Assessing inequality with tax data - Switzerland from 1945 to 2010

OLIVER HÜMBELIN

Bern University of Applied Sciences
oliver.huembelin@bfh.ch

RUDOLF FARYS

University of Bern
rudolf.farys@soz.unibe.ch

Abstract

There is empirical evidence that economic inequality increased in the majority of western countries over the last decades (OECD, 2011; Gornick and Jäntti, 2013). In Switzerland, however, the development is unclear, as there is only little systematic evidence that would allow for long-term comparison. Nevertheless income inequality has been a prominent theme in the public discussion in recent years, e.g. the most recent referendums "Abzockerinitiative" and "1:12-Initiative". We adress the gap by presenting a long and consistent time series of inequality measures for income and wealth for Switzerland (1943-2010) calculated from federal tax data. We describe the benefits and shortcomings of tax data compared to other data sources and present strategies to handle tax data specific methodological difficulties. In the end we integrate the case of Switzerland into the international picture of inequality development showing parallels and deviations.

I. INTRODUCTION

Bedeutung von ökonomischer Ungleicheit

Studien zur allgemeinen Entwicklung der Ungleichheit nach unterschiedliche Paradigmen(Armut, Reiche, Mittelschicht) [Concerns about the hollowing of the middle class is a argument why the tax studies should be exploited to gain knowledge about the whole distribution of economic resources. Until these days tax data is only used to assess the change in top income shares.]

- Development of inequality with LIS Data (Gornick and Jäntti 2013)

- ranking of inequality across high-income countries (Atkinson, Rainwater and Smeeding (1995)

- inequality and low income/relative poverty (Ferreira and Ravallion, 2009; Nolan and Marx, 2009; Smeeding, O'Higgins and Rainwatter, 1990; Rainwater and Smeeding 2003; Förster and Vlemickx, 2004)

- inequality and top income (Atkinson and Piketty, 2007; Leigh, 2009)

- inequality and the middle class (Estache and Leipziger, 2009; Littrell et al., 2001; Birdsall, 2010; Ravallion, 2010; Frank,2007)

Studien mit Steuerdaten

- Old studies with tax data (Vilfredo Pareto, 1895, 1896; Simon Kuznets, 1953)

- More recently revival of tax-studys with focus on top income (Piketty and Saez, 2003; Atkinson and Piketty, 2007,2010).

Official Data Collection

- LIS (1982-2004, Survey Data from Swiss Federal Statistical Office three different surveys (recent years from "income and Consumption Survey, main result; decreasing inequality)

- OECD (2000 und 2004, Income and consumption survey, 2008, EU-SILC. The change of survey in 2008 is consdered as a strict break. Comparison over time not possible (OECD 2012:315)

- Worldbank: Nothing

- Federal Office of statistics (1998-2011, HABE, survey data, very detailed measurement, main result; inequality in post transfer income is constant)

- World income inequality Database (WIID) is more or less the same data as it is published in the LIS data

Fazit:LIS longest time series, comparability is questionable, more recent years time series from Federal Office of statistics. Both studies use survey data, which, as we will discuss later, have certain drawbacks.

Studies on Switzerland
Vgl. Forschungsantrag (kürzen) plus neuere Studien, Verteilungsbericht 2011 und 2012 (SGB), Avenir Suisse (2013) und Gorgas and Schaltenegger (2011) und Foellmi and Martinez (2013).

The purpose of the following paper is threefold. First of all, information about economic inequality in Switzerland is sparse. We fill this gap with official data from the Swiss Federal Tax Administration (FTA). Second, we assess the suitability of the FTA data to report inequality and its changes over time. Third, we integrate the development of swiss inequality into the international picture. We can show similarities and differences to the worldwide trends and therefore contribute to the classical theories ([1], [2]).

II. Measurement concepts, Data and Methods

To discuss the suitability of a specific data source it is crucial to have an idea about an ideal measure. Based on a review on the literature about the measurment concepts in an ideal world, we discuss briefly the advantages and shortcomings of tax data compared to other data sources - namly survey data. Afterwards we discribe the tax data published by the Swiss Federal Tax Administration highligthing the important aspects, which have to be considered working wiht FTA-Data. In the last section, we describe the methods and corrections we used to construct the time-series of inequality-measure for income an wealth for switzerland.

I. Standards for measuring economic resources and inequality

Concepts on measuring economic resources
Economic resources are ideally conceptualized with measures for income, wealth and consumption together.

Defining income

- Market income refers to revenue from employment.

- primary income or pre-transfer income refers to market income plus revenue from property (capital income)

- Brutto income refers to primary income plus social transfer

- Disposable income or posttransfer income refers to brutto income minus transfer paid

- adjusted disposable income refers to disposable income corrected for the numbers of household members

The appropriateness of the income concept is bound to the research interest. Studies focusing on labor market outcome look at market income. Studies focusing on human wellbeing

follow the approach as propagated by the oecd (2013). This concept is largely implemented by the Federal Office of statistics. Following this concept one should look at income after taxes and transfers inclusive the adjustment for household members, because this is the measure which frames the consumption possibilities. Lastly, studies focusing on the effect of institutions (social welfare, taxation) compare the distribution of pre- and post-income measures.

Population Coverage
All Residents? Working Residents? Single Person vs household/family. Households without income
see for details: OCED Framework for Statistics on the Distribution of Houshold income, consumption and wealth (2013)

Measuring inequality and concentration
To be able to make qualifying statements about a distribution or to compare different distributions, the concept of inequality turned out to be the most appropriate and thus the most commonly used dimension. Vgl. Allison (1978), Engelhardt (2000), Cowell (2000) oder Hao/Naiman (2010)

neuere Indikatoren; Polaritätsindex: relative distribution methods in the Social Sciences (Handcock/Morris 1999)

Gini is mainly used for international comparison. However, other measures are often reported along (gini is more sensitive to changes in the middle of the distribution than to changes in the tails (OECD, 2008:37). Newer branches of inequality studies emphasize the need for broader measures of inequality, which allow better analyses about the change of inequality and namely statements about the area of change (downgrading/upgrading) (Alderson and Doran 2013).

Alvaredo (2010) shows formally, how top incomes shares are related to the gini-coefficient. Following his argument, it is crucial to consider top incomes. Leigh (2007) also analyzed the relationship between the Gini (and further inequality measures) and top income shares in a panel of 13 countries (Switzerland is part of the studie).

II. Comparison of tax data and other data sources - advantages and shortcomings

Summary of tax data drawbacks

- Misreporting of incomes (high earners have an interest in getting tax beneficial "income" see above)

- with aggregated data the adjustment for household members is not possible (no equivalization possible). This is a point, which is hardly mentioned in the "top-income" literature, albeit it is a crucial issue in "theorized" concepts of income. To generalize one can say, that the concept of tax units (individuals and couples + no direct information about household members at least not in the aggregated tax tables) is not congruent with the concept of household. This might influence the overall inequality, taking into account the change from traditional household and family structures over the last century. This is an inequality related issue, where relevant studies are missing. What are the assumptions?

- the tax data income definition summarize labor income, capital income and taxable transfer payments (no means-tested benefits as welfare aid). Distinction between the different income sources is not possible, albeit the mechanisms of changes in the specific distribution can be very different.

- Some tax units are not included in the tax tables (see Foellmi and Martinez 2013:11f).(a) only taxed cases are included (partly a problem, for certain periodes we know how many cases are excluded because of low or none income) - (b) cases tax at source (Quel-

lenbesteuerung). Foreign nationals living in Switzerland but with a yearly or any other temporary resident permit only. In some border-cantons the share of this group is very high (20%) (c) staff of international organizations based in Switzerland - (d) non-fillers show up in the tables as long as they are registred. This persons get an imputed income (older tax tax return and information given by employers. Not registered non- fillers are not in the records. - (e) tax evasion. Feld and Frey (2007) report about tax evasion in Switzerland, it should be somewhat above 20 percent on average. With the (strong) assumption that the pattern of tax evasion over time is stable, this is a minor problem for inequaly measures over time.

Problems with household income surveys

- Sample data (bias)

- comparability between countries and over time (depends on income definition)

- short time series

Atkinson et al. (2009) estimate that CPS survey data fail to capture about half of the overall increase in inequality measured by the Gini coefficient, a result confirmed by Alvaredo (2010).

See for other countries: Siminski et al 2003 (Australia), Brewer et al 2008, UK, Burkhauser et al. 2009, US) The discussion about problems with reporting income is fairly exhaustive. What about wealth?

III. Tax data published by the Swiss Federal Tax Administration

- Datengrundlage: 1947/48 bis 1981/1982 Eidg. Wehrsteuer. 1983/1984 bis 2010 direkte Bundessteuer. Zugänglich über estv.admin.ch

- Special feature Switch from bi-annual taxation to standard annual tax-system (1995/1996 bis 2003)

- Tabulation by size of income and statistical measures from individual tax records (Brülhart-Daten)

- Income after deductions-¿ taxable income (employment income, business income and capital income). Is income definition stable over time? Yes it should. Realized capital gains are excluded from the definition. It includes income from employment, self-employment, capital income and taxable transfer payments. Plus Eigenmietwert,

- Reported on national and cantonal level

IV. Ways to tackle FTA-tax data specific problems

Incomplete coverage of the population (left censored data.) What can be done about the not-taxed? Del et al. (2007) impute for non-fillers the 20 percentage of the annual average income. This flattens the distribution on the left side, which is not a problem if you are interested in the top income shares, but it would surly affect overall measures of inequality. Furthermore Del et al. calculate the proportion of non-fillers by estimating the total of tax units out of the population records.

changes in taxation system (switch from annual to biannual taxation) In the mid-1990s a fundamental change in the Swiss tax system took place by switching form the two-years based praenumerando taxation to the one-year based postnumerando taxation. This change was enacted with a transitional period of several years, during which each canton could choose when to adopt the new system. This is why during the transitional period from 1995 to 2003 there is no uniform tax data published on the Swiss level but only data on the cantonal level (Foellmi and Martinez:8f).

Estimating percentiles from bracket income tabulation Pareto interpolation

Missing of mean-tested benefits as part of the income -¿ imputation with recommendation for minimum level for basic needs defined by the SKOS.

deductions Del et al. (2007:477):" we can check with statistics for 1971-72 (as well as later years) presented both by size of income before deductions and income after deductions that adding back deductions does not introduce any significant error in our estimates." Gorgas and Schaltenegger (2011:5): ""..., information on [...] deductions is provided in the tax statistics, thus, we could add the personal deductions to the income data to obtain a consistent series over time. Können wir das auch? Zumindest für gewisse Zeiträume? Das wäre noch gut.

Studies on income try to focus on the disposable income, which subtracts certain expenditures from the primary income. Deductions reflect somehow compulsory expenditures and thus taxable income can be seen as a sort of pseudo disposable income. On the other hand deductions can affect the distribution.

There are recent studies about the correlation of progressivity and deductions in Switzerland, which examines if deductions have a "perverse redistribution" effect by redistributing income from the lower middle class to the upper middle class (vgl. Peters 2011 and Interpellation Barbara Gysel (2009).

III. Results

Gesamtschweizer Grafik (mit imputierten Daten) einmal eine Linie mit Bias, einmal ohne Kantonsweise Grafiken Kuznets / U-Turn, Test der Hypothesen mit den final Daten. Der link zwischen rein deskriptiv und Theorie plus Modell ist aktuell noch ein krasser Drahtseilakt...

IV. Discussion

V. Acknowledgements

References

[1] Simon Kuznets. Economic growth and income inequality. *The American Economic Review*, 45(1):1–28, 1955.

[2] Francois Nielsen and Arthur S. Alderson. The kuznets curve and the great u-turn: Income inequality in U.S. counties, 1970 to 1990. *American Sociological Review*, 62(1):12, February 1997.

VI. Appendix