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Poverty, Inequality and Social Security during the COVID-19 Pandemic: Evidence from Linked Swiss Tax Data

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Poverty, Inequality and Social Security during the COVID-19 Pandemic: Evidence from Linked Swiss Tax Data*

Oliver Hümbelin, Maurizio Strazzeri, and Olivier Lehmann

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Abstract

This paper examines the impact of the COVID-19 pandemic on income and wealth inequality in Switzerland, with a particular focus on poverty dynamics and the role of the social security system. Using newly linked administrative tax data for four large cantons covering over a third of the Swiss population, we track changes in household income and liquid assets from 2019 to 2022. We find that average net household income increased during the pandemic. However, households at the bottom and top of the income distribution experienced income declines, and a substantial share of households across all income groups faced losses in income or liquid assets. These effects were especially pronounced in the lower deciles. Despite this, relative and absolute poverty rates declined, largely due to the stabilizing effect of existing and newly introduced social security measures. Our results suggest that the Swiss social safety net—including extensions to unemployment benefits, short-time work compensation, and targeted COVID-19 support—effectively mitigated the immediate economic impact of the crisis. The findings underscore the importance of timely and well-targeted state interventions to prevent increases in poverty during large-scale economic shocks.

Keywords: COVID-19 PANDEMIC, PUBLIC POLICIES, INEQUALITY, POVERTY, TAX DATA

JEL Classification: D31, D33, H12

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1 Introduction

The COVID-19 pandemic had a profound impact on economic activity worldwide. Containment measures were introduced to curb the spread of the virus, reduce fatalities, and prevent overburdening healthcare systems. While these measures likely succeeded in slowing the transmission of the virus, they led to an unprecedented decline in economic activity. In response, governments enacted far-reaching policies to support individuals and businesses facing financial hardship.

Early studies indicated that, without adequate policy interventions, the COVID-19 pandemic could result in substantial distributional economic costs and a rise in poverty ([Almeida et al., 2021](#); [Bruckmeier et al., 2021](#); [Palomino et al., 2020](#)). According to these authors, the economic impact of the pandemic during the initial phase was uneven across the population. While some groups were only marginally affected—or even benefited from the new circumstances—others suffered significant income losses. For instance, [Almeida et al. \(2021\)](#), using macroeconomic forecasts from the European Commission, conclude that the at-risk-of-poverty rate, anchored at its 2020 level (i.e., the poverty threshold remains constant in real terms), likely rose from 16.0, % to 18.4, % at the EU level in 2020. However, it remains unclear whether poverty increased in general, as highlighted by the study by [Bruckmeier et al. \(2021\)](#) for Germany. They find that the greatest market income losses occurred in the lowest income deciles. Yet, when considering the discretionary non-employment benefits introduced by the German government at the onset of the crisis—such as additional family benefits and tax rebates—the authors actually identify a slight increase in net income for households at the bottom of the income distribution. Additionally, [Brewer and Gardiner \(2020\)](#) show that in the United Kingdom, the lowest income quintile was not the most affected in terms of household income. Instead, the proportion of respondents reporting income losses was highest in the second and third quintiles from the bottom, suggesting that the pandemic may have triggered poverty experiences among groups that had previously been above the poverty line.

More recent evidence suggests that policy interventions aimed at mitigating harmful distributional effects were remarkably effective—at least in the short term—leading in some cases to even lower poverty rates than before the pandemic ([Blundell et al., 2022](#); [Parolin, 2023](#)). That said, it became quickly apparent that the pandemic’s impact would vary across countries ([Béland](#)

et al., 2021), shaped by the economic context, existing social security systems, and the specific policy measures adopted. This highlights the need for in-depth country-specific studies to assess what worked and what did not.

From a methodological standpoint, two observations are noteworthy. First, most studies examining household income rely on simulations or ad hoc surveys, due to the delayed availability of high-quality data on this subject (Brewer and Gardiner, 2020; Gallo and Raitano, 2023; Menta, 2021). This results in a lack of robust data for analyzing income distribution during the pandemic (Clark et al., 2021). Second, most existing research reports findings in distributional terms, while few studies provide concrete poverty estimates.

In Switzerland, initial studies primarily focused on the first partial lockdown in 2020, suggesting that poverty and inequality increased (Beyeler et al., 2021; Martínez et al., 2021). However, there is a lack of systematic analyses using reliable data and covering the longer-term dynamics of the pandemic. This is mainly due to the delayed availability of robust data. For example, in Switzerland, tax data typically becomes available for scientific analysis only after three years. Accordingly, analyses based on registries or administrative data remain scarce. As a result, it is still unclear how the COVID-19 pandemic affected inequality and poverty in Switzerland and how effectively the social safety net protected the population.

Against this backdrop, the main objective of this paper is to enhance our understanding of the economic impact of the pandemic on Swiss society, with a particular focus on poverty and inequality. The aim is (a) to better understand how vulnerable groups are affected during crises and (b) to generate insights on how to improve social protection and crisis response for disadvantaged populations. The central research question is: *How did the COVID-19 pandemic affect economic inequality, poverty, and low-income groups in Switzerland, and how well were those affected by the crisis supported by the social security system?*

To answer this question, we begin with a background section (Section 2) in which we present the theoretical framework of our analysis, describe the development of the Swiss economy during the pandemic, and the measures taken by the Swiss government to address income losses. In the empirical section, we use linked administrative data (Section 3) consisting of tax records from four large cantons for the years 2019 to 2022, covering the financial situation of 36 % of the Swiss population. Tax records offer detailed information on income and wealth. By linking these records

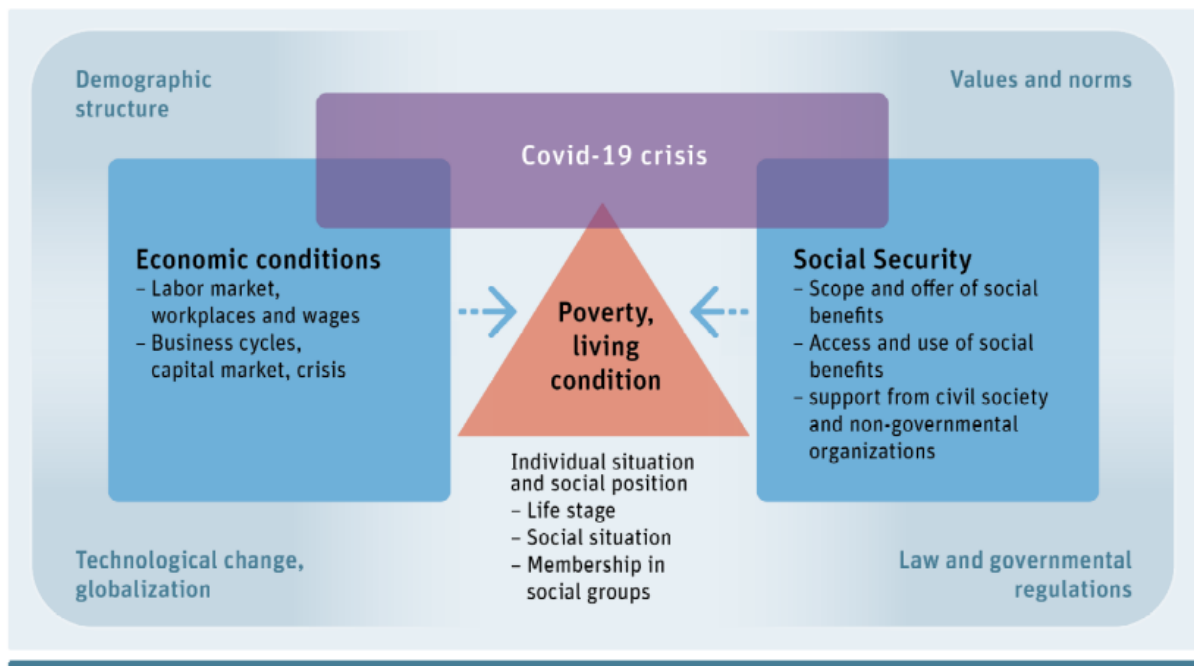
with the social benefits register, we are able to incorporate data on regular social security benefits as well as some COVID-specific payments. Moreover, household registers linked to tax records enable us to assess the financial situation at the household level, in line with standard poverty research practices. Based on this data, we describe how income and wealth evolved between 2019 and 2022—both overall and across different income and wealth groups. We then identify which groups experienced declines in income and savings. Furthermore, we provide absolute and anchored relative poverty measures, supplemented by Gini coefficients based assessment of inequality. Finally, using the well-established Reynolds & Smolensky decomposition technique introduced by [Reynolds and Smolensky \(1977\)](#), we evaluate the effectiveness of the Swiss social security system in protecting individuals from poverty. We conclude with a discussion of the key lessons from Switzerland (Section 4) and summarize the findings and their relevance both for Switzerland and from an international perspective in Section 5.

2 Background - COVID-19 in Switzerland

2.1 General theoretical framework

Our underlying theoretical model, illustrated in Figure 1, builds on the work of [Crettaz \(2021\)](#) and [Lohmann and Crettaz \(2018\)](#). A household’s financial resources—and thus its poverty risk—depend on both the economic situation and the structure of a country’s social security system, forming a mutually interdependent relationship. The stability of economic life is supported by social security, while robust social security, in turn, relies on a healthy economy. These two domains are embedded in a broader socio-economic framework, which includes demographic structures, technological change, globalization, societal values and norms, as well as legal and governmental regulations. Our paper focuses on the COVID-19 crisis as an economic shock, investigating how it affected both economic dynamics and social security responses. We then explore how these system-level changes translated into poverty risks at the individual level. The third key component of our model is the individual’s situation and social position, which strongly influence the degree to which people are vulnerable to or protected from the consequences of such crises.

Figure 1:
Covid-19 and households' financial situation



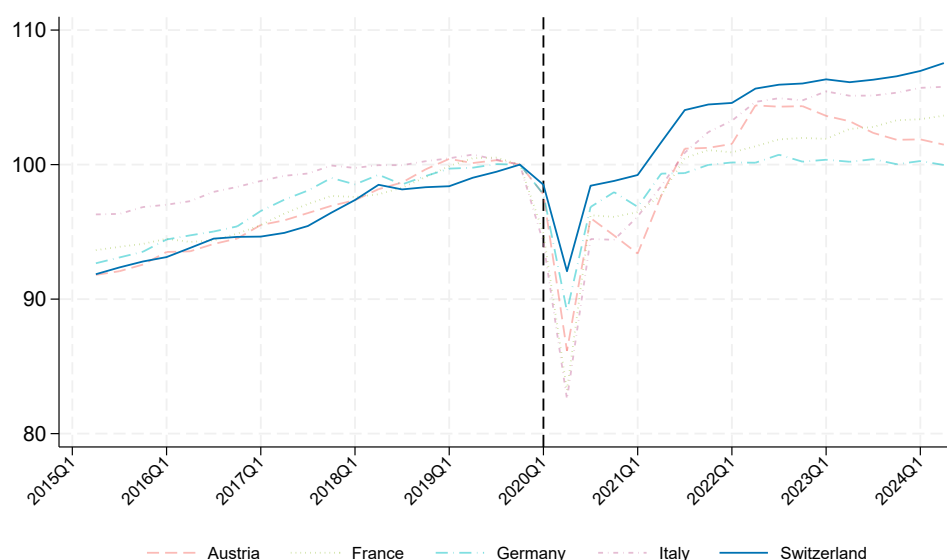
Note: Figure illustrates relevant factors that could affect poverty rates during the Covid-19 pandemic.

2.2 Economic impact of the measures to restrict COVID-19

The COVID-19 pandemic resulted in the biggest economic crisis in recent history in Switzerland: as a result of the first lockdown, real economic output (GDP) shrank by around 8 % in the first half of 2020 compared to the last quarter before the crisis ([Kaiser et al., 2024](#)). Due to the numerous interdependencies between government measures, voluntary behavioral adjustments by households and companies, the course of the pandemic, and economic activity, it is not possible to precisely quantify the specific impact of containment measures on GDP. A simple descriptive analysis suggests that the pandemic as a whole reduced overall economic value added by around CHF 24 billion cumulatively by the 3rd quarter of 2020. By Q2 2022, the total loss of value added amounted to around CHF 48 billion, which corresponds to 27 % of quarterly GDP before the crisis (Q4 2019). According to governmental estimates for 2020, around one third to one half of this loss is likely attributable to the economic slump abroad ([Kaiser et al., 2024](#)).

While economic key figures dropped significantly during the pandemic, household incomes, on average, did not ([Der Bundesrat, 2024](#)). This paradox can be explained by the extensive adaptations and temporary extensions of the social security system. However, the extent to

Figure 2:
Real GDP in Switzerland and neighboring countries



Note: GDP in constant 2015 EUR. Seasonally adjusted and indexed to 2019 Q4. The vertical dashed line marks the start of the COVID-19 counter-measures (Q1 2020).

Source: Eurostat. Own calculations

which households across different income levels were affected, and which groups were adequately covered—or not—by the social security system, has not yet been studied in detail.

2.3 Social security reaction to cushion the economic impact in society

The measures to support the population included both adjustments to existing social security benefits and the creation of new instruments ([Der Bundesrat, 2024](#)).

From a poverty perspective, an important adaptation was the suspension of the time limit on **unemployment benefits**. Before the pandemic, unemployed individuals could receive these benefits for a maximum of two years—often less, depending on their contribution history within the social insurance system. Once this entitlement expired, individuals were forced to deplete their savings and/or rely on means-tested social assistance, which typically offered substantially lower support. During the COVID-19 pandemic, however, this time limit was lifted. This measure provided critical relief and gave social assistance agencies the necessary time to prepare for and respond to emerging needs.

Additionally, several instruments were activated or newly introduced:

- **Short-time working compensation:** The regulations for short-time work were expanded to help companies maintain employment. This allowed employers to reduce working hours while receiving financial support to cover a portion of employees' wages. Employees on short-time work received 80 % of their usual income, which helped prevent job loss, albeit at the cost of reduced labor earnings. A COVID-19-specific adjustment quickly relaxed this 80 % threshold for low-income earners, enabling them to receive their full wage even when employers were compensated through short-time work support.
- **Corona income compensation (CIC):** Self-employed persons, individuals in quarantine, and those with caregiving obligations (e.g., due to school closures) were eligible for compensation. This instrument helped mitigate income losses for these vulnerable groups.
- **COVID-19 loans:** The federal government offered liquidity assistance to companies, particularly small and medium-sized enterprises (SMEs), through interest-free or low-interest loans. These loans were designed to bridge short-term liquidity gaps.
- **Hardship regulations:** Targeted support was provided to businesses severely affected by the crisis—such as those in the events industry or tourism. This support included non-repayable contributions in some cases.
- **Support for the cultural and sports sector:** Special funds were made available to sustain cultural institutions and sports organizations that were particularly impacted by the pandemic.

A historic peak was reached in April 2020, when 1.36 million workers were dependent on short-time work ([Staatssekretariat für Wirtschaft, 2022](#)). Although the labor market recovered considerably in 2021, it continued to be shaped by the effects of the COVID-19 crisis, with over 500,000 workers still on short-time work in April 2021. Most pandemic containment measures were lifted by the Federal Council at the end of March 2022.

All in all, COVID-19 triggered the largest increase in social benefit expenditures since the introduction of the Total Social Insurance Accounts (TSIA) in 1987¹ ([Bundesamt für Sozialversicherungen, 2024](#); [Schüpbach, 2022](#)). In 2020, all social insurance schemes combined disbursed

¹The Total Social Insurance Accounts (TSIA) provide information on the revenues and expenditures of social security in Switzerland. They include social contributions, public transfers, and benefits, which are broken down by social risks or needs (e.g. old age, disability, health care, unemployment).

social benefits amounting to CHF 164 billion, corresponding to 23.3 % of the national GDP (CHF 706 billion). Unemployment insurance (UI) alone paid out CHF 9.2 billion in COVID-19-related short-time work benefits, while the newly introduced coronavirus-related income compensation (CIC) amounted to CHF 2.2 billion.

2.4 Our contribution

Our study is being conducted as part of the national research program NRP-80 on “COVID-19 in Society,” which aims to clarify the societal impact of the pandemic in Switzerland and to contribute to both national and international literature on the COVID-19 crisis.² It is the first systematic study in Switzerland to use rich register data, offering several key advantages.

We are able to analyze the financial situation of individuals both within and outside the social security system. Until now, little was known about those who did not appear at social assistance agencies—either because they chose not to, had sufficient savings, or did not yet qualify for support. It was also unclear whether the supplementary benefits received by some households were sufficient, or whether these households continued to rely primarily on their own income. Because our data include detailed information on assets—typically underrepresented or poorly measured in survey-based official statistics—we are able to examine wealth dynamics and the role of wealth as a buffer against material hardship during the COVID-19 crisis (Rodems and Pfeffer, 2021). Moreover, the large size of our dataset allows us to study the distributional effects of the economic shock and the social security response in detail across the entire income and wealth distribution. Finally, the availability of anonymized household and personal identifiers over the years enables us to analyze income and wealth trajectories at the unit level over time.

3 Data and methods

3.1 Using linked tax data for distributional studies

As there is no national individual tax data statistic in Switzerland, negotiations with sub-federal authorities and specific data-linkage procedures are required to use tax data for scientific purposes. This makes individual tax data an interesting yet cumbersome source for studying the fi-

²For more information on this research program, see <https://nfp80.ch>.

financial situation of households ([Hümbelin and Farys, 2016](#)). For the following analysis, we draw on tax data from four Swiss cantons, covering the years 2019 to 2022 to was collected as part of the nrp80-project grant no 210054. These include three cantons from the German-speaking part of Switzerland (Zurich, Aargau, St. Gallen) and one mainly French-speaking canton (Valais). Together, they cover the financial situation of over 3 million residents—more than one-third of the Swiss population. The dataset contains detailed information on labor income (from both employment and self-employment), capital income, and comprehensive records of social insurance contributions. It also includes data on means-tested social benefits such as social assistance, supplementary benefits, and health insurance premium subsidies (via data linkage). A unique feature of Swiss tax data is the inclusion of detailed wealth information—allowing us to distinguish between liquid financial assets and real estate holdings. This enables us to analyze poverty trajectories, taking financial reserves into account ([Brandolini et al., 2010](#); [Hümbelin and Farys, 2016](#)).³ In addition, the data contain information on specific COVID-19 measures, notably individual-level records from the Corona Income Compensation Program ([Bundesamt für Sozialversicherungen, 2022](#)).

In addition, we are able to link emergency payment data from Suisseculture Sociale, which provided targeted support to cultural workers. However, individual-level information on several COVID-19-specific payments—such as COVID-19 loans, hardship payments, and short-time work compensation—is not available. To address this limitation with respect to short-time work compensation, we draw on data from [Felder et al. \(2023\)](#), which provide the share of firms within each sector that made use of short-time work schemes during a given time period.⁴ Furthermore, we are able to link the tax data to survey data which includes information on the sector of employment, covering approximately 25 % of the individuals in our sample.⁵ We use the sector-level share of firms receiving short-time work compensation within a given time period as a proxy for an individual’s likelihood of receiving such support. This allows us to calculate the expected amount of short-time work compensation received by each household and year.⁶

Finally, the STATPOP household register enables us to assess household composition and to

³As Switzerland is one of the few countries that levy a tax on wealth, a unique feature of Swiss tax data is the detailed information on wealth.

⁴See Figure 26 in [Felder et al. \(2023\)](#).

⁵We use pooled data from the Swiss Structural Survey from 2016-2021.

⁶Companies reported employees on short-time work in aggregated form to the authorities, without listing individuals separately. This was done to reduce administrative burdens and ensure rapid payments. As a result, it is not possible to identify households on short-time work via official registers.

calculate the financial situation of households—an essential aspect, as the household represents the central unit of analysis in poverty research ([United Nations, 2011](#)).

3.2 Data preparation and analytic techniques

As part of the data preparation, we constructed household market income (labor and capital income), gross income (including all social benefits), and net income (after taxes and transfers). To account for household size, all values were adjusted using the OECD equivalence scale. For analytical purposes, we restricted the sample to individuals aged 65 and younger, as this segment of the population depends primarily on labor market income, which was potentially disrupted during the COVID-19 crisis. To analyze socioeconomic developments from 2019 to 2022, we examine changes in income and wealth, as well as shifts in the composition of household income. To assess income and savings losses, we further restricted the sample to individuals who could be observed throughout the entire three-year period. We employ a set of macro-level indicators—including the Gini coefficient and both absolute and relative poverty measures—to examine the evolution of poverty and income inequality over time. This analysis is based on annual income and end-of-year wealth data, offering a comprehensive perspective on broader distributional trends. All income values are presented in nominal terms, without inflation adjustment, as our primary focus lies on distributional effects. However, it is important to note that with inflation beginning to rise in 2021, nominal increases in income may not correspond to gains in real purchasing power.

While the calculation of the Gini index is relatively straightforward, estimating absolute poverty rates is more complex, as these depend on regionally specific subsistence thresholds and household needs. For this purpose, we draw on the poverty model developed in [Hümbelin et al. \(2022\)](#), which is aligned with the official methodology used by the Swiss government. This model accounts for regional variations in housing costs and health insurance premiums and defines the poverty line according to the recommendations of the [Schweizerische Konferenz für Sozialhilfe \(2016\)](#), a national expert body that defines the minimum subsistence level in Switzerland. Because crises may affect all parts of the income distribution, relative poverty measures often yield results that are difficult to interpret. Nonetheless, to capture changes among those at risk of poverty, we apply an anchored relative poverty measure, defined as 60% of the 2019 equivalized household income. This allows us to assess how those below the pre-crisis poverty threshold were impacted

over time.

A central element of our analysis is the evaluation of the effectiveness of the social safety net—both in terms of regular stabilizing mechanisms and temporary measures introduced during the COVID-19 pandemic. We build on an approach originally proposed by [Reynolds and Smolensky \(1977\)](#), which has been used in various inequality studies ([Caminada et al., 2019](#); [Causa and Hermansen, 2020](#); [Hümbelin and Farys, 2018](#)). [Reynolds and Smolensky \(1977\)](#) introduced a simple yet powerful concept for measuring the impact of social transfers and taxes on income inequality. We adapt this approach to measure poverty reduction, as described in the following equation:

$$\Delta = pov_x - pov_{x+i}. \quad (1)$$

Here, Δ captures the effectiveness of a given welfare instrument by calculating the difference between the poverty rate based on market income (pov_x) and the poverty rate after the inclusion of a specific component (pov_{x+i}). The index i denotes the successive inclusion of: (a) social insurance benefits, (b) means-tested benefits, (c) COVID-19-specific transfers, and (d) liquid assets, representing the capacity for private financial self-protection.⁷ These components are added sequentially to market income, allowing us to quantify the relative importance of each income source in mitigating financial hardship and poverty.

4 Results

4.1 Changes in net household income from 2019–2022

Table 1 presents the mean and median values of net household income in 2019, 2020, 2021, and 2022, broken down by households’ position in the net income distribution in each respective year. The results show that between 2019 and 2020, mean household income increased across most income groups, with the exception of households in the lowest and highest income brackets. For households in the middle of the income distribution, the relative increase in mean income was modest, ranging from 1.0 % to 1.6 %. In contrast, households in the lowest income bracket experienced a decline of 2.3 %, and those in the top bracket saw a decrease of 4.2 %. Although

⁷We assess whether a household can cover the gap between their income and the poverty line (poverty gap) with liquid assets for at least one year.

Table 1:
Net household income from 2019-2022

	2019		2020		2021		2022	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Net household income (deciles)								
1st	19,408.80	26,275.33	18,954.90	26,578.57	22,557.45	27,166.02	22,500.54	27,107.29
2nd	39,255.41	39,485.10	39,654.04	40,007.63	40,095.65	40,328.61	40,958.47	41,212.27
3rd	46,662.94	46,627.73	47,177.29	47,193.06	47,468.45	47,398.96	48,636.66	48,581.93
4th	52,809.38	52,943.04	53,462.02	53,330.16	53,638.42	53,737.46	55,061.18	54,872.98
5th	58,822.69	59,320.89	59,604.54	59,607.10	59,731.50	60,052.18	61,380.50	61,551.16
6th	65,178.62	65,994.85	66,148.63	66,423.81	66,226.84	66,901.85	68,099.57	68,551.81
7th	72,462.60	73,500.26	73,608.40	74,025.94	73,624.67	74,561.81	75,840.89	76,475.02
8th	81,640.58	82,818.69	82,992.68	83,411.75	83,004.02	84,068.03	85,739.65	86,395.95
9th	95,695.26	96,331.99	97,242.29	97,060.15	97,313.76	97,920.60	101,095.37	100,999.88
10th	163,542.42	130,637.10	156,683.27	131,584.28	159,757.49	132,404.16	173,723.80	139,446.12

Note: Table reports mean and median values of the net household income (size-equalized) distributions in 2019, 2020), 2021 and 2022 by individual's position in the net household income distribution in the corresponding year. Number of individuals (households) in 2019: 2,006,364 (830,104); 2020: 2,023,532 (842,625); 2021: 2,026,826 (846,680), 2022: 2,004,470 (837,204).

the changes in absolute and relative terms were more pronounced in the upper income groups, it is important to note that income losses among lower-income households entail significantly greater welfare losses, as these households often use all their income to cover their basic needs.

Over the full three-year period, mean net household income rose for all groups. The most substantial increase was observed among households in the lowest bracket, with a relative gain of 15.9 %. In the middle of the distribution, income gains remained moderate, ranging between 4.2 % and 5.6 %. Although households in the top income bracket experienced a decline in income between 2019 and 2021, their average net household income had fully recovered by 2022 and exceeded the 2019 level by 6.2 %.

Table 1 shows that median net household income increased across all income deciles in both 2019–2020 and 2020–2021. Between 2021 and 2022, however, the median income increased in all deciles except for the lowest. Over the full three-year period, cumulative increases in median net household income ranged from CHF 832 in the lowest decile to CHF 8,809 in the highest. Relative to mean net household income in 2019, the cumulative increase in median net income was highest in the top income decile (approximately 6.7 %) and lowest in the bottom decile. Notably, the largest increase in the top decile occurred in 2022, at the end of the pandemic period.

Figure 3 illustrates the breakdown of gross household income into its various components across different years, categorized by households' positions in the net income distribution for

Figure 3:
Composition of gross household income before and during the COVID-19 pandemic



Note: Each bar shows the composition of gross household income by year (2019-2022) and individual's position in the net household income distribution (deciles 1-10). Number of individuals (households) in 2019: 709,833 (251,779); 698,769 (249,699); 681,820 (244,334); 658,433 (235,792).

each respective year. As expected, market income—comprising earned labor income and capital income—makes up a smaller proportion of gross income among low-income households, which are more dependent on social benefits. Conversely, the share of gross income from social benefits decreases as income rises.

More relevant to our research question, however, are the changes observed over time. Across all income deciles, there was a shift from market income to income derived from social insurance programs between 2019 and 2020. This shift largely persisted into 2021 for some income groups. The pattern underscores the pivotal role of the social security system in cushioning income losses during the pandemic.

Highly targeted COVID-19 emergency assistance was provided in both 2020 and 2021, but it contributed only marginally to overall household income. By contrast, according to our estimates, short-time work compensation played a substantial role in stabilizing incomes during this period. Its effect is most evident in the third to the tenth income deciles and less pronounced in the lowest deciles. This is mostly because lower-income households rely less on market income.

Other pandemic-specific measures, such as hardship payments or COVID-19 loans, are not

Table 2:
Liquid asset holdings from 2019-2022

	2019		2020		2021		2022	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Liquid assets (deciles)								
1st	25.73	0.00	30.74	0.00	30.75	0.00	92.45	0.00
2nd	1,952.13	1,885.42	2,119.25	2,009.00	2,146.52	2,030.00	2,450.42	2,346.27
3rd	7,203.77	7,054.84	7,953.52	7,835.20	8,145.01	8,000.00	8,498.99	8,386.00
4th	16,401.88	16,026.67	18,142.08	17,733.81	18,961.25	18,479.33	19,371.08	18,896.19
5th	30,217.00	29,350.00	32,958.54	32,068.57	34,815.90	33,736.10	35,470.30	34,340.00
6th	49,880.10	48,672.67	53,589.09	52,237.80	56,763.85	55,020.87	57,771.93	56,087.08
7th	79,078.93	77,352.86	83,698.82	81,958.00	88,833.08	86,452.38	90,434.64	87,908.80
8th	126,861.58	123,828.58	132,670.42	129,592.66	140,996.48	137,343.84	143,418.13	139,507.66
9th	226,595.64	217,339.33	233,851.14	225,086.47	248,635.32	238,123.08	251,413.94	240,845.00
10th	1,293,111.29	572,672.16	1,235,870.23	577,950.00	1,313,757.96	611,577.50	1,768,411.57	614,679.50

Note: Table reports mean and median values of households' liquid assets (size-equalized) distributions in 2019 (columns 1-2), 2020 (columns 3-4), and 2021 (columns 5-6) by individual's position in the households' liquid assets distribution in the corresponding year. Number of individuals (households) in 2019: 2,006,364 (830,104); 2020: 2,023,532 (842,625); 2021: 2,026,826 (846,680), 2022: 2,004,470 (837,204).

directly reflected in the figure, as they were paid to firms rather than individuals. Nonetheless, these instruments indirectly supported household incomes by stabilizing business activities and securing employment. In this regard, the figure suggests that the overall package of measures was highly effective, as the share of market income did not decline drastically during the pandemic.

4.2 Changes in liquid asset holdings from 2019-2022

Table 2 presents the mean and median values of liquid asset holdings in the years between 2019 and 2022, categorized by households' positions in the liquid asset distribution for each respective year.

Interpreting changes in liquid asset holdings over time as a proxy for savings, the table indicates that many households increased their savings between 2019 and 2022. While mean liquid assets remained close to zero in the lowest deciles, they generally rose across the distribution. The largest absolute increases occurred in the upper part of the distribution. Households in the 10th decile, for example, saw their mean liquid assets decline from CHF 1,293,111 in 2019 to CHF 1,235,870 in 2020, before rising to CHF 1,313,758 in 2021 and CHF 1,768,412 in 2022—an overall increase of approximately CHF 475,300 over the three-year period. Again, the largest increase for this income group appeared in last year of our observation period.

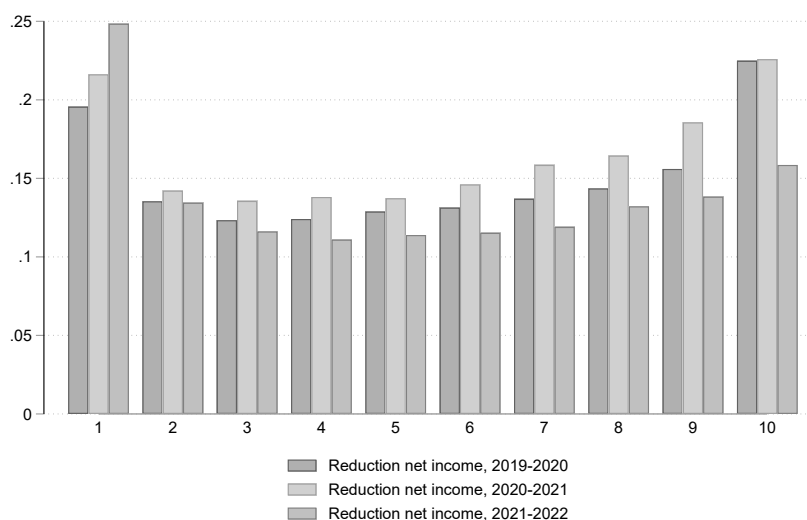
In relative terms, savings growth was quite pronounced among all income brackets, with

mean liquid assets increasing by roughly 10–36 % over the same period (excluding the lowest income decile). Median liquid asset holdings followed a similar pattern, showing relative increases of comparable magnitude across most deciles, except for the highest income decile, where median income rose in relative terms only by 7.3 %. As explained above, this trend is largely attributable to reduced consumer spending during the pandemic, as restrictions on public life limited opportunities for travel, leisure, cultural activities, and dining out—thereby increasing household savings. Declines in liquid assets, on the other hand, can be explained by stock market losses, which occurred primarily in 2020 but largely recovered by 2021, before experiencing renewed volatility and downturns in 2022 due to the energy crisis, high inflation, and rising interest rates. Declines in liquid assets can also occur when households draw on their savings to cover daily expenses, as happened for some households during the pandemic

4.3 Individuals who experienced a reduction in net household income or liquid asset holdings

Average changes in income or liquid assets by income decile may conceal substantial heterogeneity within income groups. This is particularly relevant for low-income households, which typically have limited financial buffers.

Figure 4:
Substantial share of individuals experienced a drop in net household income between 2019 and 2022



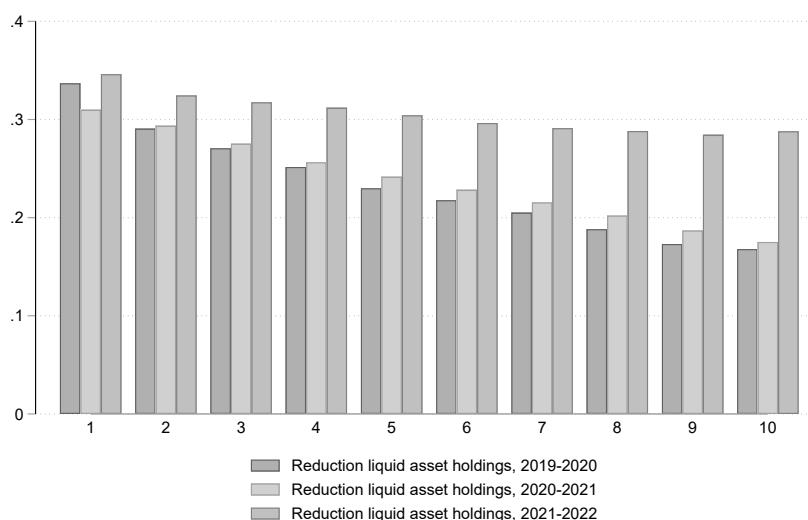
Note: Each gray bar illustrates the share of individuals who experienced a reduction by 10 % of net household income between 2019-2020, 2020-2021, and 2021-2022, categorized by the position in the net household income distribution in 2019. Balanced panel of households. Number of individuals (households) per year: 1,305,807 (353,774).

Figure 4 illustrates the share of individuals who experienced a reduction in net household income between 2019 and 2022, disaggregated by income decile. To exclude trivial income changes, we define a reduction as a decline of more than 10 % relative to a household's net income in the preceding year.

Figure 4 clearly shows that a substantial share of individuals across all income deciles experienced a decline in net household income. In 2020 and 2021, this decline was most pronounced in the lowest and highest income deciles, where 20–22 % of individuals saw a decrease, while it was less marked in the middle deciles. In 2022, the share of individuals with declining income further increased in the lowest decile, whereas it decreased in the top decile and became more similar to the middle of the distribution.

Figure 5 shows the share of individuals who experienced a reduction by 10 % in liquid asset holdings between 2019 and 2022, categorized by their net household income decile in 2019. We interpret such reductions in liquid assets as an indication that savings were drawn down to maintain consumption levels. The figure demonstrates that a significant proportion of individuals across the entire income distribution used part of their savings during this period. In particular, in 2022,

Figure 5:
Substantial share of individuals experienced a drop in liquid asset holdings between 2019 and 2022



Note: Each bar illustrates the share of individuals who experienced a reduction by 10 % of liquid assets between 2019-2020, 2020-2021, and 2021-2022, categorized by the position in the net household income distribution in 2019. Balanced panel of households. Only households with positive liquid asset holdings in 2019 included. Number of individuals (households) per year: 1,305,807 (353,774).

liquid assets declined sharply across all income groups, reflecting stock market losses triggered by the onset of the war in Ukraine and the lingering after-effects of the pandemic. However, the decline in liquid assets was more pronounced in the lower income deciles throughout the period.

Finally, it is important to note that not all households reported having any liquid asset holdings. These households were therefore unable to rely on savings during the pandemic—a vulnerability that was disproportionately concentrated in the lower income deciles.

4.4 Poverty rates and the role of social security benefits

Next, we turn to macro indicators to examine how the dynamics in income and liquid assets translate into established measures of poverty and inequality. Table 3 reports mean net household income (column 1), absolute poverty rates (column 2), relative poverty rates based on 60 % of the median net household income (column 3), anchored relative poverty rates based on 60 % of the median net household income in 2019 (column 4), and the Gini coefficient by year for income (column 5) and for wealth (column 6).

Table 3 shows that average net household income remained stable between 2019 and 2021

Table 3:
Poverty and income inequality decreased during the pandemic

	Mean net income	Abs. poverty	Rel. poverty	Anchored rel. poverty	Gini (income)	Gini (wealth)
Year						
2019	69,547.49	5.64	12.19	12.19	28.94	81.24
2020	69,552.31	5.61	12.29	11.73	28.12	79.89
2021	70,341.30	5.32	11.91	11.35	27.76	80.03
2022	73,303.23	5.38	12.17	10.69	28.87	83.66

Note: Table reports mean net household income (column 1), absolute poverty rates (column 2), relative poverty rates setting the poverty line at 60 % of the median of the net household income distribution (column 3), anchored relative poverty rates using the relative poverty rate from 2019 (column 4), the Gini coefficient for the net household income distribution (column 5), and the Gini coefficient for households' liquid asset holdings distribution by year.

and increased slightly from 2021 to 2022. Absolute poverty decreased between 2019–2020 and 2020–2021, but increased between 2021–2022. Relative poverty increased between 2019–2020, decreased between 2020–2021, and rose again between 2021–2022. Relative poverty rates anchored to the 2019 poverty line decreased over the entire period, as the threshold rose in line with the increase in median income. In addition, we observe that the decline in income in both the lowest and highest income groups in 2020, combined with a slight increase among middle-income groups, is associated with a modest reduction in income inequality between 2019 and 2021, followed by an increase in 2022. The Gini coefficient for income, as reported in Table 3, fell from 28.94 to 27.76, before rising again to 28.87. The Gini coefficient for wealth declined in 2020—likely due to stock market fluctuations—but increased again in 2021 and 2022.

Table 4 provides an in-depth analysis of the contribution of different components of the social security system to poverty reduction before and during the pandemic. It reports absolute poverty rates (upper section) and relative poverty rates based on 60 % of median net household income in year 2019 (lower section), by year and by type of income considered. Each column adds a new income source: market income (i.e., labor and capital income) (column 1), market income and income derived from social insurance (column 2), market income, income derived from social insurance, and means-tested benefits (column 3), market income, income derived from social insurance, means-tested benefits, and corona help—i.e., gross household income (column 4), net household income (column 5), and a hypothetical income where liquid assets are included in net household income (column 6).

We do however not account for short-time work compensation as these benefits did not directly got payed out to households, but helped to stabilize market income. Percentage values

Table 4:
Contribution of different financial resources to poverty reduction

	Market income	+ Social insurance		+ Means-tested		+ Corona help		- Tax		+ Liquid assets	
	Rate	Rate	Change	Rate	Change	Rate	Change	Rate	Change	Rate	Change
Absolute poverty											
2019	12.15	8.19	-33 %	5.30	-24 %	5.30	0 %	5.64	3 %	4.04	-13 %
2020	12.59	8.25	-34 %	5.43	-22 %	5.29	-1 %	5.61	3 %	4.04	-12 %
2021	12.36	8.09	-35 %	5.06	-24 %	4.95	-1 %	5.32	3 %	3.75	-13 %
2022	11.57	7.92	-32 %	5.13	-24 %	5.10	0 %	5.38	2 %	3.86	-13 %
Relative poverty (anc.)											
2019	18.87	14.13	-25 %	10.89	-17 %	10.89	0 %	12.19	7 %	7.65	-24 %
2020	19.18	13.96	-27 %	10.89	-16 %	10.64	-1 %	11.73	6 %	7.42	-22 %
2021	18.78	13.64	-27 %	10.35	-17 %	10.15	-1 %	11.35	6 %	7.08	-23 %
2022	17.45	12.95	-26 %	9.79	-18 %	9.74	0 %	10.69	5 %	6.80	-22 %

Note: Table reports absolute poverty rates (upper section), and relative poverty rates based on 60 % of median net household income in year 2019 (lower section) by year, considering different sources of income, where each column adds a new income source. Percentage values indicate the percentage change of the poverty rate after the additional income source is considered divided by the initial poverty rate based on market income. Market income: labor and capital income. Social insurance: income derived from social insurance (short-time work compensation not accounted for). Means-tested: income derived means-tested benefits. Corona help: income derived from corona help benefits. Tax: income and wealth taxes. Liquid assets: households' liquid asset holdings.

indicated in columns 2–6 represent the relative reduction in the poverty rate after accounting for each additional income source. They are calculated as the difference between the poverty rate before and after including the respective income source, divided by the initial poverty rate based on market income.

Table 4 reveals several important insights into the role of different financial components in reducing poverty, both overall and during the pandemic. In general, the table highlights the significance of the social security system—comprising both social insurance and means-tested benefits—for poverty reduction, as poverty rates more than halve when accounting for social security benefits. Additionally, liquid asset holdings also contribute to poverty reduction, lowering the poverty rate by approximately 1.5 percentage points. Some households below the poverty line possess sufficient savings to bridge the poverty gap. However, this effect is considerably smaller than that of social security transfers, which reduce poverty by up to 7 percentage points. Finally, the table shows that direct taxes on income slightly increase poverty rates, as households near the poverty threshold are not exempt from paying taxes.

With regard to developments during the pandemic, the following observations can be made: poverty rates based on market income rose slightly in 2020 but declined again in 2021 and 2022. The increase in the relative poverty rate was more pronounced than in the absolute poverty rate,

suggesting that income losses were more severe above the absolute poverty threshold. At the same time, the overall change in market income poverty was relatively moderate, indicating a degree of stability. This can be attributed to various policy measures—such as short-time work compensation, hardship schemes, and low-interest loans—that reduced the pressure on firms to lay off workers and helped prevent business closures.

Furthermore, Table 4 shows that the contribution of social insurance income to poverty reduction increased in 2020, while the relative effect of means-tested benefits decreased. Overall, this suggests that the strengthening of social insurance—such as the extension of the eligibility period for unemployment benefits—together with targeted COVID-19 support and the stabilization of market incomes through instruments like short-time work compensation, helped to prevent an overburdening of the last-resort safety net of means-tested benefits.

The table also illustrates that the ability to avoid financial hardship through private savings strongly depends on the poverty measure used and the household's position in the income distribution. For individuals in absolute poverty, liquid assets are relatively unimportant compared to social insurance and means-tested benefits, as these households tend to have very limited savings. The role of assets in this context remained stable during the pandemic. For those at risk of poverty, however, financial assets play a comparatively larger role—similar in magnitude to means-tested benefits—since fewer public transfers are available above the poverty line, and households in the second and third deciles tend to hold more savings. Nevertheless, the capacity to bridge financial hardship through savings declined during the COVID-19 pandemic, particularly in 2020. This finding aligns with earlier results showing that asset losses were most pronounced in the lowest three income deciles.

5 Discussion

This study contributes to the literature on COVID-19 by examining changes in income and wealth distribution during different stages of the pandemic in Switzerland and by evaluating the effectiveness of governmental responses to income losses. Specifically, we assess whether the Swiss social security system was adequately designed to protect low-income groups from falling into poverty.

Using large-scale linked tax and registry data covering more than one-third of the Swiss pop-

ulation (2019–2021), we find that low-income households experienced a modest drop in income in 2020, followed by a recovery in 2021. High-income households saw more substantial income declines in 2020, with a partial rebound the following year. The composition of gross household income shifted slightly towards social insurance benefits, including COVID-specific income compensation. Our simulations suggest that short-time work compensation played a key role in stabilizing labor income, particularly among middle- and high-income households. In lower-income groups, the stabilizing effect was smaller—partly because these households rely less on market income, and partly due to adaptations in the compensation scheme that protected subsistence-level incomes.

While average income slightly rose and many households increased their savings due to reduced consumption opportunities during the lockdowns, a considerable share, around 14 %, experienced a drop in net household income between 2019 and 2021. These losses were particularly concentrated in the lowest income decile. At the same time, liquid asset holdings declined among many low-income households, indicating that private buffers were strained during the crisis, highlighting that prolonged crises pose a significant risk to economic resilience.

Nevertheless, the combination of short-time work schemes, COVID loans, hardship assistance, and existing social benefits helped to stabilize household finances. Although market income poverty—particularly the at-risk-of-poverty rate—increased slightly in 2020, these effects were effectively mitigated by the social security system. In fact, post-transfer poverty declined, suggesting that low-income households may have been protected even more effectively than under normal times.

Our findings are consistent with official Swiss statistics, which reported stable or slightly declining social assistance rates during the pandemic. They partly contrast, however, with early studies that predicted a rise in poverty and inequality (Beyeler et al., 2021; Martínez et al., 2021). While we also found negative economic impacts in 2020—such as an increase in market income poverty and a significant share of individuals with declining liquid assets—these developments did not translate into increased post-transfer poverty rates. Early studies focused however on the acute phase of the crisis, when food assistance demand surged in spring 2020 (Bonvin et al., 2020). Our results suggest that swift and extensive policy responses helped prevent more severe outcomes.

It is also worth noting that we observe the greatest volatility among the highest income

groups, who experienced temporary income and wealth losses, probably due to the stock market drop, contributing to a short-term reduction in income and wealth inequality. By 2021, however, income losses had largely been recovered, and wealth inequality began to rise again.

From an international perspective, Switzerland appears to have successfully cushioned the immediate social consequences of the pandemic. The Swiss strategy—by strengthening the unemployment system in combination with short-time work schemes, targeted compensation payments, and liquidity support for businesses—proved effective in maintaining households' attachment to the labor market and in preventing a broad-based rise in poverty. Compared to countries that also managed to stabilize post-transfer poverty rates but relied primarily on generous lump-sum payments to individuals who lost their jobs, the Swiss policy mix may have been more effective in avoiding medium-term scarring effects. This is because the Swiss approach focused on preserving employment relationships and keeping individuals closely connected to the labor market. In the short term, it may make little difference whether financial support is directed to households or firms, as long as households maintain sufficient income. In the longer term, however, job loss can lead to the erosion of human capital ([Stantcheva, 2022](#)), which may increase the risk of poverty once temporary pandemic-related support measures expire. Our findings suggest that such longer-term scarring effects were largely avoided in Switzerland.

While we cannot causally identify the impact of each specific intervention, our findings underscore a broader point: a responsive and flexible welfare state can prevent large economic shocks from translating into widespread and persistent hardship. This lesson is not only relevant for pandemic preparedness, but also for navigating future economic and social disruptions.

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