayed for comparison.