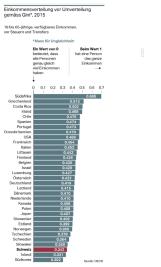


How deductions undermine the redistribution effect of taxes - Research with Swiss tax data

Oliver Hümbelin, BFH Centre for Social Security FORS-SSP Methods and Research Meeting in Lausanne 26th March, 2019 1 Part 1: Economic Inequality in Switzerland. What can we learn from tax data

2 Part 2: Results from a study on redistribution through taxes and deductions with Swiss tax Data

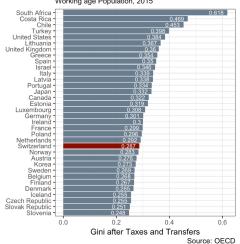
Economic Inequality in Switzerland.



(Source: Sonntagszeitung, 27.Januar 2019)

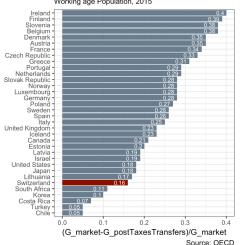
Economic Inequality in Switzerland. Low income Inequality.

Inequality after Taxes and Transfers Working age Population, 2015

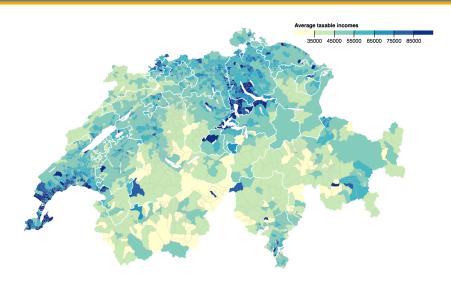


Economic Inequality in Switzerland. Low income Inequality. Little Redistribution.





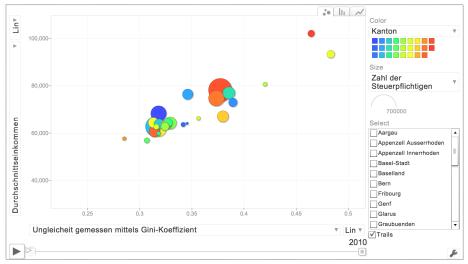
Regional Inequality within Switzerland



 $(Source: \ https://www.knoten-maschen.ch/wohlstandsberge-und-taeler-der-schweiz/)$

Inequality between and within cantons

R version 3.0.0 (2013-04-03) • googleVis-0.4.2 • Google Terms of Use • Data Policy



 $({\sf Source:\ http://inequalities.ch/})$

► Tax data collected by the **federal tax administration**:

- ► Tax data collected by the federal tax administration:
 - Pros:
 - ▶ longest consistent time series for Switzerland (OECD-Data cannot be compared before and after 2008)
 - whole Switzerland, every canton, every municipality

- ► Tax data collected by the federal tax administration:
 - Pros:
 - longest consistent time series for Switzerland (OECD-Data cannot be compared before and after 2008)
 - whole Switzerland, every canton, every municipality
 - ► Cons:
 - ▶ information on non-taxed is not available before 1995/1996
 - tax units not households
 - ▶ little additional information on individuals and households
 - only taxable incomes (incomes after deductions, major part of direct taxes and all means-tested benefits are missing)

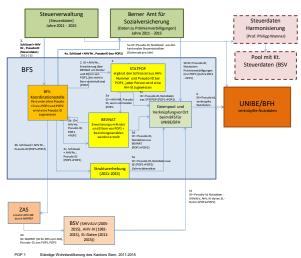
► Tax Data collected by the cantonal tax administration:

- ► Tax Data collected by the cantonal tax administration:
 - Pros:
 - income (possibility to separate deductions), wealth and taxes in great detail
 - ▶ full census, less problem with non-response, non-coverage
 - possibility of spatial analysis (within canton)

- Tax Data collected by the cantonal tax administration:
 - Pros:
 - income (possibility to separate deductions), wealth and taxes in great detail
 - ▶ full census, less problem with non-response, non-coverage
 - possibility of spatial analysis (within canton)
 - Cons:
 - still some components lacking (all means-tested benefits e.g. social assistance)
 - tax subjects, not households
 - ▶ little additional information on individuals and households
 - difficult to obtain from all cantons of Switzerland

- ► Tax Data collected by the cantonal tax administration:
 - Pros:
 - income (possibility to separate deductions), wealth and taxes in great detail
 - ▶ full census, less problem with non-response, non-coverage
 - possibility of spatial analysis (within canton)
 - Cons:
 - still some components lacking (all means-tested benefits e.g. social assistance)
 - tax subjects, not households
 - ▶ little additional information on individuals and households
 - difficult to obtain from all cantons of Switzerland
 - Starting point of an ongoing SNF-project on inequality, poverty and the impact of the welfare state in Switzerland (http://inequalities.ch/)
 - Solution: Data-Linkage

Data-Linkage Modell



POP 2 Eltern und Kinder der Personen der ständigen Wohnbevölkerung,

Part 2: Results from a study on redistribution through taxes and deductions with Swiss tax Data



▶ The OECD (2011, 2015) points out that the recent increase in disposable income inequality is also because of a retreat of governmental redistribution. It is therefore important to fully understand the redistribution mechanics of a welfare state.

- ▶ The OECD (2011, 2015) points out that the recent increase in disposable income inequality is also because of a retreat of governmental redistribution. It is therefore important to fully understand the redistribution mechanics of a welfare state.
- An important element of income inequality reduction are progressive direct taxes. On average 25% of the overall redistribution can be attributed to income taxes (Wang et al. 2014).

- ➤ The OECD (2011, 2015) points out that the recent increase in disposable income inequality is also because of a retreat of governmental redistribution. It is therefore important to fully understand the redistribution mechanics of a welfare state.
- An important element of income inequality reduction are progressive direct taxes. On average 25% of the overall redistribution can be attributed to income taxes (Wang et al. 2014).
- ► Yet many countries also provide options for claiming deductions that alter the redistributive effect of taxes. This latter aspect however is often neglected since data usually only reports on taxes paid.

- ➤ The OECD (2011, 2015) points out that the recent increase in disposable income inequality is also because of a retreat of governmental redistribution. It is therefore important to fully understand the redistribution mechanics of a welfare state.
- An important element of income inequality reduction are progressive direct taxes. On average 25% of the overall redistribution can be attributed to income taxes (Wang et al. 2014).
- Yet many countries also provide options for claiming deductions that alter the redistributive effect of taxes. This latter aspect however is often neglected since data usually only reports on taxes paid.
- By using administrative tax data we are able to evaluate the visible (taxes) and hidden (deductions) instruments of the welfare state with respect to their impact on income inequality.

► Taxes: the degree of redistribution depends on the mean tax rate and the progressivity. According to the OECD, tax rates were lowered in most OECD countries in recent years.

- ► Taxes: the degree of redistribution depends on the mean tax rate and the progressivity. According to the OECD, tax rates were lowered in most OECD countries in recent years.
- ▶ Deductions: comprise amounts that are deductible from taxable income, which accordingly lead to a lower tax rate and tax burden. Some aim to lower hard social circumstances (e.g. child costs) others incentivize certain behaviors (saving for old age). Without data it is difficult to tell the redistributive effect.

- ► Taxes: the degree of redistribution depends on the mean tax rate and the progressivity. According to the OECD, tax rates were lowered in most OECD countries in recent years.
- ▶ Deductions: comprise amounts that are deductible from taxable income, which accordingly lead to a lower tax rate and tax burden. Some aim to lower hard social circumstances (e.g. child costs) others incentivize certain behaviors (saving for old age). Without data it is difficult to tell the redistributive effect.
- ▶ Behavioral aspects: Taxes and deductions induce also behavioral responses that affect pre-tax income distribution (see Bargain et al. (2015)).

- ► Taxes: the degree of redistribution depends on the mean tax rate and the progressivity. According to the OECD, tax rates were lowered in most OECD countries in recent years.
- ▶ Deductions: comprise amounts that are deductible from taxable income, which accordingly lead to a lower tax rate and tax burden. Some aim to lower hard social circumstances (e.g. child costs) others incentivize certain behaviors (saving for old age). Without data it is difficult to tell the redistributive effect.
- ▶ Behavioral aspects: Taxes and deductions induce also behavioral responses that affect pre-tax income distribution (see Bargain et al. (2015)).

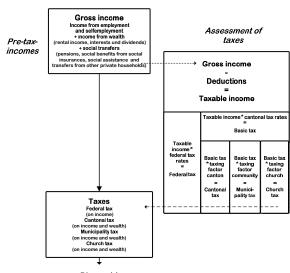
As opposed to many other European countries where the levying of taxes is centralised, the tax system in Switzerland mirrors the historically evolved federal structure, giving a lot of power to the sub-state levels, namely the cantons and municipalities (ESTV, 2013). A total of 26 tax laws exist, with each canton having its own tax law and the municipalities and the federal state also levying taxes.

- As opposed to many other European countries where the levying of taxes is centralised, the tax system in Switzerland mirrors the historically evolved federal structure, giving a lot of power to the sub-state levels, namely the cantons and municipalities (ESTV, 2013). A total of 26 tax laws exist, with each canton having its own tax law and the municipalities and the federal state also levying taxes.
- ▶ We use tax data from a large canton in Switzerland.

- As opposed to many other European countries where the levying of taxes is centralised, the tax system in Switzerland mirrors the historically evolved federal structure, giving a lot of power to the sub-state levels, namely the cantons and municipalities (ESTV, 2013). A total of 26 tax laws exist, with each canton having its own tax law and the municipalities and the federal state also levying taxes.
- We use tax data from a large canton in Switzerland.
- Aargau is the fourth largest canton in Switzerland, with respect to economic inequality, mean income and the tax system it is an average canton, thus its not a special case we are looking at.

- As opposed to many other European countries where the levying of taxes is centralised, the tax system in Switzerland mirrors the historically evolved federal structure, giving a lot of power to the sub-state levels, namely the cantons and municipalities (ESTV, 2013). A total of 26 tax laws exist, with each canton having its own tax law and the municipalities and the federal state also levying taxes.
- We use tax data from a large canton in Switzerland.
- Aargau is the fourth largest canton in Switzerland, with respect to economic inequality, mean income and the tax system it is an average canton, thus its not a special case we are looking at.
- ➤ We have two time points: 2001 (283'580 tax units) and 2011 (327'047 tax units) and thus we are able to compare changes over time

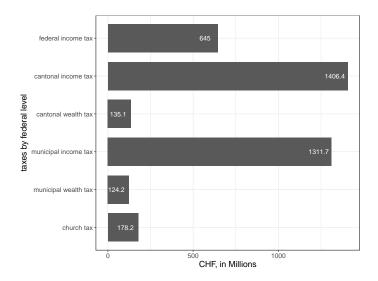
The Assesment of taxes



Post-taxincome Disposable income

(Gross income - taxes)
Income Redistribution through taxation

Overview on taxes under scrutiny

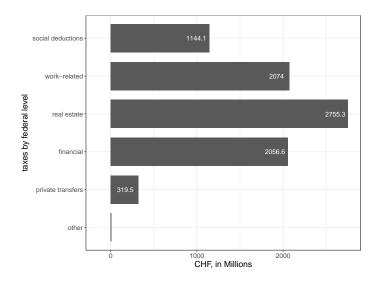


Overview on deductions under scrutiny

Table A.4: Assignment of deductions to main categories and Limits

A Social deductions	Limits
A1 Second earner deduction	600 CHF
A2 Special deductions for second earners when assisting in own business	600 CHF
A3 Costs of illness or disability	No limit
A4 Child deductions	6400-11000 CHF per child
	depending on age and year
A5 Deductions for supported persons	2400 CHF per person
A6 Invalidity deduction	3000 CHF
A7 Deductions for child care	3000 CHF
A8 Deductions for paid out life annuities	40%
B Work-related expenses	
B1 Miscellaneous work expenses	Multiple smaller limits for e.g.
individual/spouse	foreign meals, bus/train
	tickets,etc.
B2 Child care necessary for job	6000 CHF per child
C Real estate and interest costs	
C1 Property expenses	10-20% of rental income or
	effective costs of
	value-preserving expenses
C2 Debt interest	Limited to income from assets
	over 50000 CHF
D Deductions related to assets and insurance	
D1 Cost of asset management	No limit
D2 Buying into obligatory pension scheme (Pillar 2), individual/spouse	No limit
D3 Contribution to voluntary pension	~6000 - ~34000 CHF
scheme (Pillar 3a)	depending on year and
	employment status
D4 Personal premiums to social security (OASI/DI)	No limit
D5 Insurance cost and interest of savings	2000 CHF (singles)
capital	/4000CHF(married)
E Alimonies and charity (transfers)	
E1 Alimonies to spouse	No limit
E2 Alimonies to children	No limit
E3 Party donations	1100 CHF
E4 Voluntary contributions	20% of net income
F Other deductions	No limit; Apprentice training
	in private household

Overview on deductions under scrutiny



Decomposition of redistribution effects

 Reynolds & Smolensky (1977) concept of measuring redistribution

 Reynolds & Smolensky (1977) concept of measuring redistribution

$$RS = G_{x} - G_{x-t} \tag{1}$$

 Reynolds & Smolensky (1977) concept of measuring redistribution

$$RS = G_{X} - G_{X-t} \tag{1}$$

► The overall effect differentiates the effect into an effect of progression/Kakwani-Index (Kakwani, 1977), average tax burden and an effect of reranking (Wang et al., 2014)

 Reynolds & Smolensky (1977) concept of measuring redistribution

$$RS = G_{x} - G_{x-t} \tag{1}$$

► The overall effect differentiates the effect into an effect of progression/Kakwani-Index (Kakwani, 1977), average tax burden and an effect of reranking (Wang et al., 2014)

$$RS = G_{x} - G_{x-t_{i}} = K_{i} * \frac{t_{i}}{1-t_{i}} - RR_{i}$$
 (2)

 Reynolds & Smolensky (1977) concept of measuring redistribution

$$RS = G_{x} - G_{x-t} \tag{1}$$

► The overall effect differentiates the effect into an effect of progression/Kakwani-Index (Kakwani, 1977), average tax burden and an effect of reranking (Wang et al., 2014)

$$RS = G_{x} - G_{x-t_{i}} = K_{i} * \frac{t_{i}}{1-t_{i}} - RR_{i}$$
 (2)

▶ (1) Identify effect of taxes

 Reynolds & Smolensky (1977) concept of measuring redistribution

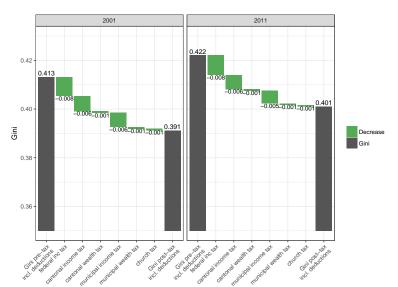
$$RS = G_{X} - G_{X-t} \tag{1}$$

► The overall effect differentiates the effect into an effect of progression/Kakwani-Index (Kakwani, 1977), average tax burden and an effect of reranking (Wang et al., 2014)

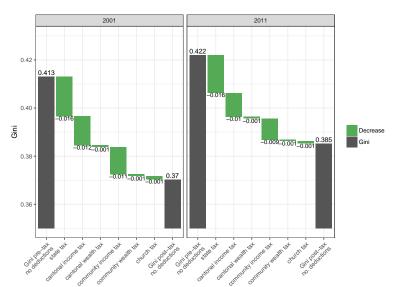
$$RS = G_{x} - G_{x-t_{i}} = K_{i} * \frac{t_{i}}{1-t_{i}} - RR_{i}$$
 (2)

- ▶ (1) Identify effect of taxes
- (2) To identify the effect of deductions a post tax income distribution without any deductions was created (G_z) . The effect of every single deduction (u_i) was identified by comparing post tax income distributions applying deduction i (G_{u_i}) to G_z .

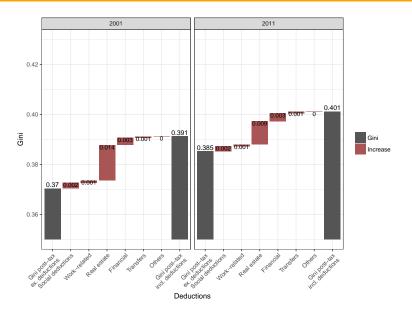
Results: Partial redistributive effect of taxes (incl. deductions)



Results: Partial redistributive effect of taxes (no deductions)



Results: Partial redistributive effect of deductions



While most studies focus on direct taxes paid, this paper expands the perspective by providing insight into the mitigating effect of the often hidden part of the fiscal welfare state; deductions.

- While most studies focus on direct taxes paid, this paper expands the perspective by providing insight into the mitigating effect of the often hidden part of the fiscal welfare state; deductions.
- Our administrative data based study showed however that deductions mitigate the redistributive effect of taxes drastically (by nearly 50%).

- While most studies focus on direct taxes paid, this paper expands the perspective by providing insight into the mitigating effect of the often hidden part of the fiscal welfare state; deductions.
- Our administrative data based study showed however that deductions mitigate the redistributive effect of taxes drastically (by nearly 50%).
- ▶ Put simply, high income earners profit greatly from deductions.

- While most studies focus on direct taxes paid, this paper expands the perspective by providing insight into the mitigating effect of the often hidden part of the fiscal welfare state; deductions.
- Our administrative data based study showed however that deductions mitigate the redistributive effect of taxes drastically (by nearly 50%).
- ▶ Put simply, high income earners profit greatly from deductions.
 - While a lot of deductions were created to reduce taxes to ease the consequences of difficult social or work-related circumstances (such as the deduction for children or deductions for commuters) they are nevertheless open to everyone. In a progressive tax system however, the resulting relative tax relief for high income earners is higher.

- While most studies focus on direct taxes paid, this paper expands the perspective by providing insight into the mitigating effect of the often hidden part of the fiscal welfare state; deductions.
- Our administrative data based study showed however that deductions mitigate the redistributive effect of taxes drastically (by nearly 50%).
- ▶ Put simply, high income earners profit greatly from deductions.
 - While a lot of deductions were created to reduce taxes to ease the consequences of difficult social or work-related circumstances (such as the deduction for children or deductions for commuters) they are nevertheless open to everyone. In a progressive tax system however, the resulting relative tax relief for high income earners is higher.
 - High income earners have additional options to claim deductions like costs related to homeownership or shifting money to the pension system.

- While most studies focus on direct taxes paid, this paper expands the perspective by providing insight into the mitigating effect of the often hidden part of the fiscal welfare state; deductions.
- Our administrative data based study showed however that deductions mitigate the redistributive effect of taxes drastically (by nearly 50%).
- ▶ Put simply, high income earners profit greatly from deductions.
 - While a lot of deductions were created to reduce taxes to ease the consequences of difficult social or work-related circumstances (such as the deduction for children or deductions for commuters) they are nevertheless open to everyone. In a progressive tax system however, the resulting relative tax relief for high income earners is higher.
 - High income earners have additional options to claim deductions like costs related to homeownership or shifting money to the pension system.

Thank you for your attention!

Bibliography

Bargain, O., Dolls, M., Immervoll, H., Neumann, D., Peichl, A., Pestel, N., & Siegloch, S. (2015). Tax Policy and Income Inequality in the United States, 1979-2007. Economic Inquiry, 53(2), 1061-1085.

ESTV (2013). Das schweizerische Steuersystem. Bern: Eidgenössische Steuerverwaltung.

Kakwani, N. C. (1977). Measurement of Tax Progressivity: An International Comparison. The Economic Journal, 87(345), 71-80.

OECD (2008). Growing Unequal? Income Distribution and Poverty in OECD Countries. Paris: OECD Publishing.

OECD (2011). Divided We Stand. Why Inequality Keeps Rising. OECD Publishing.

OECD (2015). In It Together: Why Less Inequality Benefits All. Paris: OECD Publishing.

Reynolds, M., & Smolensky, E. (1977). Post-fisc distributions of income in 1950, 1961, and 1970. Public Finance Review, 5(4), 419-438.

Wang, C., Caminada, K., & Goudswaard, K. (2014). Income redistribution in 20 countries over time. International Journal of Social Welfare, 23(3), 262-275.