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FSO News

20 Economic and social situation of the population

Neuchâtel, September 2017

Results from 2006 to 2014

Comparison of trend and inequality in income and consumption

In Switzerland the level of consumption remained relatively stable overall between 2006 and 2014. A positive income trend was reflected in higher consumption expenditure among the lowest income quintile while the highest income groups showed proportionally higher savings.

Since 2007 the Federal Statistical Office (FSO) has regularly published analyses on material inequality. These have previously focused in particular on the distribution of the income available to households and on the government redistribution of income.[1] Income as a resource describes households' potential capacity to afford goods and services.

> "Consumption is a suitable indicator of a household's actual standard of living, while income tends to measure the theoretical ability to attain a certain standard of living."

In international poverty and inequality research, focus has long been placed on the necessity of also taking into consideration consumption inequality as a measure of economic well-being.[2] Firstly, because consumption is less influenced by temporary variations in income, in certain cases it is more suitable for analyses on inequalities between various population groups: "Students, for example, may be income-poor but not consumption-poor, as they are able to borrow against expected future earnings and are often supported by their family" (OECD, 2008, p. 298). Consumption by private households is therefore a better reflection of *long-term resources* than income. Studies show that rational individuals smooth their consumption, adapting it to the average income they expect to receive over a longer period of time.[3]

Secondly, according to the studies mentioned, consumption is a suitable indicator of current living standards or a household's actual standard of living while income tends to measure its theoretical disposable income. Two households with different disposable incomes may have, for example, a similar level of consumption, if one saves while the other gets into debt (see Fiedler & Fuchs-Schündeln, 2011). Consumption shows what income is spent on and the material opportunities that are actually realised thanks to the income.

How has the consumer budget changed in the past ten years in comparison with income? Is consumption expenditure inequality less than income inequality? How have these inequalities changed in comparison to one another and how can these changes be explained? The present report examines changes and inequalities in consumption expenditure among the Swiss population and compares them with changes and inequalities in income.

[1] The latest results and publications (FSO, 2015) can be found on the FSO website: www.statistics.admin.ch → Look for statistics → Economic and social situation of the population → Social situation, well-being and poverty → Inequality of income distribution → Redistribution of income through government transfers

[2] See UNECE, OECD (2013) and Stiglitz et al. (2009, p. 114), and Fisher et al. (2015, p. 631), Meyer & Sullivan (2013), Fiedler & Fuchs-Schündeln (2011).

[3] See Fisher et al. (2015, p. 635), Meyer & Sullivan (2013), Fiedler & Fuchs-Schündeln (2011).

Disposable income and consumption

The presented results are based on data from the FSO's Household Budget Survey (HBS) (see "Data source and samples" at the end of the report). The HBS is based on methodological principles and definitions that are guided by international directives[4].

"Disposable income is the income that the household has left over for consumption or any savings."

The present report will analyse income inequality based on disposable income. This is calculated by subtracting compulsory expenditure from the highest amount a household receives every month, i. e. its gross income[5]. This comprises expenses such as social insurance contributions (OASI contributions, occupational pension plans, etc.), taxes, health insurance premiums (basic insurance) and monetary transfer expenditure to other households (e. g. alimony). In other words, the disposable income is the income left over for consumption or any savings.

The delimitation of consumption expenditure is somewhat more complex. In terms of the structure of consumption expenditure, the HBS is based on the COICOP classification[6] of individual consumption by purpose. This classification developed by the UN's statistical department divides consumption into twelve main categories (see box). These have been applied in the present statistics. Some of the empirical challenges related to measuring this consumption expenditure are described hereafter.

Main categories of consumption expenditure

1. Food and non-alcoholic beverages
2. Alcoholic beverages and tobacco
3. Clothing and footwear
4. Housing and energy
5. Furnishings, household equipment and routine household maintenance
6. Health
7. Transport
8. Communication
9. Entertainment, recreation and culture
10. Hotels and restaurants
11. Schooling and educational fees
12. Other goods and services

Consideration of certain expenditure categories

There is generally no consensus in the literature as to which consumer items and goods should count as consumption expenditure. According to Gradín et al. (2008, p. 177), following the World Bank (2000) consumption is ideally defined as the sum of expenditure on current purchases plus the value of self-consumed goods (self-produced or not), the service flows of the expenditure on consumer durables and the imputation value of owner-occupied housing[7].

In practice, this very comprehensive definition poses several problems. The greatest challenge involves correctly including consumer durables as the information on these is insufficient in most surveys and the service flows of these goods cannot be calculated. In the HBS, in accordance with the revised concept from 2006 larger expenditure on goods and services is recorded over a longer period (12 months for vehicles, 6 months for larger expenses such as travel, furnishings, home electronics, jewellery, etc.) and converted into a monthly average, allowing a realistic value to be included for these purchases. Instead of an estimated service flow, the present analysis draws on these values. As the distribution of consumption following this revised concept cannot be compared with that of previous years, the results are only shown from 2006 onwards in the report.

Private consumption expenditure does not contain any expenditure on the sale of land and buildings. To date imputed rent[8] has also not been considered in the HBS but approximated through effective housing costs[9]. Given the comparatively high share of households living in rented accommodation[10], the integration of imputed rent in Switzerland is less imperative than in its neighbouring countries.

There is also no consensus for non-durable consumer goods in terms of the exact components they should include. For example, this report considers education and health expenditure because education is largely financed by the state in Switzerland and private households only need to cover modest fees[11] that should be considered as consumption expenditure rather than investments (see Brewer, 2012). The same applies to health expenditure to a lesser extent[12].

4 E. g. The Canberra Group Handbook (2011) for the income concept.

5 See glossary; a graphic overview of the various income and expenditure components *at household level* can be found on the FSO website: www.statistics.admin.ch → Look for statistics → Economic and social situation of the population → Income, consumption and wealth → Household income and expenditure

6 COICOP: Classification of Individual Consumption by Purpose, for details see FSO (2013) or https://unstats.un.org/unsd/cr/registry/regct.asp

7 In order to take into account the financial advantages of owner-occupied residential property or rental property with house rent below the standard market price, an "imputed rent" is calculated in many surveys that corresponds to the property's use value minus the effective housing costs.

8 See previous footnote.

9 In addition to the net rent or mortgage interest, housing costs include various utilities and expenditure on energy and minor repairs, both for any main place of residence and any other secondary places of residence, whereby the latter only concerns just over 5% of households. Mortgage payments and any major renovation and extension works to the place of residence are not counted here but are considered as investments in accordance with international standards. For details see FSO (2013, p. 28 et seqq.).

10 In Switzerland the share of households living in rented accommodation during the period under observation (2006 – 2014) was around 60% according to the HBS (see www.statistics.admin.ch → Look for statistics → Economic and social situation of the population → Income, consumption and wealth).

11 Except for expenditure on private schools which is estimated to be less than 3% of households in the HBS.

12 Compulsory healthcare insurance premiums are recorded under compulsory expenditure and are not considered as consumption expenditure.

The estimated value of consumption of self-produced goods (exclusively food and beverages) for one's own consumption is recorded in the HBS and considered as a consumer expense. Presents and invitations received from other households are also considered in the calculation of consumption expenditure.

> "The analysis considers consumption as the sum of all effective consumer expenditure including the value of one's own consumption of self-produced goods within the specified time frame."

In summary, this analysis takes a pragmatic approach that considers consumption as the sum of all effective consumption expenditure including the value of one's own consumption of self-produced goods within the specified time frame. Inequalities are described using the most common measures of inequality, the quintile share ratio S80/S20 and the Gini coefficient. All analyses are equivalence weighted (see glossary) and compiled at personal level.

Trend in disposable income and consumption expenditure

In 2014, the median monthly disposable equivalised income in the total population was CHF 4069, i. e. half of the Swiss resident population have an income greater than this, while the other half have an income lower than this amount. After allowance is made for inflation, it has risen by 14% since 2006. Apart from a slight decline in 2014, a clear increase in income can be seen, particularly in the most recent years observed (see graph G1).

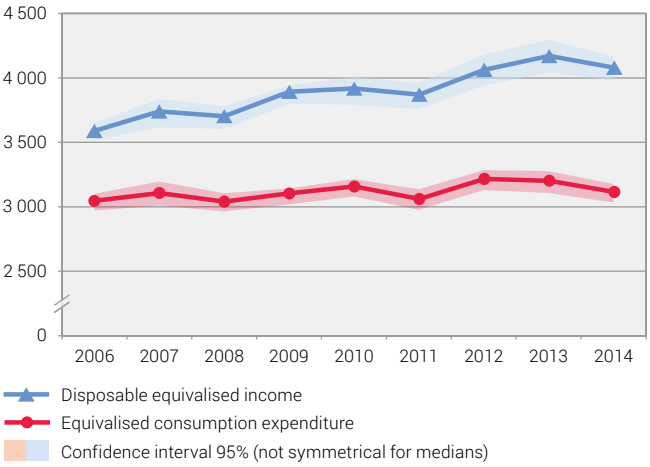
The median monthly consumer budget in the total population was CHF 3109 in 2014 and overall increased to a lesser extent since 2006, namely by 2%. Consumption expenditure has shown a slight tendency to decline in the last two years observed.

Even though both curves follow a similar trend – tending to rise with a minimal decline of the median value in 2008, 2011 and (2013–)2014 – the rise in income was greater than that in consumption expenditure during the period under observation. Accordingly, overall more was left over for saving or investment.[13] In 2014, the median consumer budget was equal to 76% of the median disposable income (2006: 85%). Graph G2 illustrates the slight but continuously growing gap between both curves since 2006. The changes in the median value in comparison with 2006 show similar tendencies for both consumption and income. However, the increase in consumption expenditure is weak and when the accuracy of the estimated changes is taken into consideration, hard to prove. Despite rising incomes expenditure overall is not considerably greater.

The question arises as to whether all income groups benefit equally from this trend. An initial clue is provided by the following inequality measures.

Median disposable income and consumption by persons in private households

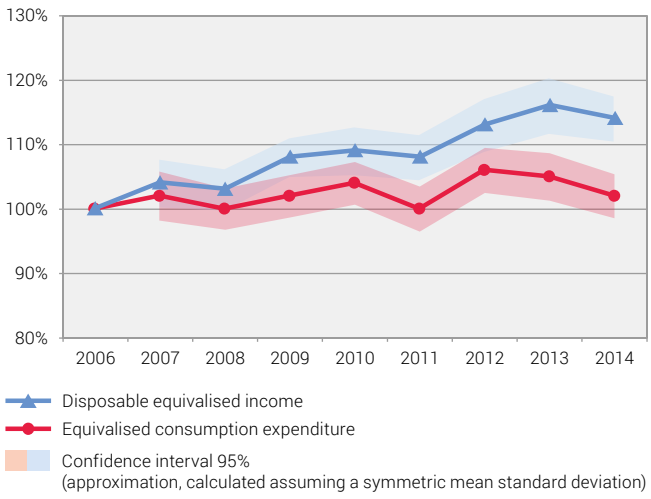
Amount in CHF per month at 2014 prices, without imputed rent; results based on an individual distribution — **G1**



Source: FSO – Household Budget Survey (HBS) © FSO 2017

Change in median income and consumption compared with 2006, in %

Persons living in private households — **G2**



Source: FSO – Household Budget Survey (HBS) © FSO 2017

[13] This also holds true when "other insurances, fees and transfer" are included. Strictly speaking these should be deducted from disposable income; see graphic overview of expenditure components at www.statistics.admin.ch → Look for statistics → Economic and social situation of the population → Income, consumption and wealth → Household income and expenditure

Trend in consumption and income inequality

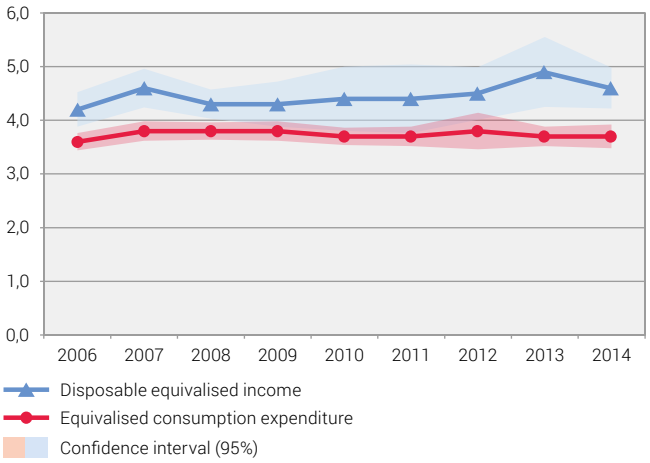
Quintile share ratio S80/S20

All income quintiles[14] have shown an increase in the disposable equivalised income since 2006. In the lowest income quintile, average income was CHF 1899 in 2014, in the upper quintile (the 20% of the population with the highest income) it was CHF 8663 per month. If this amount is divided by the first figure, the result is a quintile share ratio (see insert) of 4.6. In other words the average disposable equivalised income of the 20% of the population with the highest income is 4.6 times higher than that of the 20% with the lowest income.

Quintile share ratio
The S80/S20 ratio compares the proportion of income earnt by the income-richest 20% of the population with that of the poorest 20% (or, in the case of consumer expenditure, the proportion consumed by the 20% of the population consuming the most with the 20% consuming the least). The more this ratio deviates from 1, the more unequal the distribution of incomes or consumer expenditure between these population groups. As the evaluation of the inequality for the quintile share ratio is based on the outer 20% at both ends of the income distribution, it is usually supplemented by further inequality measures which consider the whole distribution of income or consumption (e. g. the Gini coefficient).

The development of the quintile share ratio from 2006 to 2014 (graph G3) shows no substantial change globally considered and taking into account the somewhat wide confidence intervals. Inequality in disposable equivalised income showed a slight tendency to increase between 2006 and 2007 and again since 2009. The decline in 2014 was minor and can only be confirmed by the results of subsequent years. With the exception of a minimal increase in 2007, inequality in consumption expenditure[15] is surprisingly stable. It is generally lower than income inequality. In 2014, the quintile share ratio for consumer expenditure was 3.7. When comparing the development of income and consumption inequality, a slight but steadily widening gap can be observed between the two curves from 2009 to 2013. During this period income inequality has tended to rise slightly more than consumption inequality. The distribution of consumption expenditure has remained largely stable: An increase in income, therefore, does not always mean greater expenditure.

Trends in quintile share ratios (S80/S20) **G3**



The comparison of the income and consumption shares of the upper and lower 20% of the population is based on the mean income and not on the sum; negative income is taken into account in the calculations. Without imputed rent.

Source: FSO – Household Budget Survey (HBS)

Lorenz curve and Gini coefficient

The Lorenz curve illustrates the slightly less equal distribution of disposable income in comparison to consumption expenditure for 2014. The disposable income curve is farther away from the diagonal line of equal distribution than that of consumption expenditure (G4). From the graph it can be seen that the highest income quintile received 38% of the disposable equivalised income in 2014 and that the lowest income quintile received 8.2%. With regard to consumption expenditure the corresponding percentages are 35% and 10% (see also Table T1).

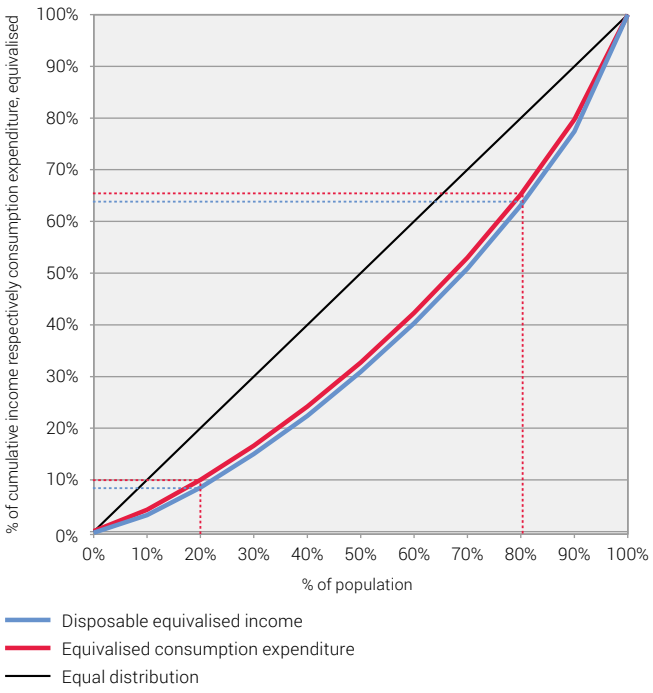
Lorenz curve
The concept of the Lorenz curve correlates the relative cumulative frequencies in the population to the relative cumulative frequencies of their income or consumer expenditure, ranked by size. This makes it possible to show which proportion of the population has which proportion of the total income or consumer budget. The following applies: The greater the inequality in distribution is, the further apart are the Lorenz curve and the diagonal line (equal distribution).

The above findings are largely borne out by the Gini coefficients (see insert). In contrast to the quintile share ratio, which concerns the top and bottom 20% of the distribution, the Gini coefficient looks at the overall distribution of income and consumption expenditure. It also shows values that tend to be higher for disposable income (0.29 in 2014, see graph G5) than for consumption expenditure (0.26) and consequently a comparatively more uneven distribution of disposable income.

[14] See glossary → *Quintile*. People are allocated to an income quartile on the basis of their disposable equivalised income.

[15] The income quintiles do not necessarily coincide with the consumer expenditure quintiles. Only 46% of those with the lowest incomes (1st disposable equivalised income quintile) were also in the 1st consumer expenditure quintile and 56% of those with the highest income (5th quintile) were in the 5th consumer expenditure quintile.

Lorenz curve: Distribution of income and consumption 2014 G4



Source: FSO – Household Budget Survey (HBS) © FSO 2017

Consumption and income shares by decile T1

	Disposable equivalised income	+/–	Equivalised consumption expenditure	+/–
1st decile	2.9	0.4	4.1	0.2
2nd decile	5.3	0.2	5.6	0.2
3rd decile	6.4	0.2	6.7	0.2
4th decile	7.4	0.2	7.5	0.2
5th decile	8.4	0.2	8.5	0.2
6th decile	9.5	0.2	9.5	0.2
7th decile	10.6	0.3	10.7	0.2
8th decile	11.9	0.3	12.2	0.2
9th decile	14.3	0.3	14.3	0.3
10th decile	23.3	1.6	21.1	1.2

Share of each decile in the total income or consumption of the population, in per cent.

Reading example: In the population as a whole, the 10% of people with the highest incomes account for 23.3% of total disposable income.

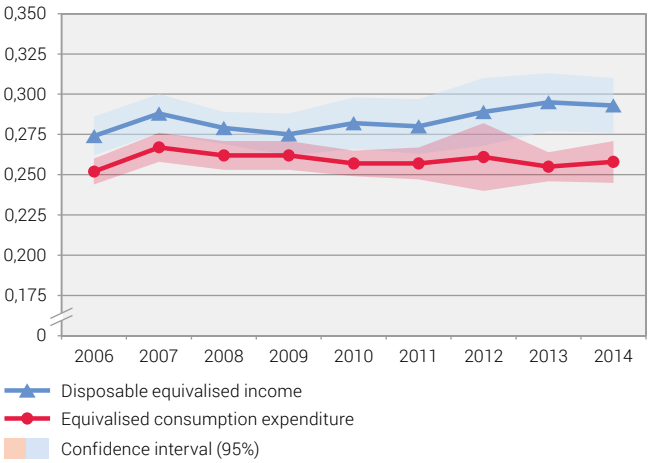
Source: FSO – Household Budget Survey (HBS) © FSO 2017

The Gini coefficients from 2009 to 2013 also tend to show a slightly stronger and continual increase in income inequality compared with consumption inequality. One can assume that the favourable evolution of income in that period among richer income groups led not to higher consumption expenditure but to proportionately more saving, whereas the poorer income groups were able to save relatively little. The next chapter will explore this situation.

Gini coefficient

The Gini coefficient is based on the concept of the Lorenz curve and corresponds to the ratio of the area between the diagonal line and the Lorenz curve to the total area below the diagonal line (triangular area). If every person had the same income or consumer expenditure, the Lorenz curve and the diagonal line would coincide, resulting in a Gini coefficient of 0. If one person had all the income/all the consumption expenditure, the Lorenz curve would coincide with both axes and the Gini coefficient would be 1.

Trends in Gini coefficients G5



Calculations including negative income, excluding imputed rent.

Source: FSO – Household Budget Survey (HBS) © FSO 2017

Trends by income group

Detailed analyses by income group (disposable equivalised income quintile) show that especially in the higher income groups, income grew faster than consumption expenditure (see also graph G6). Between 2006 and 2014 the median income rose in the 3rd to 5th quintiles by 13 – 14% and in the lower income quintiles by 10 – 11%. Over the same period consumption expenditure rose to a lesser extent (by 0 – 4% in the 3rd to 5th quintiles and by roughly 5 – 6% in the lower two quintiles[16]). This trend was particularly pronounced from 2009 to 2013 (not illustrated): During that period the positive trend in income in the lowest income quintile was reflected in higher consumption expenditure, the increase in which tended to even outstrip the income growth. However in the three highest income quintiles proportionately greater saving or investment was seen.

Separate, unpublished FSO analyses have demonstrated that in comparison to 2006, households spent proportionately less on basic needs such as clothes, home furnishings and food and

[16] Due to the insufficient statistical accuracy of estimates, reliable statements on the trends in the lowest income quintile are not possible for some years (see insert "Accuracy of estimates" at the end of this report).

slightly more for transport and communications, hotels and restaurants, and housing and energy. This trend could be observed for all income quintiles, with the exception of food and housing costs, which remained constant in the highest income quintile.[17]

Based on the median value, graph G7 illustrates the change in the proportions of the disposable equivalised income that are used for consumption. In comparison with 2006, all income quintiles spent proportionately slightly less on consumption in 2014. This finding can probably be explained, at least in part, by the increasing purchasing power of the Swiss population in recent years.[18] The decline in the share of consumption in disposable income is somewhat greater and more continuous in the three upper income quintiles than in the lower income quintiles. No reliable statement can be made about changes in the first quintile, but it can be assumed that the lower income groups are less able to smooth their consumption over a longer period of time. As borne out by FSO in-depth analyses, overall these groups are hardly able to make any savings: The average consumer budget in the first quintile mostly exceeds their disposable equivalised income.[19] This is related to the relatively high proportion in these income groups of pensioners and self-employed people with irregular income; their consumer budget is probably funded in part by drawing on their savings. As well as phases during which savings are spent, however, there can also be longer periods of debt.

Conclusion: Increase in realised standard of living in the lower income quintiles

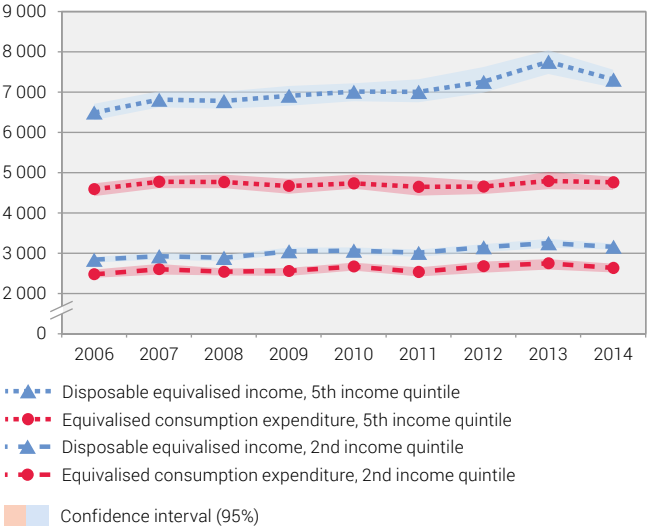
This report examines the necessity of taking consumption inequality into account when analysing well-being. Firstly, it demonstrated that the standard of living actually realised in Switzerland, measured in terms of the consumer budget, evolved quite evenly between 2006 and 2014. Despite rising income, the level of consumption has remained relatively stable.

Secondly, consumption expenditure in the population was less unevenly distributed as the disposable equivalised income. Consequently, in comparison with the theoretical ability to attain a certain standard of living, the actually realised standard of living was somewhat more "fairly" distributed. Between 2009 and 2013 in particular, income inequality showed a tendency to increase *slightly* more than consumption inequality. The positive income distribution was reflected in higher consumption expenditure among the lowest income quintile while the three highest income groups showed proportionally higher savings.

Median disposable income and consumption by income group

Amount in CHF per month at 2014 prices, without imputed rent.
Second and fifth income quintiles

G6



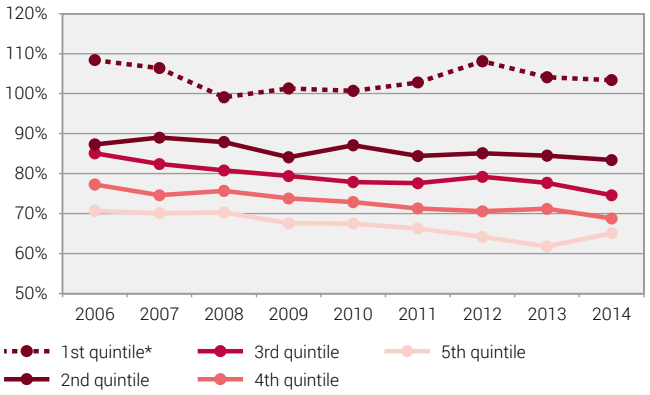
Due to the insufficient statistical accuracy of the estimates, it is not possible in certain years to make reliable statements on the trend of developments in the lowest income quintile (see box "Accuracy of estimates" at the end of this report). In G6, the 2nd income quintile is shown instead.

Source: FSO – Household Budget Survey (HBS)

Proportion of equivalised consumption expenditure in equivalised disposable income

By income quintiles; Base: median values

G7



* Due to the insufficient accuracy of the estimated values in the 1st quintile, it is not possible to make reliable statements on the trend of developments in this income group (see box "Accuracy of estimates" at the end of this report).

Source: FSO – Household Budget Survey (HBS)

[17] See also Federal Council (2014) Ch. 3.2.2 .as well as more recent results in the Statistics website: www.statistics.admin.ch → Look for statistics → Economic and social situation of the population → Income, consumption and wealth → Household income and expenditure (analyses *at household level*).

[18] See www.statistics.admin.ch → Look for statistics → Work and income → Wages, income from employment and labour costs

[19] See Federal Council (2014), Ch. 3.4.2. (Analyses *at household level*).

Measured by consumption expenditure, this trend led to a rise in the actually realised standard of living, primarily among the lowest income groups. The finding that the increase in consumption expenditure in these groups even tended to outstrip income growth in certain years, shows that there was possibly a need to catch up in this respect.

In contrast, the higher income groups, whose theoretical disposable income (measured by their disposable income) rose to a comparatively greater extent until 2013, had more room for manoeuvre: they could decide more freely on how to use this income.

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Glossary

Compulsory expenditure:
→ Disposable income

Disposable income:
The disposable income is calculated by subtracting compulsory expenditure from the gross income. This comprises expenses such as social insurance contributions (OASI contributions, occupational pension plans, etc.), taxes, health insurance premiums (basic insurance) and monetary transfer expenditure to other households (e. g. alimony).

Equivalised income:
The (primary, gross or disposable) equivalised income is calculated using the (primary, gross or disposable) household income. The household size is incorporated through the household equivalence scale. To take into consideration economies of scale (a family of four does not need to spend four times as much as a single person to have the same standard of living), persons in the household are weighted: the oldest person with 1.0, every other person aged 14 or over with 0.5 and every child under 14 with 0.3 (values correspond to the modified OECD equivalence scale). The equivalent household size corresponds to the total of the individual weights.

Equivalence weighting:
→ Equivalised income

Gross income:
The gross household income is comprised of the income of all members of a private household. This includes the gross wage (before social deductions), income from self-employment, pensions, interest, transfers from other households, income from one's own firm, benefits in kind from employer, products from private garden plot etc.

Median:
The median or central value divides the observation values classified by size into two equally sized halves. One half of the values is above the median, the other half below. Unlike the arithmetic mean, the median is not influenced by extreme values.

Quintile:
While the median is at the centre of the income distribution, the quintiles divide the number of incomes into five equal parts. In this way, 20% of households have an income that is less than the first quintile, 20% of the households have an income that is between the 1st and 2nd quintiles, and so on.

Data source and samples
The analyses are based on data from the FSO's Household Budget Survey (HBS). This has been carried out in its current form since 1998 (from 2000 on an annual basis with a reduced sample size). It collects detailed information on the income and expenditure of private households. The 2014 Household Budget Survey sample covered 3858 households.

The structure of the budget is described in detail in FSO (2013), extensive information on the survey can be found on the FSO's website: www.hbs.bfs.admin.ch.

Accuracy of estimates
All estimates calculated on the basis of a sample are subject to a degree of uncertainty as only part of the population (sample) is used to estimate a characteristic of the overall population. This error margin can be quantified by calculating a 95% *confidence interval* which grows closer the more precise the results are. The term "confidence interval" expresses that the true value of the overall population's characteristics is very likely (95% likely) to lie within the interval.

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