

Online Appendix

A.1 Extensive Margin and Betwixt Assessments

In this section, we describe betwixt assessments carried out to deal with large changes in economic situation under the old system and how they interact with the transition. Recall that betwixt assessments were done only when changes were permanent, which is defined as a change in work status lasting at least 2 years. Starting to work for a short period (less than 2 years) or stopping work temporarily (less than 2 years) would not trigger a betwixt assessment. As such, temporary extensive margin responses carried out during the tax holiday are not affected by betwixt assessments.

Betwixt assessments in the old system. Under the old system, when a person started or ended a job on a permanent basis, or moved permanently to a different canton during a tax period, the system adopted a temporary pay as you earn taxation (betwixt assessment) until the end of the period. Let us examine how this affects incentives for permanent entry, permanent exit, or migration.

Permanent entry. Suppose the tax period is 1995/1996 and a person had not worked in 1993/1994 and started working on July 1st, 1996 for 2000CHF/month. In this case, there is no taxation in 1995 and the first half of 1996 (as the reference period 1993/1994 has zero earnings). In the second half of 1996, there is a betwixt assessment where the person is taxed based on her current new earnings, annualized to $2000 \times 12 = 24,000$ CHF. This assessment lasts for 6 months only (so that half of an annual tax on 24,000CHF is due). In 1997/1998, the person is taxed based on her annualized income of 24,000CHF from 1996 (i.e., the reference earnings for the 1995/1996 are taken to be the annualized earnings when the person was working). Earnings from 1997/1998 will then be taxed in 1999/2000, etc. Therefore, in the old system, new entry earnings were doubled taxed, first as pay as you earn and then during the regular next period of taxation. The best strategy to minimize double taxation is to enter with a low level of earnings so that taxes over the next tax period are based on this low basis (and let earnings ramp up over the next tax period). Empirically, we will show that entrants had indeed lower entry earnings in the old system (using the new system as a control group).

Entering during the tax holiday triggers a betwixt assessment exactly as in the old system but, in contrast to the old system, there would be no double taxation during the next period. Hence, the tax holiday also reduces the tax burden on the entry margin but it is less salient as only the second and future layer of taxation is removed. Empirical analysis (not reported) shows that the tax holiday has no significant impact on entry decisions.

Permanent exit. Symmetric incentives are created along the exit dimension.³⁴ Let us consider the most common case of retirement. Suppose a person earns 2000CHF/month up to July 1, 1996 and then retires with a pension of 1000CHF/month. In 1995 and the first half of 1996, the tax is based on average earnings of 1993 and 1994. In the second half of 1996, the person is taxed pay as you earn based on annualized pension income of $12 \times 1000 = 12,000$ CHF. In 1997/1998 the tax will also be based on 12,000CHF of annual pension income from the second half of 1996. Hence, initial pension income is also double taxed. This implies that the earnings while working made in 1995 and the first half of 1996 are never taxed in the

³⁴Under the old system, death extinguishes tax liability so that income made during one's last tax period is never taxed (and income earned during the tax period preceding death is only partly taxed while the person is still alive in her last tax period). We do not study this aspect as most people stop working well before death and death while still working is typically an unexpected event.

old system (and the earnings for 1993/1994 are only taxed for 1.5 years out of 2, hence bear only 75% of the normal tax burden). Effectively, the old system created a tax holiday for earnings made in the tax period when leaving the labor force (and a partial tax holiday for the period before leaving the labor force). Therefore, the best strategy is to have high earnings (e.g. earn overtime or get bonuses) just before retirement.³⁵ Empirical analysis (not reported) of earnings prior to retirement suggests that retirees had indeed high earnings in their last tax period in the old system (using the new system as a control group).

Exiting during the tax holiday triggers a betwixt assessment exactly as in the old system. Therefore, pre-retirement earnings are taxed exactly the same in the old system and during the tax holiday transition. The only difference is about the treatment of pension income. In the old system, pension income in the first period of retirement is taxed twice while it is taxed only once during the tax holiday. We do not have access to pension income data to analyze responses of pension benefits.³⁶

Migration to another canton. Migration to another canton also triggered a betwixt assessment under the old system. I.e., tax liability in the canton of origin stopped and was replaced by pay as you earn on an annualized basis in the new canton of residence. This means that earnings in the canton of origin was partially tax exempt while initial earnings in the new canton of residence would be doubled taxed. Moving during the tax holiday also triggered a betwixt assessment. As a result, riding the tax holiday waves by moving from canton to canton to follow the blank years was not a winning strategy. After the first move, the taxpayer would be assessed on her current income and hence would not benefit from the tax holiday anymore. Therefore, the tax holiday does not generate any migration incentives and we do not analyze migration responses specifically (our data do not show any evidence of migration to tax holiday cantons as expected from the tax incentives we have described).

A.2 Data Description

We are using several data sources for our empirical analysis.

A.2.1 Matched SSER-Census Data

The main data set used in the empirical analysis tracks the entire labor market history of the population of Switzerland. To this end, we merge the register-based population census of Switzerland as of December 2010 (via a social security number) to 100% of the social security earnings records (SSER) from the Old-Age and Survivors' Insurance (OASI, AHV in German), covering the period 1981–2012.³⁷ We match to census data because the social security data do not contain geographical and marital information which are key for our empirical design.

³⁵The timing of exit along the extensive margin is actually neutral. Exiting early in the period implies that the previous tax period earnings are almost fully exempt. Exiting late in the period implies that the current tax period earnings are exempt. Empirically, we find no effect on the timing of retirement during the tax period in the old system. The old system also encouraged people to have initially low retirement benefits.

³⁶There is relatively little scope for individuals to control the level of their defined benefits pensions. However, there is more flexibility in how individuals choose to receive their defined contributions benefits from their individual pension fund accounts: they can choose the pre-defined annuity, which is taxed as income, or cash-out the capital, which is taxed with a separate one-time tax at payout. Bütler and Ramsden (2017) study the role of taxation in individual annuitization decisions.

³⁷Unfortunately, the 2000 Census does not have social security numbers and hence cannot be matched to the earnings data.

In the SSER data, employed or self-employed individuals generate one record per job per year that details the starting and ending month of an employment relationship along with the total earnings over that time period. For example, a person with two different employers and also some self-employment income would generate three records.³⁸ Finally, the register also contains contributions of non-employed individuals (e.g. students) because contributions to the old-age scheme are mandatory from age 20 onward until reaching the statutory retirement age. The statutory retirement age was 65 for men throughout our sample period. For women, it was increased from 62 to 63 in 2001 and to 64 in 2005 as part of the 10th OASI reform implemented in 1997. Besides the retirement age, the reform increased compulsory coverage of non-employed married and widowed women below retirement age, who had been exempt from annual contributions towards the OASI before.

Because virtually everybody generates a record at some point in his or her life, our matched data set contains 98% of the permanent population aged 20–60 in 2010. Naturally, as we move back in time, the sample coverage of persons aged 20–60 gets slightly smaller because certain individuals that lived in Switzerland in these earlier years died or emigrated and hence are not in the 2010 census. Figure A4 illustrates the sample coverage of our data. It compares the number of individuals aged 20–60 in the matched data set with data on the actual population aged 20–60 in a given year. The latter data are taken from the official population statistics of the Federal Statistical Office. The figure shows that our matched data set contains 91% of all individuals aged 20–60 living in Switzerland in 2000.

In Figure A5, we compare the employment rate of 20 to 64 year-old Swiss men and women in our data with the employment rate of these groups according to the SLFS. We observe that the employment rates are slightly higher in our data than they are in the SLFS. The likely reason is that the employment rate in the SLFS refers to the second quarter of each year, while we define a person as employed in a given year if she or he has positive earnings in at least one month of the year.

While the data hence covers the near universe of the population of Switzerland, the matched data set has some disadvantages, too. First, the earnings records in 1998 are incomplete. The share of wage earners for which records are missing is about 5%. It is not entirely clear why these records are missing (see the discussion below). The missing records prevent us from analyzing aggregate outcomes in 1998, as the problem of missing records does not affect all cantons to the same extent. Second, the register-based census 2010 does not contain information on some variables of interest normally available in census data such as schooling/education, occupation, or number of children. Third, we only observe the characteristics of individuals as of 2010. This is a concern for characteristics that can change over time, especially an individual's place of residence, marital status and immigrant status or citizenship. The census provides information on how these characteristics changed in the past, allowing us to reconstruct the information for years prior to 2010. Nevertheless, we have to impute some of the data points making a set of assumptions. We discuss the imputations procedures for the three variables in the following subsections.

Missing records in 1998. The earnings records in the year 1998 are incomplete. About 4.5–5.5% of all records are missing. Figure A15 illustrates this. The reasons for the missing observations are not entirely clear. According to statisticians of the compensation office, the missings most likely arise because one of the IT pools, which are responsible for delivering the earnings records of several equalization funds (*Ausgleichskassen*) to the federal equalization fund collecting the data, had IT problems at the time. As one IT pool handles several equalization funds, several equalization funds have missing records in 1998.

³⁸Moreover, the data contain individual records for unemployment benefits and disability pensions as well as income compensation allowances in the event of military service or maternity.

The problem is that some cantons are more heavily affected by the missing data problem than others. For example, descriptive analyses suggest that the cantonal equalization funds of the cantons of St. Gallen and Fribourg were strongly affected. The problem with the missing records remained unnoticed at the time because statistics that are based on the earnings records were only published in odd years. Inquiries revealed that it would be impossible to try to recover the missing records as of today. The reason is that many affected workers are retired by now. The equalizations funds discard the data for retired workers. When using aggregate data, we thus discard observations from 1998 to ensure that our graphical analysis is not affected by this data problem.

Place of residence. Apart from the place of residence in 2010, the data provide the following information: (1) year a person moved to the municipality, (2) municipality of residence 1, 2 and 5 years ago, (3) last municipality of residence.

Using this information, we can assign a known municipality of residence to roughly two thirds of the individuals in the relevant period (i.e. 1997–2003, see the upper panel of Figure A16). If we are willing to assume that individuals paid taxes for at least 8 years in the municipality they come from—8 years is the median duration of stay in the municipality of residence of 20–64 year olds in the census 2010—we can impute roughly 90% of the places of residence. However, our baseline strategy is to assign all individuals to the last known municipality. Two comments on this assumption are in order. First, the problem of missing information on the place of residence is smaller for older individuals, as individuals usually become more settled, the older they get. Second, the assumption is not as strong for the imputation of canton (rather than the municipality) of residence, because only 26% of the observed moves in our data occur across cantons.

We can evaluate the accuracy of our imputation when it comes to the canton of residence. The reason is that the data identify cantonal unemployment agencies paying unemployment benefits. Since the unemployed are assigned to cantonal agencies based on their canton of residence, we can compare the imputed canton of residence of registered unemployed with the canton of their unemployment agency. The lower panel of Figure A16 provides a summary of the results of this accuracy test. It shows the share of correctly assigned cantons of residence for individuals for which we actually know the canton of residence due to the information in the census and for all individuals, including the imputed places of residence. The figure shows that the share of correctly assigned cantons of residences is around 90% in 2000, where the canton of residence is only known for 66% of the sample.

Immigrant status. Information on the residency status of immigrants is important in our analysis because immigrants only pay taxes in Switzerland if they either have a residency permit C or obtained the Swiss citizenship. We impute the missing information on the immigrant status in the years before 2010 using information on when an individual arrived in Switzerland, which is reported in the 2010 census. In particular, we assume that an immigrant has a permit C or gained the Swiss passport—and thus pays taxes in Switzerland—if he or she lived in Switzerland for at least 10 years. Figure A17 provides the motivation for this approach using data from the 2010 census. It shows that ten years after immigration 86% of all foreign born have a C permit or a Swiss passport. Moreover, we know the residence status in 2010. We can thus reassign individuals that are thought to be either Swiss citizen or C permit holders in 2010 which in fact are not.

Marital status. Marital status is an important variable as it affects both the potential labor supply response and the tax rate faced by individuals due to joint filing. In addition to the marital status and

a variable on whether someone is separated in 2010, the census data provide the following information: (1) year when the marital status changed (if applicable), (2) year of separation (if applicable).

Based on this information, it is possible to reconstruct the history of an individual's marital status up to the last change. Prior to that event, however, we need to make different assumptions to impute the marital status. Note that we need the information on separated but not (yet) divorced individuals because they are taxed as singles. Figure A18 below shows the share of the population aged 35 to 75 in 2010 for which the civil status is known according to different imputation approaches. The bottom line makes the weakest assumption, assuming only that before divorce or widowhood (marriage) someone was married (single) for at least one year. According to these assumptions, the share of individuals with respect to the total population aged 35 to 75 in 2010 with known civil status lies at 80% in 1995 and increases up to 98% in 2010. In the next line, this assumption is extended to having been married for at least 7 years before divorce or widowhood. With the average duration of marriage before divorce being 14 years, this is still not a very strong assumption. In the next scenario (third line from below), we make more sophisticated, gender-specific assumptions on marriage behavior based on age at time of marriage, divorce, and dissolved same-sex partnerships. First, we assume that those who married before the median marriage age (men: 28, women: 26) were single before. Everyone we assume was single for at least one year before getting married. Those who were in their 40s when they got married we assume that they were single for at least two years before getting (re-)married. The reason is that at that age it is more likely that they have children from an earlier marriage, in which case we assume a divorce to take longer. In case a couple does not reach an amicable agreement on the divorce, 2 years is the time period a couple has to be factually separated before they can get a divorce at a court. Unfortunately, the data do not provide any information on whether someone has children. Those who divorced at the median age of divorce or earlier (men: 43, women: 40) are assumed to having been married since the gender-specific median age of getting married (men: 28, women: 26). Similarly, for widows and widowers we assume that they have been married since the gender-specific median age of getting married. For someone coming out of a same-sex partnership, we assume that they were married since 2007, first year in which a legal union between same-sex couples was possible, and that they were single for 7 years prior to getting married. The top line finally is based on an imputation method which assumes that the change in civil status recorded in the data is the only one that ever took place. In this scenario, everyone was single before getting married and every divorce or widowhood was preceded by a marriage which started at the average marriage age (men: 30, women: 29). Before that age, individuals who are divorced in 2010 are assumed to have been single. For dissolved same-sex partnerships we assume that they started no earlier than the average marriage age but always later than 2006, and that before that, the person was always single. These strong assumptions allow assigning a marital status to everyone in the sample, corresponding to 98% of the Swiss population aged 35 to 75 in 2010 throughout the period 1990–2010.

Missing contribution types for non-pensionable incomes prior to 2000. The SSER has separate records for so-called non-pensionable incomes. These are entries for earnings from (a) individuals in the year they reach the legal retirement age, (b) individuals who continue to work past their retirement age, and (c) old age benefits collected by persons who retire before reaching the legal retirement age. An associated variable in the dataset indicates whether non-pensionable incomes represent earnings from self-employment, dependent employment, or contributions of non-employed. However, this variable, termed *special*, is not well recorded prior to 2000: most entries are missing. We impute this information using the following procedure. We first use information on *special* for the same individual for years posterior to 1999. If this does not work, we exploit information on the individual's

past labor market histories. On the one hand, we use the income source of the highest income earned in the last working year. On the other hand, we use the share of wage-, self-, or nonemployment records in all records of an individual in the 3 years up to the last working year. Each entry that has an associated earnings entry at or below the annual statutory minimum contribution is considered to come from non-employed individuals.

A.2.2 Wage Structure Survey (LSE)

The Swiss Federal Statistical Office (FSO) has conducted the Swiss wage structure surveys (*Lohnstruktur-erhebung* LSE) every two years since 1994. They are a stratified random sample of private and public firms with at least three full-time-equivalent workers from the manufacturing and service sectors in Switzerland. Excluded are (i) public sector employees in municipalities (until 2006), (ii) agricultural workers, and (iii) apprentices and interns. The surveys cover between 16.6% (1996) and 50% (2010) of total employment in Switzerland. Participation is mandatory. The surveys contain extensive information on the individual characteristics of workers and provide reliable (employer-reported) information on hours worked per worker. Moreover, they provide detailed information on the wage components of each worker, providing, among others, detailed information on bonus payments per worker.

We focus on Swiss nationals and foreign nationals with residency permit C aged 20–60. We drop a small number of observations with missing information on gender, nationality, and civil status. Moreover, we exclude public sector employees (workers from NACE rev. 1.2 two-digit industries 75, 80, and 85) since the public sector is not covered comprehensively in the surveys before 2006. One issue with these data for our analyses is that they only provide the geographical location of the work location and not the residence location. This creates measurement error for individuals who do not live in the same canton they work. We address this problem by excluding zip codes where more than 25% workers stem from one of the other groups of cantons relevant in the analysis. Approximately 10% of all observations in the surveys are dropped due to this restriction. The commuting patterns by zip code are computed from the census in 2000.

We consider the following outcomes:

- Hours of work per worker per month: Hours of work are employer-reported and refer to the month of October in each year. Hours worked refer to contractual (i.e. normal) hours worked for workers with monthly wages (4 1/3 times weekly working time) and to actual hours worked for workers paid by the hour.
- Hourly wages: Hourly wages refer to the month of October in each year. They are computed by dividing the sum of regular gross wage earnings in October plus 1/12 of a possible 13th monthly wage payment by hours of work per worker. Wage rates thus incorporate regular pay but exclude overtime and variable pay components (e.g. bonuses).
- Earnings: Earnings refer to gross labor earnings in 2010 CHF in October of each year, including social security contributions. Earnings include regular monthly wages and overtime and other variable pay components (e.g. bonuses).
- Bonuses: Includes bonus payments, premiums, profit shares paid out to employees and other non-regular wage payments to the worker for the entire year of the survey.

A.2.3 Labor Force Survey (SLFS)

The Swiss Labor Force Survey (SLFS) is the equivalent of the US Current Population Survey. In the period of interest, this survey was conducted in the second quarter of each year. It includes about

17,000 individuals (approximately 0.5% of households) before 2002 and about 50,000 (1.5%) from 2002 onward. We focus on Swiss nationals and foreign nationals with residency permit C aged 20–60. These data have two main advantages relative to our main census-social security data. First, they provide earnings and employment information for both spouses for married individuals, which we use to estimate spousal earnings in order to estimate tax rates for married individuals. Second, they provide information on hours of work. The main drawback relative to our main data is a very small sample size (the full population data is about 100 times larger). As a result, most of the series produced with the labor force survey are very noisy compared to the population-wide data. Another drawback is that most variables are self-reported introducing significant measurement error as well.

We consider the following outcomes:

- Employment rate: fraction of people employed in the second quarter of each year as a share of the permanent population (refers to employment in the week before the survey)
- Earnings: total annual labor earnings, self-reported
- Hours of work per week: Hours effectively worked in week before the survey (refers to all jobs held), self-reported
- Hourly earnings: annual labor earnings divided by 51 times self-reported normal weekly working hours

A.2.4 Income Tax Rates Data

None of the above micro data sets includes individual’s tax rates. We therefore merge the statutory tax rate for a given income in a given municipality to these data. Income tax rate data have been collected and made available by Parchet (2014) for this project. The data set is based on average effective tax rates on gross income published by the Federal Tax Administration for the 800 (approximately) largest municipalities. These tax rates are defined as shares of the consolidated cantonal, municipal and church tax liability in gross annual income for different categories of taxpayers (unmarried, married without children, married with two children, retired) and gross income classes (from CHF 10,000 to CHF 1,000,000). Parchet (2014) has collected the municipal tax multipliers for all municipalities between 1983 and 2014 and, using the fact that intra-cantonal differences in consolidated tax rates are almost entirely due to municipal tax multipliers, has estimated the total average tax rate for all municipalities and taxpayers.

Missing Cantons. Unfortunately, tax rates cannot be estimated with this method for the cantons of Appenzell Innerhoden and Neuchâtel before 2001. In the former, multipliers are not available; in the latter, municipalities could set their own tax schedule. For these cases, predicting consolidated tax rates is not possible, nor is the estimation of the cantonal tax rate. Tax rates for these cantons are therefore missing.

Marginal Tax Rates. We linearly interpolate the tax rates in steps of 1,000 CHF between the income brackets provided in the original data. For incomes above 1 million CHF we assume a constant average tax rate. Our estimates of the marginal tax rate are based on the local changes in the tax rate in steps of 1,000 CHF.

Municipality Mergers. The consolidated tax rates and tax multipliers are published in real time for each municipality, as it exists in a given year. The location information we obtain from the Census data refers to the registers of municipalities as of November 2010. Since there has been an ongoing trend in mergers of small municipalities over time, it is not possible to perform a 1:1 match on the tax rate data. We therefore update the municipality codes in the tax rate data to match the municipality registers as

of November 2010. Individuals living in a merged municipality, we assign the average tax rate of the merged municipalities. Individuals living in a newly created municipality, we assign the average tax rate that was applied on this territory prior to the secession.

A.3 Further Robustness Checks

Effects in the Labor Force Survey. Figure A8 displays various employment outcomes using the Labor Force Survey (SLFS): (a) employment rate, (b) earnings, (c) hours of work per week among employees, (d) average hourly earnings among employees. The sample in a given year t includes all individuals aged 20-60. For hours of work and hourly earnings, we restrict the sample to employees. We consider 3 groups of cantons. (1) 2 cantons which transitioned in 1999 with a tax holiday in 1998 or 1997-98 (in blue), (2) 20 cantons which transitioned in 2001 with a tax holiday in 1999-00 or 2000 (in green), (3) 3 cantons which transitioned in 2003 with tax holiday in 2001-02 (in brown). In the series, the dots corresponding to tax holidays are bigger and are blanked out (as tax holidays are called blank years in French and German). The figure does not display any tax holiday effects on these outcomes. Given the noise in the series due to small sample size, this is consistent with our previous analysis using the much larger social security data and the wage structure survey.

Early transition cantons. In the main text, we did not analyze the early tax holiday in the cantons of Zurich and Thurgau because of lack of complete data in 1998 (see above). In Figures A6 and A14, we have examined the effect of the early tax holiday in the cantons of Zurich and Thurgau. We deal with the non-random missings in 1998 by discarding individuals that are likely to be affected by the missing data problem in 1998. To this end, we identify OASI compensation offices whose number of records is 5% lower in 1998 compared to 1997 *and* 1999. All individuals with records from these compensation offices are then dropped from the entire analysis.

Figure A6 displays the employment rate by year and groups of cantons from 1990 to 2010. The top panel is for men and the bottom panel for women. The sample in a given year t is all individuals aged 20-60 in year t who are still alive and Swiss residents by 2010 (i.e., present in the 2010 Census). The employment rate is computed as the fraction of individuals in the sample with positive earnings (either from wages or from self-employment) during the year. The two groups of cantons are: (1) 2 cantons which transitioned in 1999 with a tax holiday in 1999 for local taxes and 1999-00 for the federal tax (in blue), (2b) 4 cantons which transitioned in 2001 with a tax holiday for 2000 only for local income taxes and 1999-00 for the federal tax (in darker green). There is no visible effect on employment rates for the early transition counties.

Figure A14 displays average wage earnings (top) and average self-employment earnings (bottom) by year and groups of cantons from 1990 to 2010. The sample in a given year t is all individuals aged 20-60 in year t who are still alive and Swiss residents by 2010 (i.e., present in the 2010 Census) and had average annual labor earnings (wages plus self-employment) above 200,000 CHF in 1994-1996. Earnings are expressed in 1000s of 2010 CHF (adjusted for inflation). The two groups of cantons are: (1) 2 cantons which transitioned in 1999 with a tax holiday in 1999 for local taxes and 1999-00 for the federal tax (in blue), (2) 4 cantons which transitioned in 2001 with a tax holiday for 2000 only for local income taxes and 1999-00 for the federal tax (in darker green). The top graph provides suggestive evidence that high wage earners responded to the early tax holidays in Zurich and Thurgau. However, in contrast with our findings in the main text, there is no evidence that high self-employment earners responded to the early tax holidays.

Substitution across years. We have seen that the tax holiday did lead to increased earnings during the tax holiday especially for the self-employed and high wage earners. We analyze whether these increased earnings come at the expense of earnings in surrounding years through intertemporal substitution. To test for this, we empirically estimate whether earnings just before or just after the tax holiday are depressed (relative to control groups). Table A3 presents estimates of the tax holiday on intertemporal income shifting based on regressions of the aggregate time series for the 3 groups of cantons on year and group dummies. The covariates of interest are a dummy equal 1 in the year in which municipal and cantonal taxes are zero, and dummies for the year immediately prior and posterior to the cantonal tax holiday. The estimation sample covers all individuals aged 20–60 and the years 1990–2010, including 1998 (dropped from the rest of the tables). We deal with the non-random missings in 1998 by discarding individuals that are likely to be affected by the missing data problem in 1998. To this end, we identify OASI compensation offices whose number of records is 5% lower in 1998 compared to 1997 and 1999. All individuals with records from these compensation offices are then dropped from the entire analysis. The dependent variable in column (1) is annual labor earnings per person (including 0, in 1000 CHF). The dependent variable in columns (2) and (3) are the average wage per worker and the average self-employment income per self-employed in 1000 CHF, respectively. Panel A is restricted to men aged 20–60, Panel B to women aged 20–60. Individuals are assigned to Panels C and D based on their average annual labor income in the 1994–1996 period.

Overall, while the regression estimates confirm positive earnings effects during the tax holiday, all the coefficients for the year just before or just after the tax holiday are insignificant. Furthermore, there is no tendency for the coefficients to be negative. In fact, more than half of the coefficients are positive. This suggests that the extra earnings during the tax holiday do not come solely at the expense of earnings in surrounding years through short-term retiming.

Heterogeneity. Table A4 explores heterogeneity by cantonal referendum vote (vs. legislature vote), cantonal vote date, local tax burden, language region, and local unemployment. The table examines whether the effects of the tax holiday are larger in regions that fulfill the criteria of interest in each panel. All estimations are based on regressions of aggregate time series for the three canton groups with tax holidays in 1999/2000, 2000, and 2001/2002. The dependent variable in columns (1) and (5) is the employment rate (in %). The dependent variable in columns (2) and (6) is annual labor earnings per person (in 1000 CHF, including 0). The dependent variables in columns (3) and (4) are the average wage per worker and the average self-employment income per self-employed in 1000 CHF, respectively. We use two time series per canton group if the group contains both, region for which the dummy variable of interest in each panel is zero and for which it is one. In Panel A, the dummy blank year is interacted with a dummy that is one in case a canton voted about the tax reform associated with the tax holidays. In Panel B, it is interacted with a dummy that is one in case a canton voted about the tax reform prior to the second blank year. In Panel C, it is interacted with a dummy that is one for municipalities with an average tax rate in the top 33% of municipal tax rates in 1998. In Panel D, it is interacted with a dummy that is one for municipalities with a marginal tax rate in the top 33% of municipal tax rates in 1998. In Panel E, it is interacted with a dummy that is one for French-speaking municipalities. This regression is restricted to the three cantons with both, a German- and a French-speaking region (Bern, Fribourg, and Valais). In Panel F, it is interacted with a dummy that is one for cantons with an above-average unemployment rate among cantons in 1998. Columns 1–4 are restricted to men aged 20–60, column 5 to women aged 20–60, and column 6 to individuals with annual income exceeding an average of 200k in 2010 CHF in 1994–1996.

Overall, we find that the interaction effects are not significant implying that a cantonal vote, the date of the cantonal vote, the local tax burden, the language of the region, and local unemployment rate had not a strong impact on the size of the estimates.

Average Tax on CHF 100,000 Gross Income

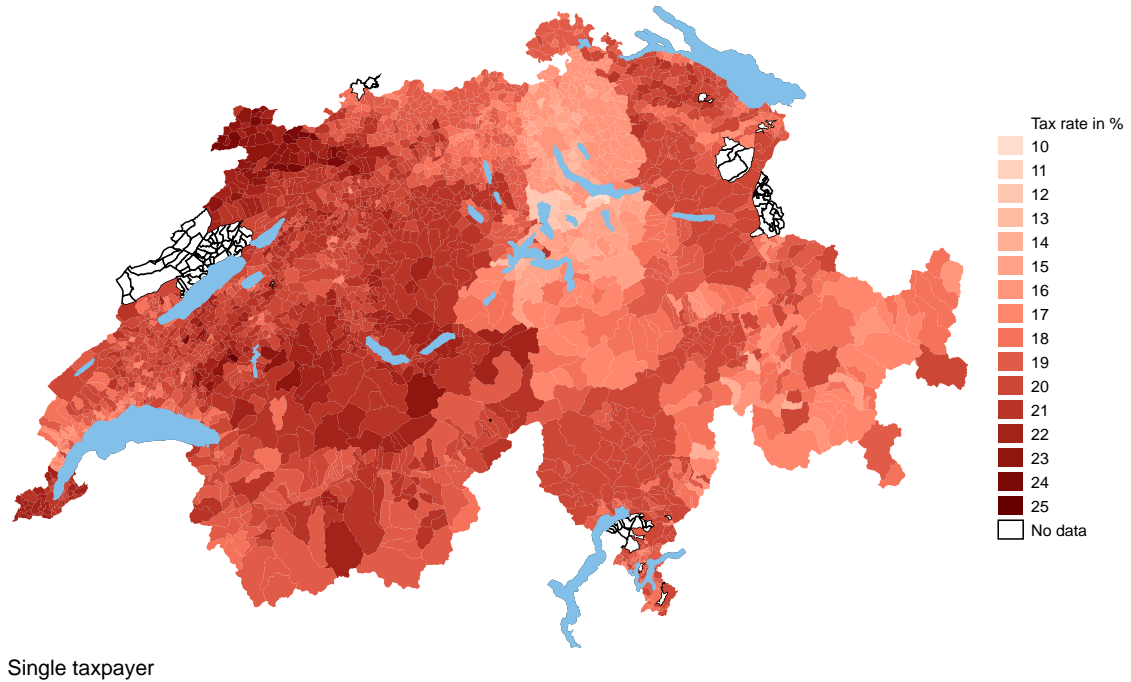


Figure A1: Average Tax Rates Across Swiss Cantons

Notes: This figure depicts the average income tax rate in 1999 across Swiss municipalities. The tax rate combines income taxes at the federal, cantonal, and municipal levels and is computed for a single tax filer with gross income of 100,000 CHF, approximately the 90th percentile of labor earnings across all Swiss workers. The average tax rate is defined as taxes owed divided by gross income. The graph shows substantial variation in tax burdens across areas with tax rates at low at 10% and tax rates as high as 25%.

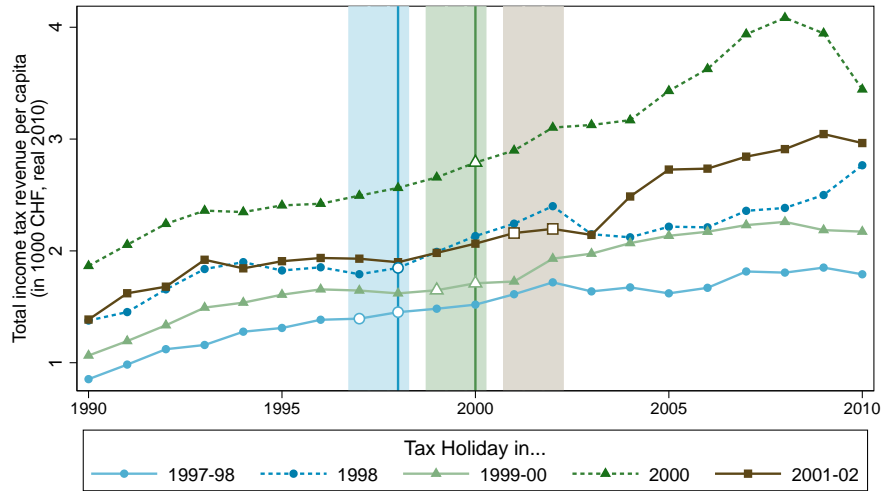


Figure A2: Individual Income Tax Collections per Capita

Notes: This figure depicts total income tax revenue per capita collected by year and groups of cantons. Amounts are expressed in thousands of 2010 CHF. The cantons are divided in five groups based on when the tax holiday took place. (1a) light blue: tax holiday in 1997-98 (1 canton), (1b) dark blue dashed: tax holiday in 1998 (1 canton), (2a) light green: tax holiday in 1999-2000 (15 cantons), (2b) dark green: tax holiday in 2000 (4 cantons), (3) brown: tax holiday in 2001-02 (3 cantons). In the series, the dots corresponding to tax holidays are bigger and are blanked out (as tax holidays are called blank years in French and German). Tax rates are naturally zero during tax holidays. Before the transitions, income tax collected in a given year typically corresponded to incomes earned in prior years. After the transition, income tax collected in a given year typically corresponds to incomes earned in the current year. The figure shows that there was no visible discontinuity in income tax collections across the tax holidays (there was no double taxation nor gap in tax collection in the transition).

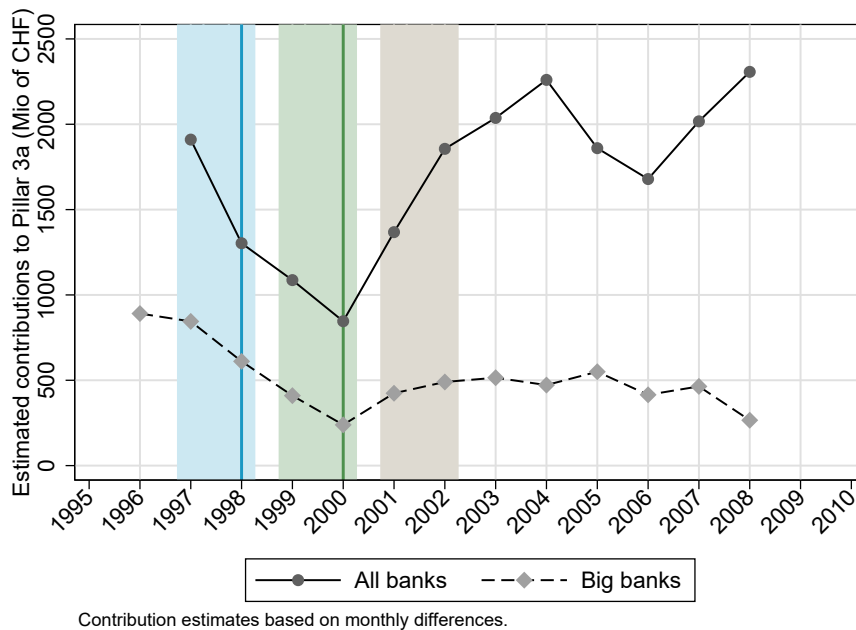


Figure A3: Effects of the Tax Holiday on Pillar 3a Pension Contributions

Notes: This figure displays pillar 3a individual pension contributions by year made through large banks and made through all banks (including the large banks). Pillar 3a pension contributions are voluntary and deductible for income tax purposes (similar to US IRA accounts). The figure shows that such contributions were significantly lower in 1999 and 2000 when most cantons had their tax holiday, consistent with a tax avoidance response whereby individuals retime their pension contributions into taxable years. Unfortunately, we do not have access to cantonal level contributions to refine this analysis. The series are produced using only information on pillar 3a balances by month since 1996. The monthly balance series show jumps in January and December implying that the vast majority of contributions are made in a lumpy way in either December or January. Hence, we estimate contributions in year t by adding the changes in balances from end of December year $t - 1$ to end of January year t and from end of November year t to end of December year t .

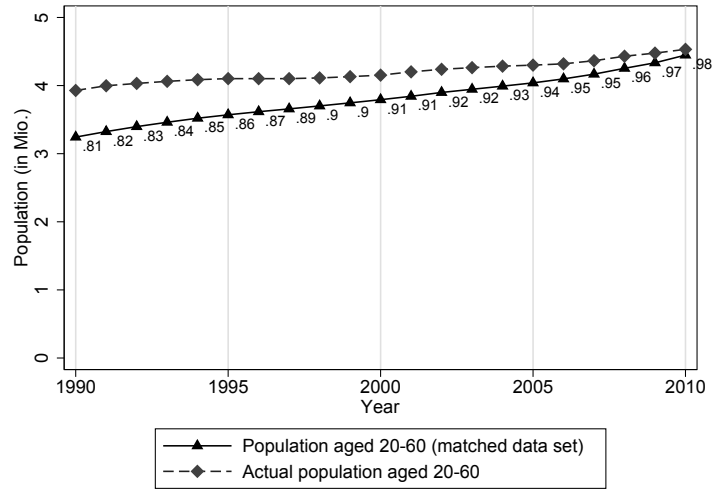


Figure A4: Sample Coverage

Notes: This figure displays the total resident population of Switzerland aged 20–60 and the total population captured by our sample aged 20–60 (which are all individuals with a social security record in any year 1990–2010 and resident in Switzerland in 2010 so that they can be matched to the Census 2010). The numbers show the fraction of individuals in our sample vs. the full population. Coverage is closer to one in recent years (due to deaths and migration).

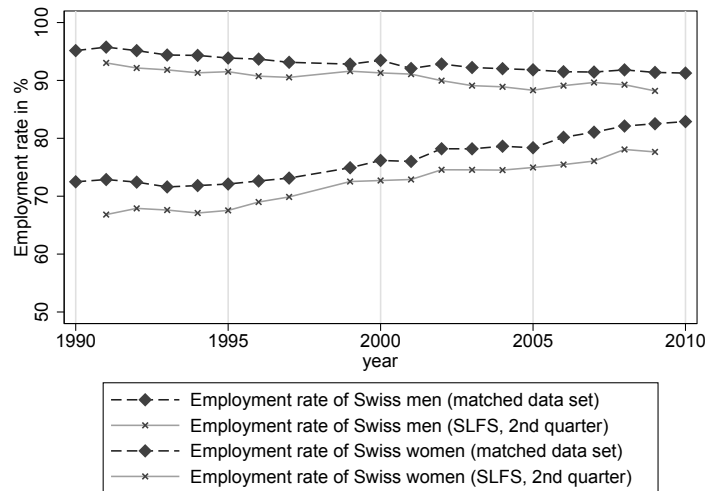


Figure A5: Accuracy of Employment Rate

Notes: This figure displays the employment rates of men and women aged 20–64 separately in our sample and in official statistics derived from the Swiss Labor Force Survey (SLFS). In our data, we count individuals as employed if they have non-zero labor earnings in a given year. The official statistics count a person as employed if she works at least one hour in the second quarter of a specific year. These differences in the measurement of employment explain the level differences between the two statistics. We omit 1998 due to the missing social security records in this year.

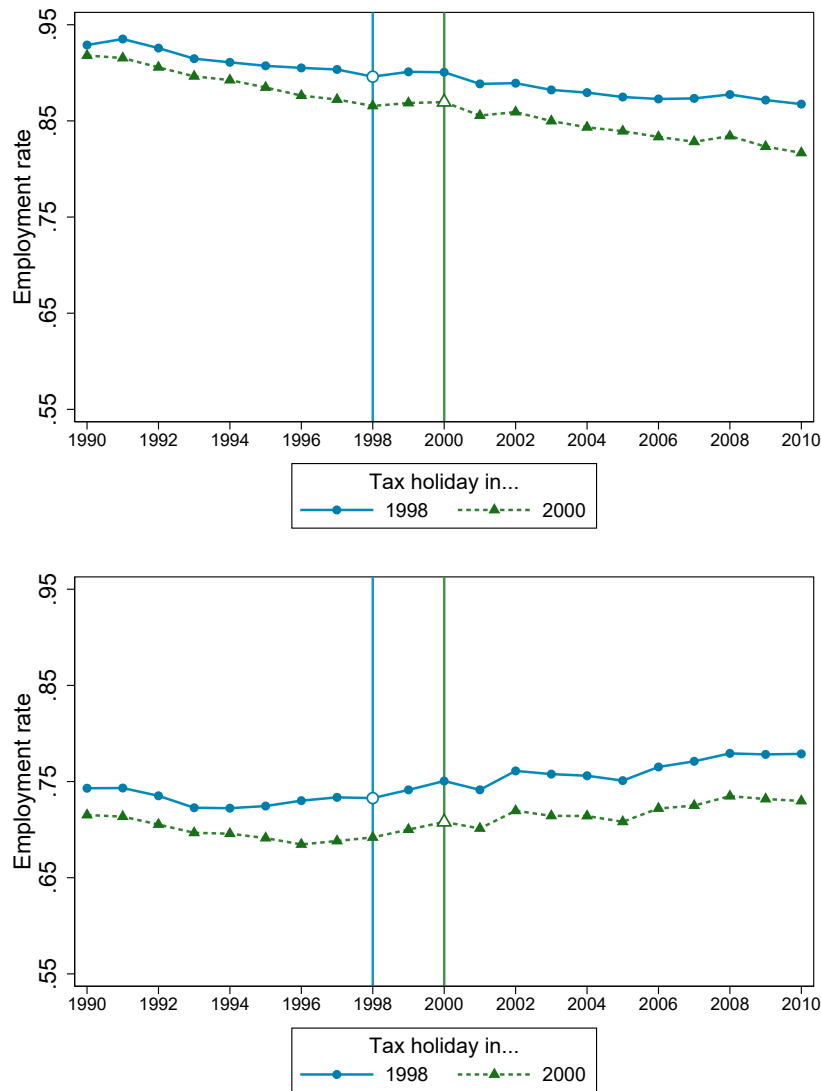


Figure A6: Effects of Early Tax Holiday on Employment: Males (top), Females (bottom)
Notes: This figure displays the employment rate by year and groups of cantons from 1990 to 2010. 1998 earnings are partly missing in the social security data and are imputed following the method described in appendix. The top panel is for men and the bottom panel for women. The sample in a given year t is all individuals aged 20-60 in year t who are still alive and Swiss residents by 2010 (i.e., present in the 2010 Census). The employment rate is computed as the fraction of individuals in the sample with positive earnings (either from wages or from self-employment) during the year. The two groups of cantons are: (1) 2 cantons which transitioned in 1999 with a tax holiday in 1998 for local taxes and 1997-98 for the federal tax (in blue), (2b) 4 cantons which transitioned in 2001 with a tax holiday for 2000 only for local income taxes and 1999-00 for the federal tax (in darker green). For each of the two groups, we represent the corresponding tax holiday periods using the vertical shading and the same color code. In the series, the dots corresponding to tax holidays are bigger and are blanked out (as tax holidays are called blank years in French and German). There is no evidence of an employment response in 1998 to the early tax holiday.

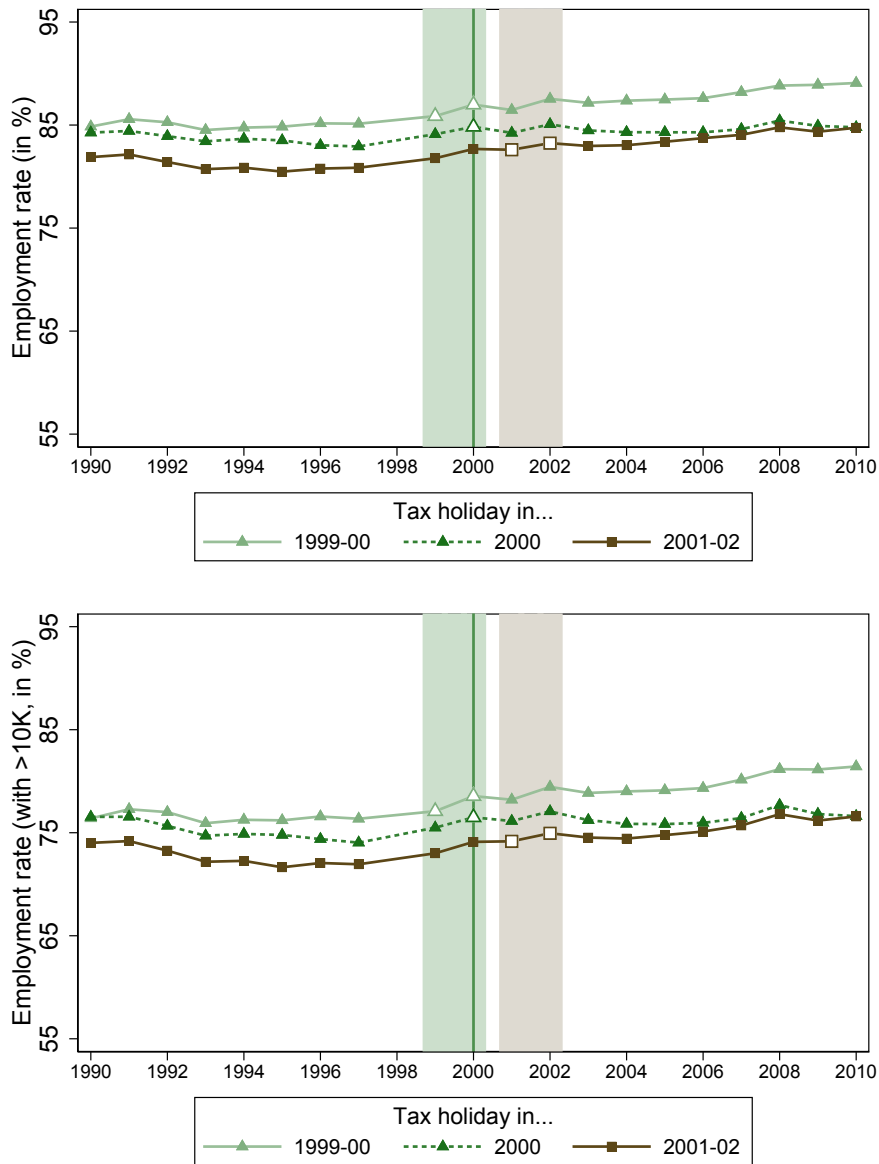
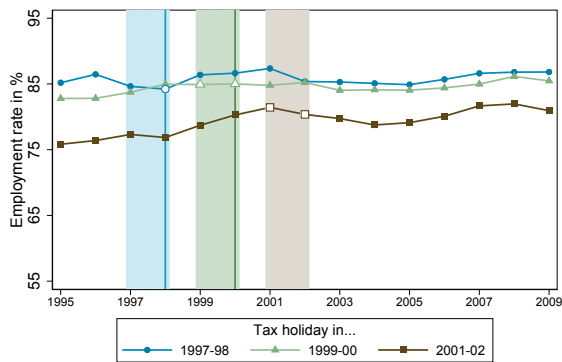
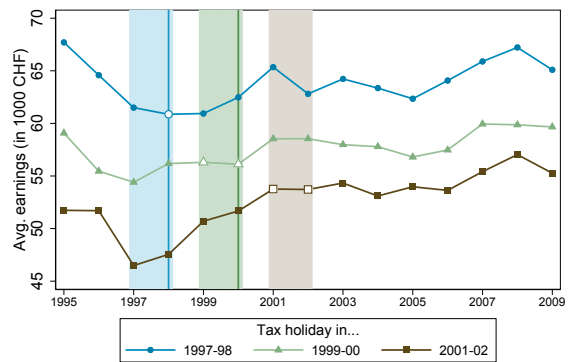


Figure A7: Robustness of Employment Effects: Benchmark (top) vs. 10,000 CHF Threshold (bottom)

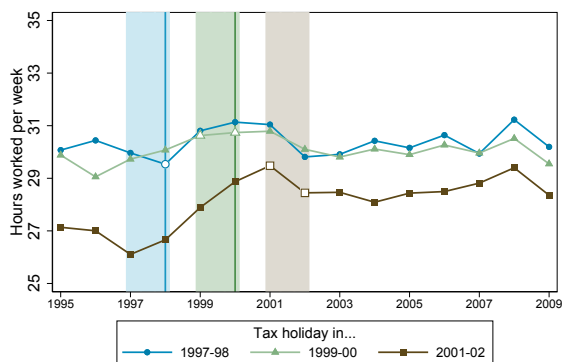
Notes: This figure depicts a robustness check on the employment effects from Figure 7. The top panel shows the employment rate (pooling together both male and females aged 20-60) where employment is defined as having any positive earnings (from wages or self-employment during the year) as in Figure 7. The bottom panel repeats the same figure but defines employment as having annual earnings above a small threshold of 10,000 CHF (instead of zero). Both panels show the same absence of employment effects of the tax holiday. Therefore, the lack of employment effects is robust to changing the minimum threshold of earnings used to define employment.



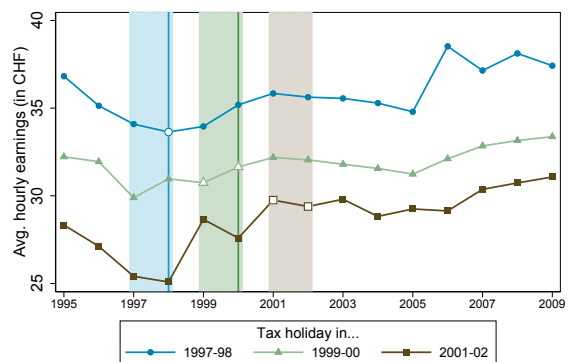
(a) Employment rate



(b) Earnings



(c) Hours of work among employees



(d) Hourly earnings among employees

Figure A8: Evidence from the Labor Force Survey

Notes: This figure displays various employment outcomes using the Swiss Labor Force Survey (SLFS): (a) employment rate, (b) earnings, (c) hours of work per week among employees, (d) average hourly earnings among employees. The sample in a given year t includes all Swiss and foreign workers with a resident permit C aged 20-60. For hours of work and hourly earnings, we restrict the sample to employees. We consider 3 groups of cantons. (1) 2 cantons which transitioned in 1999 with a tax holiday in 1998 or 1997-98 (in blue), (2) 20 cantons which transitioned in 2001 with a tax holiday in 1999-00 or 2000 (in green), (3) 3 cantons which transitioned in 2003 with tax holiday in 2001-02 (in brown). In the series, the dots corresponding to tax holidays are bigger and are blanked out (as tax holidays are called blank years in French and German). The figure does not display any tax holiday effects on these outcomes. Given the noise in the series due to small sample size, this is consistent with our previous analysis using the much larger social security data and the wage structure survey.

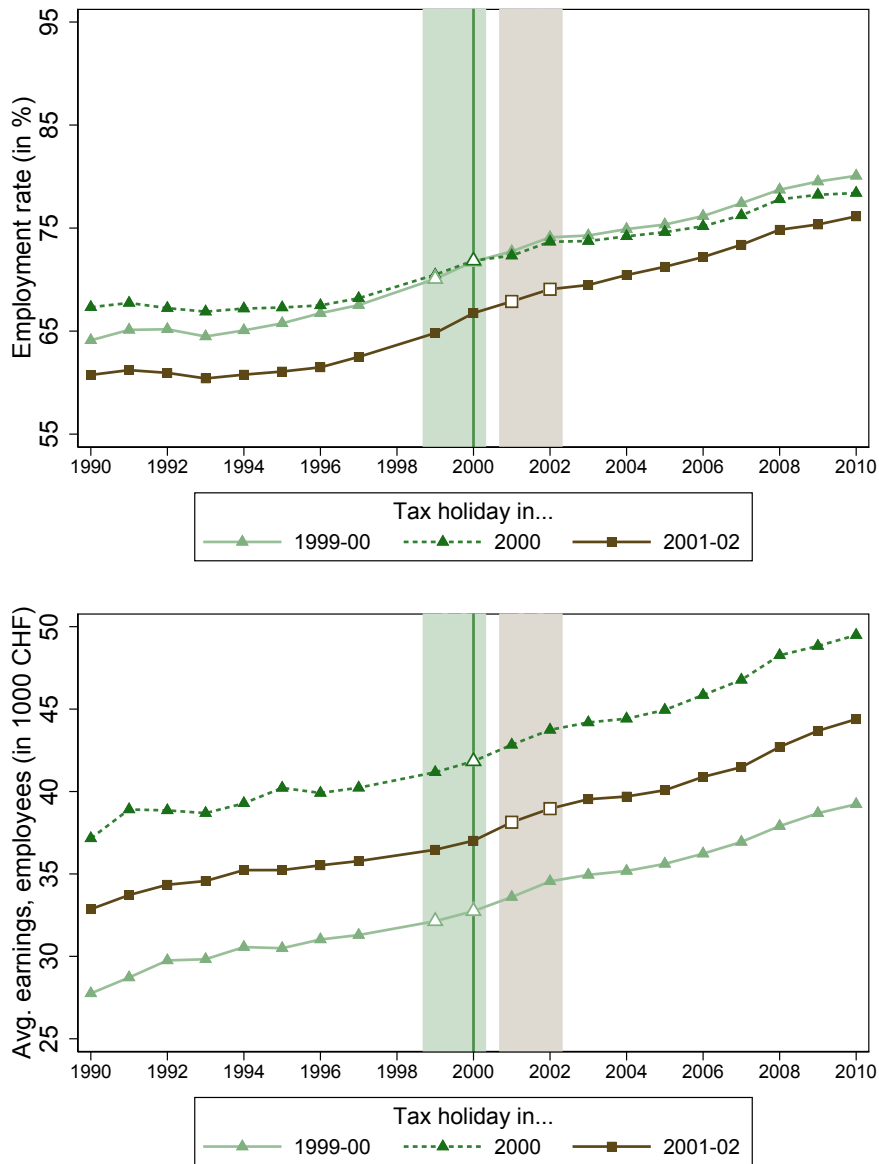


Figure A9: Effects on Married Women: Employment (top) and Earnings (bottom)

Notes: This figure displays the employment rate (top panel) and average earnings including non-workers (bottom panel) for married women by year and groups of cantons from 1990 to 2010. The sample in a given year t is all female individuals aged 20-60 in year t and married in year t who are still alive and Swiss residents by 2010 (i.e., present in the 2010 Census). Earnings include both wage earnings and self-employment earnings and are expressed in 1000s of 2010 CHF (adjusted for inflation). The three groups of cantons are: (2a) 16 cantons which transitioned in 2001 with a tax holiday in 1999-00 for both the federal and local income taxes (in light green), (2b) 4 cantons which transitioned in 2001 with a tax holiday for 2000 only for local income taxes and 1999-00 for the federal tax (in darker green), (3) 3 cantons which transitioned in 2003 with tax holiday in 2001-02 (in brown). For each of the three groups, we represent the corresponding tax holiday periods using the vertical shading and the same color code. Married women are expected to be particularly responsive to taxes; yet, the figure does not show effects on employment or average earnings.

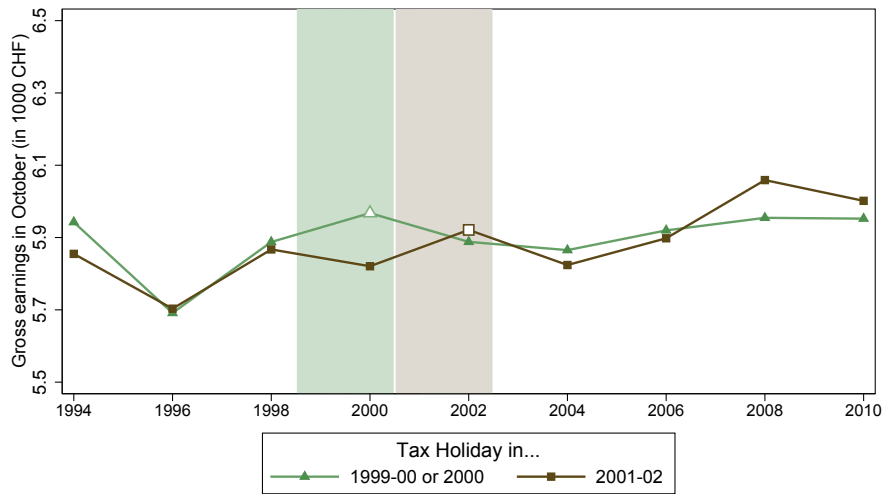


Figure A10: Effects on Monthly Earnings in Employer Survey

Notes: This figure displays monthly earnings in 2010 CHF in October for all workers by year and groups of cantons from 1994 to 2010 using the wage structure surveys (LSE) carried out bi-annually. Earnings include regular salaries and overtime and other variable pay components (e.g. bonuses). The sample in a given year t contains all workers aged 20–60 with Swiss passport or residency permit C in the dataset (excluding public sector employees) weighted to represent population averages. We consider two groups of cantons: (a) cantons which transitioned in 2001 with a tax holiday for 2000 or 1999–2000 (in green), (b) 3 cantons which transitioned in 2003 with tax holiday in 2001–02 (in brown). Geographical information in the data is based on place of work while tax treatment is based on residence. To reduce the number of cases where a person works in one group of cantons but resides in another one, we exclude zip codes in which more than 25% workers stem from one of the other groups of cantons according to the census in 2000. In the series, the dots corresponding to tax holidays are bigger and blanked out (as tax holidays are called blank years in French and German).

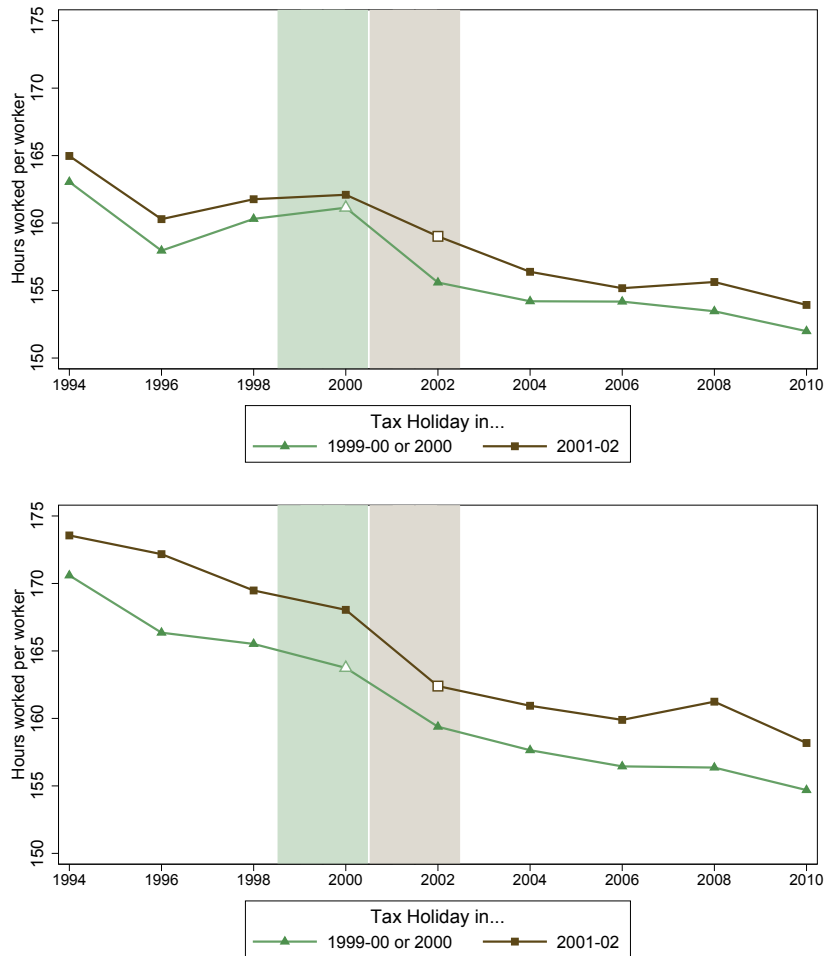


Figure A11: Effects on Hours Worked: Individual Contract (top) versus Collectively Bargained Wage Contract (bottom)

Notes: This figure displays hours worked in October for all workers by year and groups of cantons from 1994 to 2010 using the wage structure surveys (LSE) carried out bi-annually. Hours worked refer to contractual (i.e. normal) hours worked for workers with monthly wages and to actual hours worked for workers paid by the hour. The top panel shows workers that have an individual-level work contract. The bottom panel contains workers falling under a collective (firm-, occupation-, or industry-wide) bargaining agreement. The information on the nature of the work contract is directly levied in the surveys. In both cases, the sample in a given year t contains all workers aged 20–60 with Swiss passport or residency permit C in the dataset (excluding public sector employees) weighted to represent population averages. We consider two groups of cantons: (a) cantons which transitioned in 2001 with a tax holiday for 2000 or 1999–2000 (in green), (b) 3 cantons which transitioned in 2003 with tax holiday in 2001–02 (in brown). Geographical information in the data is based on place of work while tax treatment is based on residence. To reduce the number of cases where a person works in one group of cantons but resides in another one, we exclude zip codes in which more than 25% workers stem from one of the other groups of cantons according to the census in 2000. In the series, the dots corresponding to tax holidays are bigger and are blanked out (as tax holidays are called blank years in French and German). The figure shows that the labor supply response to the tax holiday is concentrated among employees with individual-level work contracts with no response at all among employees under collective agreement contracts.

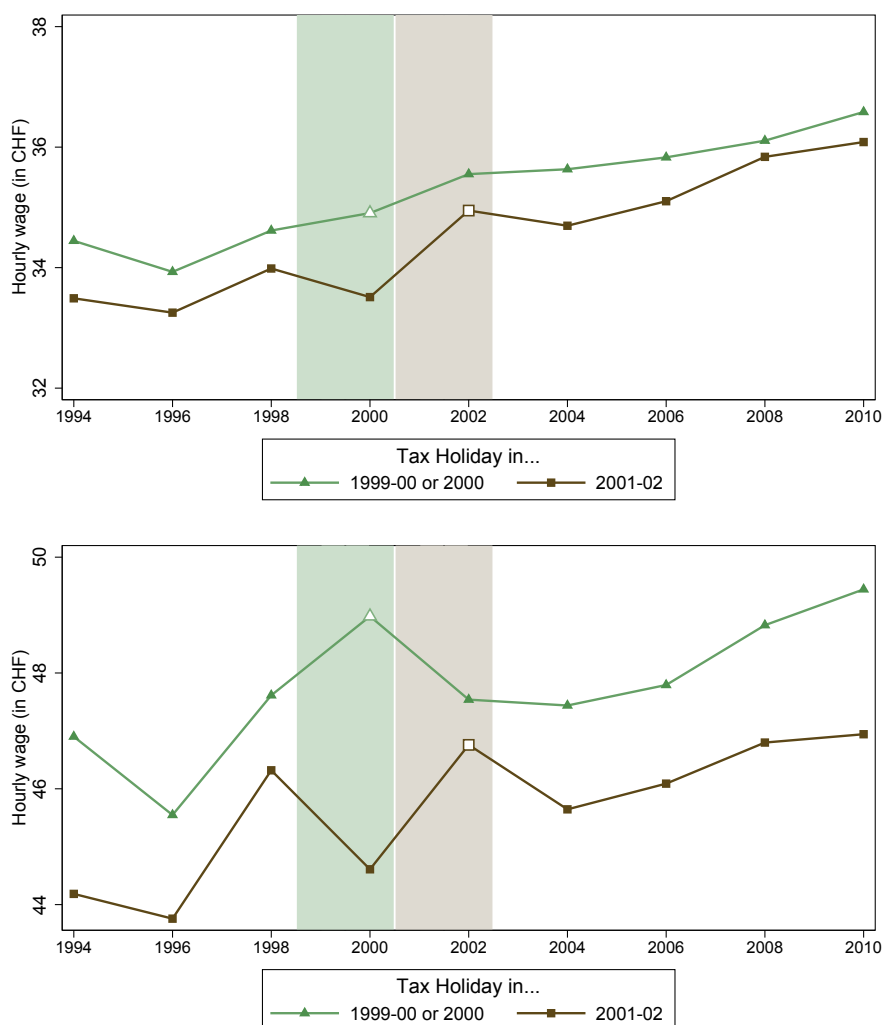


Figure A12: Effects on Hourly Wages: All Workers (top) and Workers in Job Category “Examining, Advising, and Attesting” (bottom)

Notes: This figure displays average hourly wages in 2010 CHF by year and groups of cantons from 1994 to 2010 using the wage structure surveys (LSE) carried out bi-annually. Hourly wages are computed from October salaries in each year and incorporate regular pay but exclude overtime and variable pay components (e.g. bonuses). The sample in a given year t in the top panel includes all workers aged 20–60 with Swiss passport or residency permit C in the dataset (excluding public sector employees) weighted to represent population averages. The sample in the bottom panel is restricted to workers in jobs with the main activities “examining, advising, attesting”. We consider two groups of cantons: (a) cantons which transitioned in 2001 with a tax holiday for 2000 or 1999–2000 (in green), (b) 3 cantons which transitioned in 2003 with tax holiday in 2001–02 (in brown). Geographical information in the data is based on place of work while tax treatment is based on residence. To reduce the number of cases where a person works in one group of cantons but resides in another one, we exclude zip codes in which more than 25% workers stem from one of the other groups of cantons according to the census in 2000. In the series, the dots corresponding to tax holidays are bigger and are blanked out (as tax holidays are called blank years in French and German).

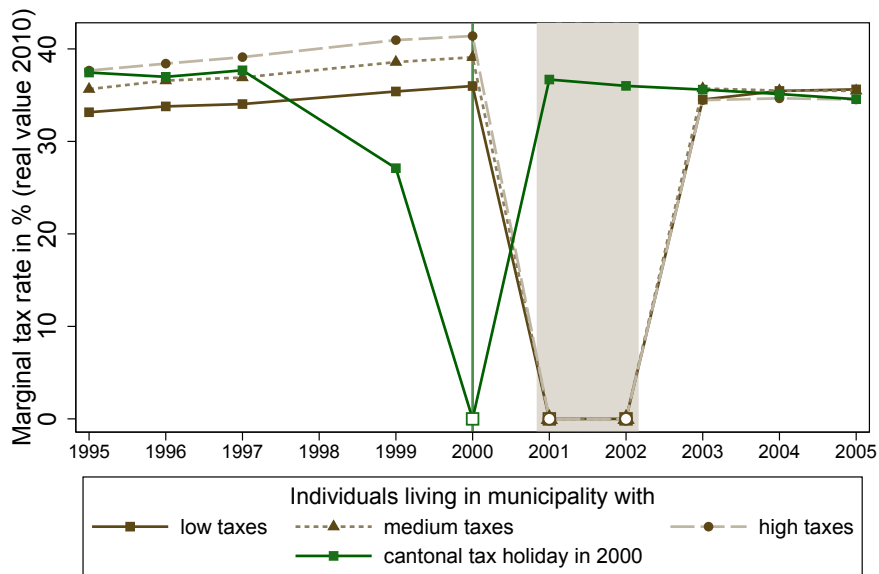


Figure A13: Marginal Tax Rates of High Earners in Low vs. High Tax Areas

Notes: This figure displays average marginal income tax rates for employed persons from 1995 to 2005 for the regions relevant in Figure 13. Tax rates include federal, cantonal, and municipal income taxes. We use tax rates based on household income for married individuals with two children in case a person is married, and tax rates for singles in case a person is single. Averages across municipalities and cantons are employment weighted. The sample in a given year t is all individuals aged 20–60 in year t who are still alive and Swiss residents by 2010 (i.e., present in the 2010 Census) and had average annual labor earnings (wages plus self-employment) above 200,000 CHF in 1994–1996. As in Figure 13, we consider two groups of cantons: (1b) 4 cantons which transitioned in 2001 with a tax holiday for 2000 only for local income taxes and 1999–00 for the federal tax (in darker green), (3) 3 cantons which transitioned in 2003 with tax holiday in 2001–02 (in brown). Group (3) is further split into three subgroups of municipalities based on the level of taxes in each area: (a) low marginal taxes in 2000 (squares, solid line), (b) medium marginal taxes in 2000 (triangles, dotted line), (c) and high marginal taxes in 2000 (circles, dashed line). In the series, the dots corresponding to tax holidays are bigger and are blanked out (as tax holidays are called blank years in French and German). For each of the two groups, we represent the corresponding tax holiday periods using the vertical shading and the same color code.

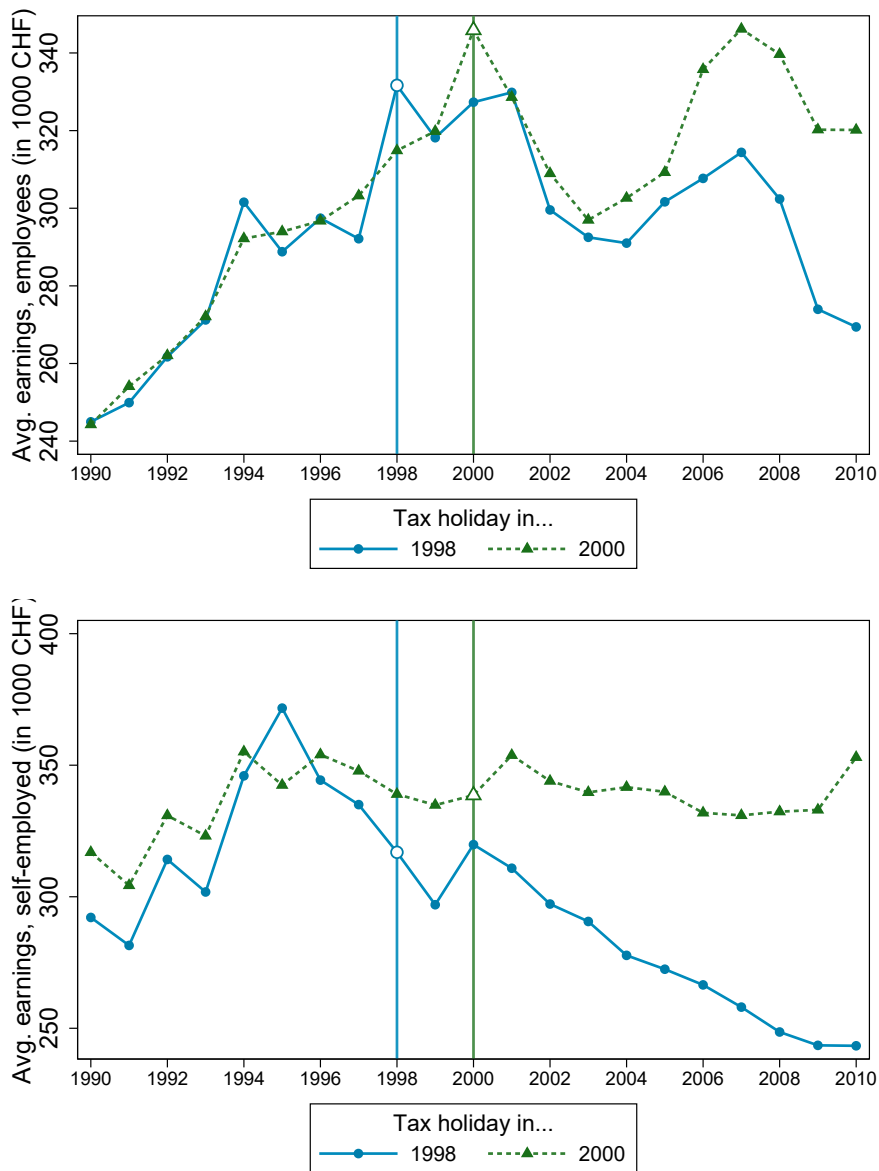


Figure A14: Effects on Early Tax Holiday on High Earners: Wages (top) and Self-Employment (bottom)

Notes: This figure displays average wage earnings (top) and average self-employment earnings (bottom) by year and groups of cantons from 1990 to 2010 for high-income earners. The sample in a given year t is all individuals aged 20-60 in year t who are still alive and Swiss residents by 2010 (i.e., present in the 2010 Census) and had average annual labor earnings (wages plus self-employment) above 200,000 CHF in 1994-1996. Earnings are expressed in 1000s of 2010 CHF (adjusted for inflation). The two groups of cantons are: (1) 2 cantons which transitioned in 1999 with a tax holiday in 1999 for local taxes and 1999-00 for the federal tax (in blue), (2) 4 cantons which transitioned in 2001 with a tax holiday for 2000 only for local income taxes and 1999-00 for the federal tax (in darker green). For each of the two groups, we represent the corresponding tax holiday periods using the vertical shading and the same color code. In the series, the dots corresponding to tax holidays are bigger and are blanked out (as tax holidays are called blank years in French and German).

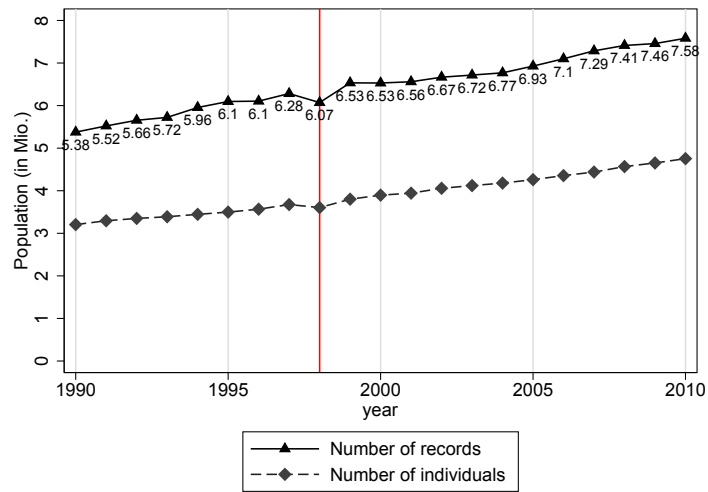
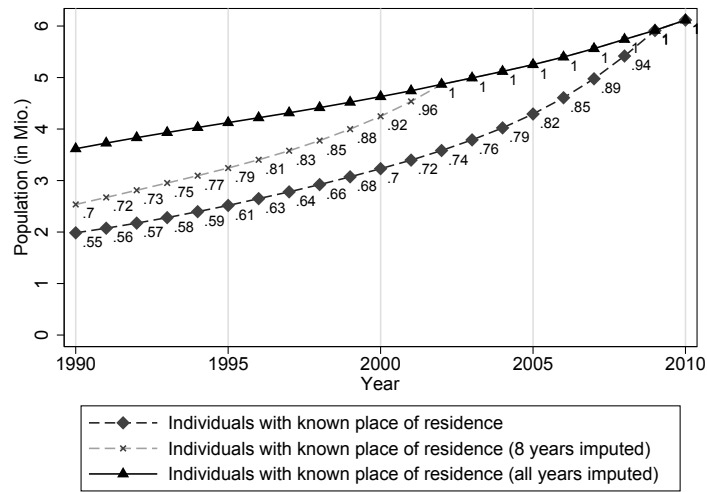
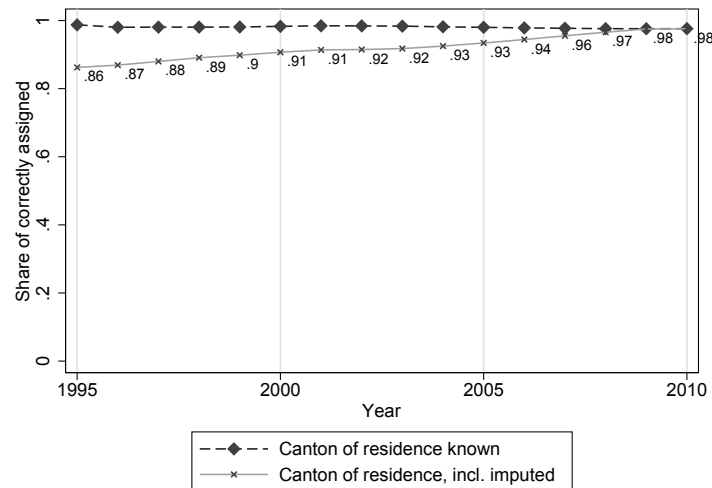


Figure A15: Missing Records in 1998

Notes: This figure displays the number of records and individuals in our data by year. It illustrates the issue of missing records in 1998 due to missing social security data for that year.



(a) Share with known place of residence



(b) Accuracy of imputed canton of residence

Figure A16: Imputation of Municipality of Residence

Notes: The figure displays statistics of the imputation of municipality of residence. The dashed line in the top panel shows the number of individuals in the SSES data set for which the place of residence is known with certainty. The second line shows the number of individuals for which the place of residence is known if we assume that individuals lived at their last known place of residence for at least 8 years. Our baseline strategy is to assign all individuals to the last known municipality (third line).

The lower panel evaluates the accuracy of our imputation for the years 1995–2010 regarding the *canton* of residence. The figure exploits that registered unemployed are assigned to cantonal agencies based on their canton of residence. The figure compares the imputed canton of residence of registered unemployed with the canton of the unemployment agency. The figure shows the share of correctly assigned cantons of residence for individuals for which we actually know the canton of residence due to the information in the census (dashed line) and for all individuals, including the imputed places of residence (straight line). The figure shows that the share of correctly assigned cantons of residences among all individuals is around 90% in 2000.

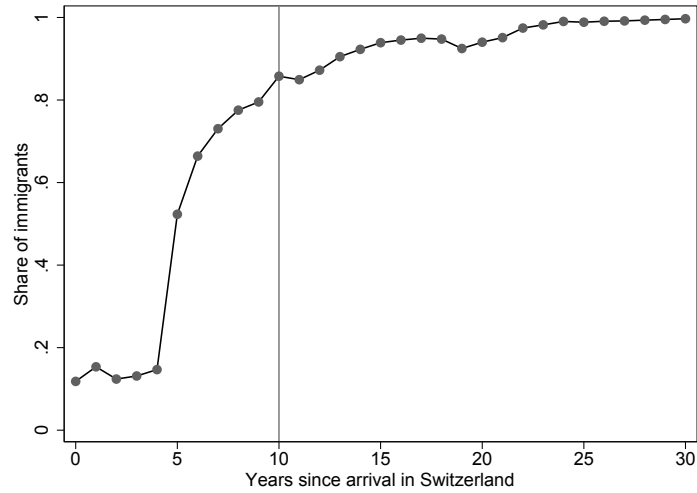


Figure A17: Share of Immigrants with C Permit or a Swiss Passport, by Duration of Stay
 Notes: The figure displays the share of immigrants with C permit or a Swiss passport, by duration of stay.

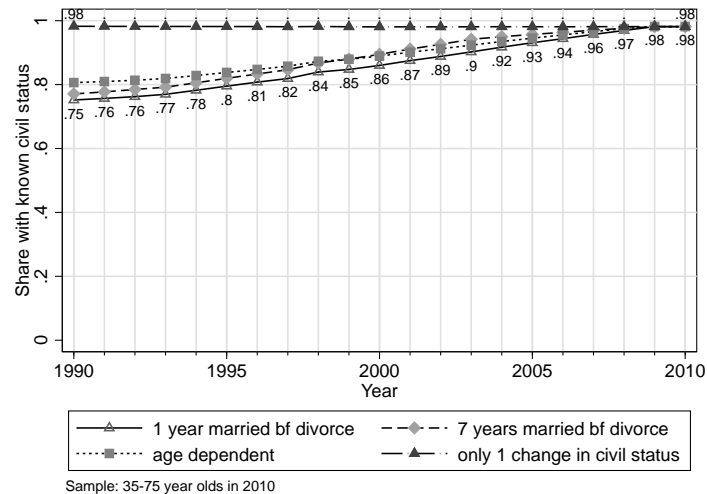


Figure A18: Marital Status Imputation

Notes: The figure displays the fraction of the population for which the marital status is known based on various imputation methods. We start from the population aged 35-75 in 2010. The bottom line makes the weakest assumption, assuming only that before divorce or widowhood (marriage) someone was married (single) for at least one year. According to these assumptions, the share of individuals with respect to the total population aged 35 to 75 in 2010 with known civil status lies at 86% in 2000 and increases up to 98% in 2010. In the next line, this assumption is extended to having been married for at least 7 years before divorce or widowhood. In the next scenario (third line from below), we make more sophisticated, gender-specific assumptions on marriage behavior based on age at time of marriage, divorce, and dissolved same-sex partnerships. The top line finally is based on an imputation method that assumes that the change in civil status recorded in the data is the only one that ever took place allowing us to impute marital status for over 98% of the population.

Table A1: Date of Cantonal Referenda and Legislative Decisions on the Reform

Holiday	Canton	Date	Share Yes	Turnout	Notes
<i>1997-98</i>	TG	6/30/97			no vote
<i>1998</i>	ZH	6/8/97	58.85	38.4	
<i>1999-00</i>	AG	4/18/99	63.17	33.3	
	AI	4/25/99			*
	BL	6/13/99	65.19	47.57	
	GR	6/13/99	77.54	36.04	
	OW	10/24/99	61.91	26.93	
	GL	5/7/00			*
	BE	5/21/00	60.86	41.72	
	AR	5/21/00			*
	UR	5/21/00	67.11	45.42	
	SH	8/27/00	70.11	59.99	
	SZ	9/24/00	81.43	45.48	
	ZG	11/26/00	69.27	45.88	
	NW**	11/26/00	77.5	41.33	
	SG	4/9/98			no vote
	LU	11/22/99			no vote
	FR	6/6/00			no vote
<i>2000</i>	SO	6/30/99			no vote
<i>2001-02</i>	VD	7/4/00			no vote
	TI	7/6/01			no vote
	VS	9/13/01			no vote

Notes: Holidays refer to the cantonal (and municipal) income tax holidays. At the federal level all cantons had a two-year holiday. See text for details. In cantons where no popular vote was held, the date refers to the date when the cantonal parliament enacted the tax transition law. Popular votes or parliament votes were the very end of processes that had typically started many months earlier.

* In these cantons, votes are held at a cantonal assembly (*Landsgemeinde*), which is why statistics are not available.

** In NW there was no cantonal holiday.

Table A2: Effect of Tax Holiday on Months Employed, Number of Jobs, the Share of Self-Employed, and Between-Canton Migration

VARIABLES	(1) Jobs per employed	(2) Months employed per employed	(3) Self employed per person (in %)	(4) In-migrant per person (in %)
Panel A: Total sample				
Effect in blank year	0.0036 (0.0075)	0.0099 (0.0167)	-0.274 (0.177)	-0.017 (0.077)
Panel B: Men				
Effect in blank year	0.0050 (0.0090)	0.0117 (0.0139)	-0.411 (0.288)	-0.020 (0.069)
Panel C: Women				
Effect in blank year	0.0022 (0.0069)	0.0083 (0.0253)	-0.146 (0.116)	-0.014 (0.084)
Panel D: Married women				
Effect in blank year	0.0029 (0.0051)	0.0018 (0.0292)	-0.168 (0.116)	-0.003 (0.037)
Observations	60	60	60	60
Canton group FE	Yes	Yes	Yes	Yes
Period FE	Yes	Yes	Yes	Yes

Notes: The table presents estimates of the tax holiday on labor supply based on regressions of the aggregate time series for the 3 main groups of cantons on year dummies, group dummies, and an indicator which is 1 in the year in which municipal and cantonal taxes are zero. The estimation sample covers the years 1990–2010, excluding 1998. The dependent variable in column (1) is the number of jobs per person employed. Distinct jobs are identified based on the number of distinct register entries with positive labor earnings in a given year. The dependent variable in column (2) is the number of months in employment per person employed during the year. The dependent variable in column (3) is the number of self-employed as a fraction of the total population (in %). The dependent variable in column (4) is the number of persons moving into the respective canton group in a given year as a fraction of the total population (in %). Panel A reports effects for the total sample. Panel B and C report effects for males and females aged 20–60, respectively. Panel D reports effects for married women aged 20–60 only.

Table A3: Is There Missing Income in the Year Before of After the Tax Holidays?

VARIABLES	(1) Labor earnings per person	(2) Wage earnings per worker	(3) Labor earnings per self employed
Panel A: Men			
Effect in $t - 1$	-0.276 (0.556)	-0.118 (0.526)	2.508 (2.063)
Effect in blank year	1.381** (0.518)	1.152** (0.490)	7.082*** (1.923)
Effect in $t + 1$	0.248 (0.656)	0.579 (0.620)	2.339 (2.433)
Panel B: Women			
Effect in $t - 1$	-0.199 (0.205)	-0.147 (0.229)	0.605 (0.926)
Effect in blank year	0.065 (0.191)	0.109 (0.214)	1.616* (0.863)
Effect in $t + 1$	-0.051 (0.242)	0.063 (0.270)	0.468 (1.093)
Panel C: Earnings 100k–200k			
Effect in $t - 1$	-0.427 (1.539)	-0.126 (1.654)	6.126 (5.944)
Effect in blank year	3.891** (1.435)	3.083* (1.542)	14.566** (5.541)
Effect in $t + 1$	-0.825 (1.815)	0.706 (1.951)	5.362 (7.011)
Panel D: Earnings 200k+			
Effect in $t - 1$	2.810 (12.196)	0.718 (9.933)	11.563 (14.295)
Effect in blank year	20.467* (11.369)	15.532 (9.259)	25.729* (13.326)
Effect in $t + 1$	0.351 (14.386)	-0.033 (11.717)	-2.843 (16.862)
Observations	63	63	63
Canton group FE	Yes	Yes	Yes
Period FE	Yes	Yes	Yes

Notes: The table presents estimates of the tax holiday on income shifting based on regressions of the aggregate time series for the 3 groups of cantons on year and group dummies. The covariates of interest are a dummy equal 1 in the year in which municipal and cantonal taxes are zero, and dummies for the year immediately prior and posterior to the cantonal tax holiday. The estimation sample covers all individuals aged 20–60 and the years 1990–2010, including 1998 (dropped from the rest of the tables). We deal with the non-random missings in 1998 by discarding individuals that are likely to be affected by the missing data problem in 1998. To this end, we identify OASI compensation offices whose number of records is 5% lower in 1998 compared to 1997 and 1999. All individuals with records from these compensation offices are then dropped from the entire analysis. The dependent variable in column (1) is annual labor earnings per person (including 0, in 1000 CHF). The dependent variable in columns (2) and (3) are the average wage per worker and the average self-employment income per self-employed in 1000 CHF, respectively. Panel A is restricted to men aged 20–69, Panel B to women aged 20–69. Individuals are assigned to Panels C and D based on their average annual labor income in the 1994–1996 period.

Table A4: Heterogeneity by Cantonal Vote Date, Local Tax Burden, Language Region, and Local Unemployment

VARIABLES	(1) Men Employ- ment rate in %	(2) Men Labor earnings per person	(3) Men Wage earnings per worker	(4) Men Labor earnings per self employed	(5) Women Employ- ment rate in %	(6) High earners Labor earnings per person
Panel A: Vote						
Blank year	-0.088 (0.277)	1.447*** (0.433)	0.992** (0.414)	5.581*** (1.417)	0.013 (0.461)	22.457** (9.903)
Blank year x Vote	-0.268 (0.427)	-0.096 (0.668)	0.276 (0.638)	0.205 (2.186)	0.094 (0.711)	-11.545 (15.277)
Observations	80	80	80	80	80	80
Panel B: Early vote						
Blank year	0.007 (0.296)	1.302*** (0.480)	0.817* (0.433)	4.921*** (1.475)	0.047 (0.448)	19.557** (8.228)
Blank year x Early vote	-1.307*** (0.456)	-0.385 (0.740)	0.808 (0.668)	2.441 (2.276)	0.012 (0.691)	-8.216 (12.692)
Observations	80	80	80	80	80	80
Panel C: High average tax						
Blank year	-0.255 (0.308)	0.758 (1.246)	0.503 (1.218)	4.998*** (1.880)	0.144 (0.405)	12.927 (10.589)
Blank year x High tax	0.375 (0.373)	2.440 (1.508)	1.995 (1.475)	2.239 (2.276)	-0.151 (0.491)	11.295 (12.822)
Observations	120	120	120	120	120	120
Panel D: High marginal tax						
Blank year	-0.161 (0.269)	0.881 (0.599)	0.579 (0.616)	4.483*** (1.365)	0.177 (0.393)	13.784 (9.648)
Blank year x High tax	0.169 (0.326)	1.349* (0.725)	1.112 (0.746)	2.104 (1.652)	-0.198 (0.476)	8.414 (11.683)
Observations	120	120	120	120	120	120
Panel E: French-speaking						
Blank year	0.398 (0.329)	2.041** (0.819)	1.025* (0.582)	6.082** (2.482)	0.551 (0.686)	26.368*** (7.454)
Blank year x French-speaking	-0.640 (0.393)	-1.132 (0.979)	-0.683 (0.695)	1.440 (2.967)	-0.301 (0.820)	-3.401 (8.909)
Observations	80	80	80	80	80	80
Panel F: High unemployment						
Blank year	-0.172 (0.739)	1.950* (1.108)	1.675** (0.803)	5.953*** (2.209)	0.071 (0.918)	13.670 (14.674)
Blank year x High unemployment	-0.291 (0.751)	-1.102 (1.126)	-0.892 (0.816)	0.110 (2.245)	-0.138 (0.933)	4.326 (14.908)
Observations	80	80	80	80	80	80

Notes: The table examines whether the effects of the tax holiday are larger in regions that fulfill the criteria of interest in each panel. All estimations are based on regressions of aggregate time series for the three canton groups with tax holidays in 1999/2000, 2000, and 2001/2002. The dependent variable in columns (1) and (5) is the employment rate (in %). The dependent variable in columns (2) and (6) is annual labor earnings per person (in 1000 CHF, including 0). The dependent variables in columns (3) and (4) are the average wage per worker and the average self-employment income per self-employed in 1000 CHF, respectively. We use two time series per canton group if the group contains both, region for which the dummy variable of interest in each panel is 0 and for which it is 1. In Panel A, the dummy blank year is interacted with a dummy that is 1 in case a canton voted about the tax reform associated with the tax holidays. In Panel B, it is interacted with a dummy that is 1 in case a canton voted about the tax reform prior to the second blank year. In Panel C, it is interacted with a dummy that is 1 for municipalities with an average tax rate in the top 33% of municipal tax rates in 1998. In Panel D, it is interacted with a dummy that is 1 for municipalities with an marginal tax rate in the top 33% of municipal tax rates in 1998. In Panel E, it is interacted with a dummy that is 1 for French-speaking municipalities. This regression is restricted to the three cantons with both, a German- and a French-speaking region (Bern, Fribourg, and Valais). In Panel F, it is interacted with a dummy that is 1 for cantons with an above-average unemployment rate among cantons in 1998. Columns 1–4 are restricted to men aged 20–60, column 5 to women aged 20–60, and column 6 to individuals with annual income exceeding an average of 200k in 2010 CHF in 1994–1996.

Table A5: Regression Analysis Controlling for Individual, Age, and Canton Fixed Effects

	(1)	(2)	(3)	(4)
	Employment rate (in %)	Earnings per person	Wage earnings per worker	Labor earnings per self employed
Panel A: Total Sample				
Effect in blank year	-0.020 (0.240)	0.771 (0.466)	0.616 (0.598)	3.431*** (1.138)
% Δy	-0.0%	1.5%	1.0%	6.0%
% $\Delta[1 - \tau]$	12.5%	27.6%	27.6%	27.6%
Frisch elasticity η^F	-0.00	0.05	0.04	0.22***
SE	(0.023)	(0.032)	(0.035)	(0.073)
Panel B: Men				
Effect in blank year	-0.080 (0.241)	1.332** (0.492)	0.946* (0.548)	4.489*** (1.412)
% Δy	-0.1%	1.8%	1.2%	6.8%
% $\Delta[1 - \tau]$	12.9%	28.6%	28.6%	28.6%
Frisch elasticity η^F	-0.01	0.06**	0.04*	0.24***
SE	(0.020)	(0.023)	(0.024)	(0.074)
Panel C: Women				
Effect in blank year	0.031 (0.313)	0.242 (0.496)	0.250 (0.672)	0.920* (0.495)
% Δy	0.0%	0.8%	0.6%	3.1%
% $\Delta[1 - \tau]$	12.0%	26.5%	26.5%	26.5%
Frisch elasticity η^F	0.00	0.03	0.02	0.12*
SE	(0.035)	(0.059)	(0.060)	(0.062)
Panel D: Married Women				
Effect in blank year	-0.034 (0.509)	0.194 (0.430)	0.235 (0.571)	1.226** (0.530)
% Δy	-0.1%	0.8%	0.7%	4.3%
% $\Delta[1 - \tau]$	13.6%	30.9%	30.9%	30.9%
Frisch elasticity η^F	-0.00	0.03	0.02	0.14**
SE	(0.055)	(0.057)	(0.051)	(0.060)
Observations	60	60	60	60
Canton group FE	Yes	Yes	Yes	Yes
Period FE	Yes	Yes	Yes	Yes

Notes: The table presents estimates of the labor supply effects of the tax holiday based on regressions of the aggregate time series for the 3 groups of cantons on year dummies, group dummies, and an indicator which is 1 in the year in which municipal and cantonal taxes are zero. The estimation sample covers the years 1990–2010 (excluding 1998). The difference to Table 2 is that we account for person, age, and canton fixed effects. To do this, we ran the following individual-level panel regressions for each of the outcomes y_{it} , separately by gender: $y_{it} = \gamma_i + \gamma_{canton} + \gamma_{age} + \epsilon_{it}$, where γ_i are individual fixed effects, γ_{age} are fixed effects for each year of age, and γ_{canton} are canton fixed effects. The group-level time series are averages of the residuals from these regressions. The outcome in column (1) is the employment rate (in %). The outcome in column (2) is annual labor earnings per person (in 1000 CHF, including 0 for individuals with zero earnings). The outcomes in columns (3) and (4) are the average wage per worker and the average self-employment income per self-employed in 1000 CHF, respectively. Panel A is estimated using the full sample of adults aged 20–60. The second and third panels report effects of males and females aged 20–60, respectively. See Table 2 for information on the construction of % Δy , % $\Delta[1 - \tau]$, and η^F .