The Effect of Macroprudential Policies on Homeownership: Evidence from Switzerland*

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Abstract

This paper analyzes how the introduction of macroprudential policies in the Swiss residential mortgage market affected the propensity of households to become homeowners. We exploit a unique administrative data set of individual tax records containing detailed financial and socio-demographic information. We show that the mean share of renter households transitioning into homeownership decreased from 3.4% per year in the five years prior to the introduction of macroprudential policies to 3.0% per year in the five years afterward. This decrease is more pronounced for young and middle-aged households with relatively low income and wealth, suggesting that it is at least partly due to a tightening in borrowing constraints. Moreover, intergenerational transfers in the form of predeath bequests have become more important for homebuying both at the extensive and intensive margin.

JEL: E5, D14, D31, G18

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1 Introduction

Since the global financial crisis, the housing market and its participants have attracted growing attention from policy makers. The risk of systemic crises arising from the vulnerability of highly-leveraged households and banks has strengthened the case for policy intervention. One increasingly common set of interventions, such as countercyclical buffers (CCyB) on bank capital or leverage restrictions on households, is referred to as macroprudential policies. These policies aim to strengthen banks' and borrowers' resilience during a housing market downturn and to mitigate the build up of systemic risk in the first place. As such, macroprudential policies can be considered beneficial from an aggregate perspective. At the same time, to be effective, they will also tighten borrowing constraints and could therefore make homeownership more difficult to attain for some households.

This paper focuses on the latter aspect. It studies how the propensity of renter households to transition into homeownership changed after the introduction of macroprudential policies in Switzerland, and how these policies have affected borrowing constraints. The paper exploits a comprehensive administrative data set on individual tax reports from one of the largest Swiss cantons, Bern, for the years 2007–2016.[1] This data set contains precise information on taxpayers' income and wealth. Furthermore, similarly to Blickle and Brown (2019), it allows us to identify borrowing constraints by exploiting intergenerational wealth transfers, such as inheritances and predeath bequests.

After the financial crisis, the first macroprudential policy in Switzerland was introduced in 2012. It imposed, among other things, stricter requirements on down-payments. As a consequence, home buyers need to finance at least 10 percent of the housing value with own equity capital, without drawing from their mandatory pension savings. As such, this policy had a direct impact on borrowing constraints. It was soon followed by additional measures, for example a CCyB, which aimed at increasing the resilience of the banking sector and, along with other measures, dampening credit growth in the mortgage market (Danthine, 2013).

We start by discussing descriptive evidence. The mean share of renter households transitioning into homeownership decreased from 3.4% per year in the five years prior to the introduction of macroprudential policies to 3% per year in the five years afterward. This decrease is primarily driven by young and middle-aged households with relatively low income and wealth, who already had a lower probability of becoming homeowners before the introduction of the macroprudential policies than their more affluent counterparts. Moreover, the total amount withdrawn from mandatory pension savings dropped. At the same time, after the measures were introduced, a larger share of young and middle-aged households that do become homeowners received an intrafamily transfer (namely, a

[1] We also confirm some of our main results in a second tax data set, for the canton of Lucerne, as well as in nationwide survey data.

predeath bequest), presumably to help with the down-payment. These patterns suggest that households tap more into family wealth to overcome the tighter borrowing constraints and finance the transition into homeownership.

Next, we estimate the effects of households receiving a transfer on the extensive and intensive margins of homeownership (where the intensive margin refers to the value of the home purchased by a newly owning household). Motivated by a simple theoretical framework, we use intergenerational wealth transfers to identify borrowing constraints.

At the extensive margin, our estimates reveal that predeath bequests became more important after the introduction of the macroprudential policies. The estimated effect of receiving a predeath bequest on the probability of becoming a homeowner is 12 percentage points prior to 2012, and increases by approximately another 0.8 percentage points after 2012 (controlling for many other observable characteristics). This implies that receiving a predeath bequest more than offsets the overall decrease in renters' probability of becoming homeowners, given that after 2012, the annual probability of transitioning into homeownership decreased by 0.45 percentage points for households that receive no predeath bequest.[2]

At the intensive margin, we find that, after the introduction of the macroprudential policies, being above median wealth has a stronger positive effect on the purchase price of the new home. Receiving a predeath bequest has also a stronger positive effect after 2012. We estimate that the average initial effect, a 9 percent higher purchase price for households receiving a predeath bequest, increased by an additional 3 percentage points, although this estimate is not very precise. While predeath bequests have become more important after 2012, especially at the extensive margin, we find no such evidence for inheritances.[3]

A potential concern for our interpretation is that the change in the probability of transitioning into homeownership and the stronger effect of predeath bequests are not driven by macroprudential policies, but simply reflect steadily increasing house prices over time. To test this alternative channel, we examine whether predeath bequests have stronger effects in regions with higher price-to-rent ratios (or just price levels). However, we find no evidence of such differential effects.

Another interesting feature of our data set is that we are able to identify the number of properties a household owns. This allows us to analyze the effects of macroprudential

[2]The point estimate in fact implies a 0.35 percentage points *higher* propensity of becoming homeowners after 2012 for the group of households that receive transfers, but this effect is not statistically significant (in contrast to the decrease in the propensity for those renters who do not receive predeath bequests, which is highly significant).

[3]A possible reason for the different effects of inheritances and predeath bequests may be that these transfers occur, on average, at a different stage in a household's life-cycle. In fact, the average age of households (across the two spouses) receiving an inheritance is 58 years, whereas for predeath bequests the average age is 47 years. As entry into homeownership is most common between ages 35 to 50 years (see Appendix Figure A.1), an inheritance might occur when most households already transitioned into homeownership or decided to stay renters.

policies on households with potentially different characteristics than first-time homeowners. As real estate is expensive, households with more than one property are likely less credit constrained and, therefore, less affected by the introduction of the macroprudential policies. Indeed, we find that, for such households, predeath bequests have the same effect on the propensity to acquire an additional property before and after the introduction of the macroprudential policies.

Note that, from a theoretical perspective, tighter borrowing constraints do not necessarily affect homeownership. Property prices may adjust downward, making homeownership more affordable and, thus, leaving the allocation of real estate unchanged. However, according to our results, this is not the equilibrium outcome in the Swiss setting, perhaps because a substantial fraction of the real estate is owned by investors who are less affected by macroprudential policies.

Our results have several implications. First, they suggest that macroprudential policies succeed at fostering financial stability partly by preventing households with low income and wealth from taking on potentially dangerous levels of debt. Consequently, these policies likely lower the likelihood and depth of a potential property price correction and ensuing recession. Second, if some households transition into homeownership later or forgo homeownership entirely due to these policies, there may be distributional consequences—akin to those prominently discussed in the context the prolonged low interest rates (Coibion et al., 2017; Saiki and Frost, 2014).[4] However, the extent of such potential distributional consequences is unclear, as macroprudential policies not only tighten borrowing constraints of certain households but probably also dampen future house price growth. This, in turn, makes homeownership more accessible again to constrained households.

Our analysis contributes to the small but growing literature about the effects of macroprudential policies on homeownership. Several studies in this literature use loan-level data and focus exclusively on new mortgage originations. For Ireland, Kinghan et al. (2019) document a decrease in loan-to-value (LTV) ratios and report that high-income households increased their down-payments to keep the house price constant, while low-income households purchased a cheaper home to keep the down-payment constant. Using similar data, Acharya et al. (2021) show evidence that banks reallocate mortgage loans away from low-income households and urban regions toward high-income households and more rural regions, resulting in a dampening effect on house prices. Peydró et al. (2020) find similar effects on low-income borrowers and house prices in the United Kingdom. Tzur-Ilan

[4]The literature documents several potential wealth benefits of homeownership. Homeowners exhibit higher savings rates, leading to higher net wealth compared to renters (Di et al., 2007; Turner and Luea, 2009). Other benefits are the higher internal rate of return and the favorable tax treatment of housing compared to alternative investments – which are less relevant in Switzerland, where the imputed rent of housing costs counts as taxable income. Sodini et al. (2016) find that homeownership boosts consumption. In general, the financial benefits of homeownership depend on its duration, and whether households can maintain homeownership also during economic downturns (Goodman and Mayer, 2018).

(2019) studies the effects of LTV limits in Israel on housing choices on the intensive margin, and finds that tighter borrowing constraints can lead to higher commuting costs. In Switzerland, the introduction of macroprudential policies has been found to reduce high-LTV mortgages (Behncke, 2022), shift lending from residential mortgages to commercial loans (Auer et al., 2022), and reallocate mortgage lending from less to more resilient banks (Basten, 2020).

In contrast to the above studies, our paper uses administrative data comprising the universe of households including renters. Only a few other studies use similar data. For the Netherlands, Van Bekkum et al. (2020) find that macroprudential policies reduced the share of households transitioning into homeownership, especially among liquidity constrained households. In related work, Aastveit et al. (2022) find similar effects for the extensive margin in Norway, and further show that those households that do still buy subsequently have less liquid wealth and more volatile consumption. We extend this literature and show that households seeking homeownership react to the introduction of macroprudential policies by relying more on intergenerational wealth transfers to overcome the tighter borrowing constraints. Moreover, young and middle-aged households with relatively low income and wealth are particularly affected by the stricter requirements on down-payments.

The paper also contributes to the strand of literature on borrowing constraints and homeownership. In early work, Linneman and Wachter (1989) and Haurin et al. (1997) document the importance of income and wealth constraints for the households' propensity to transition into homeownership. More recently, Fuster and Zafar (2016, 2021) use strategic surveys to highlight the relevance of down-payment requirements for homebuying, especially for households who are more liquidity constrained. Benetton et al. (2019) and Tracey and van Horen (2021) find that a large-scale UK policy initiative, which relaxed down-payment constraints, increased access to homeownership, especially for young households. For Switzerland, Bütler and Stadelmann (2020) use administrative data from a pension provider to analyze the change in pension withdrawals for funding homeownership after the introduction of the stricter requirements on down-payments. They document a sizeable decrease in the probability of households withdrawing pension savings and present suggestive evidence of a decrease in aggregate home purchase activity, in line with our findings.

Intergenerational wealth transfers within families are one way to overcome borrowing constraints. Recent work by Bond and Eriksen (2021) confirms the significant role of such transfers and points at the potential of family wealth to explain differences in homeownership between white and non-white households in the U.S. In particular, they find that differences in parental wealth explain the largest share of the white versus non-white gap in the probability of becoming a homeowner. In related work, Brandsaas (2021) shows that wealth transfers from parents are instrumental for young US households to transition

into homeownership. Similarly, in Swiss data, Blickle and Brown (2019) find that intergenerational wealth transfers increase the probability of transitioning into homeownership by 6 to 8 percentage points. They rely on the nationwide Swiss Household Panel Data Survey (SHP), which we also exploit for robustness checks.

We extend this strand of literature by analyzing whether the importance of wealth transfers has changed in response to the introduction of macroprudential policies. Moreover, in contrast to the SHP, our data set allows us to discriminate between the effects of inheritances and predeath bequests.

The rest of the paper is organized as follows. Section 2 provides some background about the housing market in Switzerland and describes the macroprudential policies that were introduced since 2012. Section 3 outlines the data. Section 4 provides a descriptive analysis of the importance of wealth and income to transition into homeownership and analyzes the use of wealth transfers. Section 5 presents the theoretical framework. Section 6 describes our empirical strategy to estimate the effect of the introduction of the macroprudential policies on borrowing constraints. Section 7 shows our main results both at the extensive and the intensive margin. Section 8 provides further evidence that the tightening of borrowing constraints is likely due to the introduction of the macroprudential policies and features some robustness checks. Finally, Section 9 concludes.

2 Background

2.1 Housing Market in Switzerland

Even though the promotion of homeownership is a constitutional goal in Switzerland, the share of homeowners is markedly lower than in neighboring countries. In 2019, 41.6% of Swiss households owned either a house or an apartment, compared to 51.1% in Germany, 55.2% in Austria, 64.1% in France, and 72.4% in Italy (Eurostat, 2021).

In the literature, the scarcity of land as well as the well-developed and regulated rental market are often named among the main reasons for the difference in the rate of homeownership between Switzerland and its neighbors (Kuhn and Grabka, 2018; Schneider and Wagner, 2015). Moreover, the purchase of individual units in apartment buildings was not allowed in Switzerland before 1965 (Wehrmüller, 2014).

Relatively high down-payment requirements pose an additional barrier for transitioning into homeownership in Switzerland. Households typically have to finance at least 20% of the acquired home's value with equity. However, to facilitate meeting these down-payment requirements, households are allowed to withdraw and use part of their tax-privileged pension savings.[5]

[5]Besides down-payment requirements that restrict the LTV ratio of a household, banks usually do not grant loans to households whose monthly installments are higher than a certain threshold of the households income. In Switzerland, the threshold is usually at 33%.

The Swiss pension system is based on three pillars.[6] The first pillar comprises a pay-as-you-go insurance. Its goal is to guarantee a living standard after retirement at the subsistence level. The second pillar comprises an individual pension fund. Its goal is to guarantee the continuation of the current living standard. The first and the second pillar are mandatory for all employees. The third pillar is a voluntary and tax-privileged private supplement comprising additional pension accounts and funds.

Importantly for us, Swiss households can withdraw a limited amount ahead of retirement from their second and third pillar savings to provide the required equity for acquiring their principal residence. Such withdrawals are commonly used (e.g., Seiler Zimmermann, 2013), but as discussed below, a policy change introduced in 2012 restricted their use.

Since the year 2000, Swiss home prices have grown much faster than household incomes. Figure 1 shows the evolution of apartment and house prices, average household income, and mortgage volume, all in nominal terms and indexed to the year 2000. Between 2000 and 2018, apartment and house prices increased by 114% and 74%, respectively, while average household income grew by only 20%. Over the same period, mortgage volume increased by 124%.

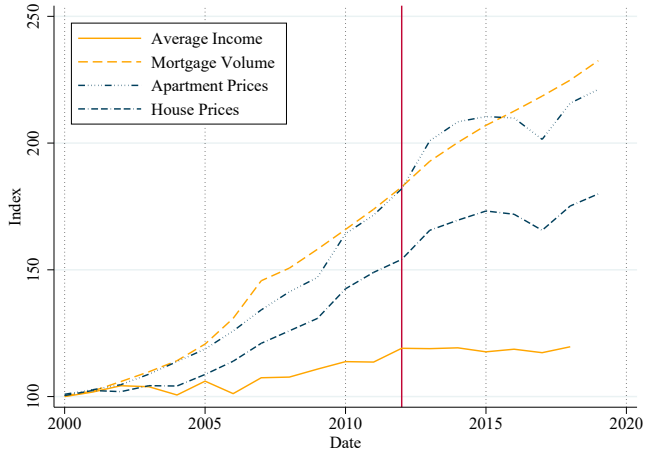


Figure 1: Income, Mortgages, and Prices in Switzerland

Note: This figure shows the time series of the average nominal gross income per household, total mortgages issued by banks in Switzerland, as well as the price indices for privately owned apartments and single-family houses (Sources: FSO, 2020b; FSO, 2020a; SNB, 2020, and Wüest & Partner retrieved from SNB, 2020). The vertical line indicates the year 2012 when macroprudential policies were introduced in Switzerland. All series are indexed to a base of 100 in year 2000.

The widening gap between house prices and household income as well as the trend towards more mortgage debt has led to concerns among regulators and policy makers. For instance, the Swiss National Bank noted in its 2012 Financial Stability Report that rising debt relative to GDP, reflected by the increase in motgage volume in the household sector, makes households vulnerable to potential macroeconomic shocks (SNB, 2012).

[6]See e.g. `https://www.ch.ch/en/manage-retirement-provision/`.

These concerns are compounded by the fact that mortgages are the most important asset of Swiss banks, accounting, on average, for 70% of the domestically focused banks' total assets (Behncke, 2022).

2.2 Macroprudential Policies in Switzerland between 2012 and 2016

In light of these concerns, Switzerland implemented several macroprudential policies with the goal of countering potentially damaging developments in the mortgage and real estate markets, and strengthening the resilience of the banking system. There are three relevant policies.

First, in June 2012, the Swiss Bankers Association tightened the down-payment requirements. Under the new requirements, home buyers need to finance at least 10% of the purchase price with "hard" equity capital, without drawing from second-pillar pension savings. This policy might have considerable effects on borrowing constraints, particularly for households with low wealth outside their mandatory pension savings. Figure 2 shows the share of households in our data making such a withdrawal when transitioning into homeownership. The drop in the share of households withdrawing in 2012 illustrates that we can expect first effects at that time. While the average share was 22.4% before 2012, it decreased to 16.4% thereafter.[7]

Second, in June 2012, the Swiss Federal Council (the executive branch of the Swiss government) raised banks' capital requirements for originated mortgage loans with high LTV ratios: by January 2013, the risk-weights for the loan tranche exceeding an LTV ratio of 80% increased from 75% to 100%.

Third, in February 2013, the Federal Council activated the sectoral CCyB, requiring banks to hold additional common equity Tier 1 (CET1) capital on domestic residential mortgage loans. The CCyB initially amounted to 1% of a bank's relevant risk-weighted assets and was subsequently increased to 2% in January 2014. Table D.1 provides a detailed timeline of all macroprudential policies from 2012 to 2016.

[7]In addition to the restriction on the second-pillar withdrawals, the change in self-regulation included a maximal duration for the repayment of the loan. However, for most banks this policy change likely had minor effects as their own requirements were already more restrictive (Behncke, 2022). This first self-regulation became effective in July 2012 with a transition period of 5 months. In June 2014, the self-regulation was revised and the maximal duration for repayment of the loan was shortened further.

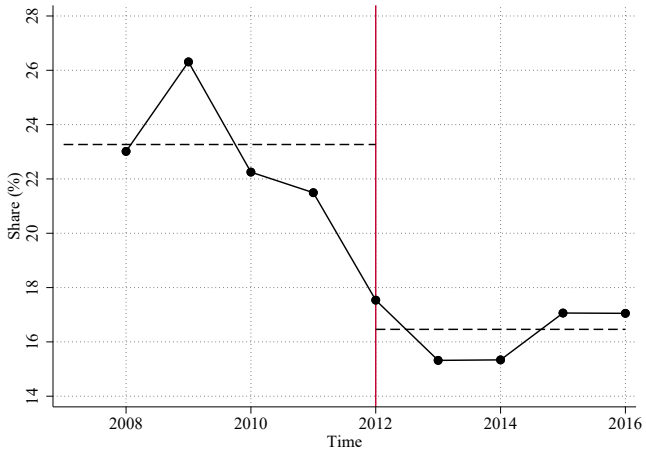


Figure 2: Annual Share of Households Withdrawing Second-Pillar Pension Savings

Note: The figure shows the annual share of households withdrawing from the second-pillar pension fund to finance their transition into homeownership. The share is calculated for all households renting in the previous year $t-1$ and transitioning into homeownership in the current year t.

3 Data

To analyze the effects of macroprudential policies on homeownership in more detail, we turn to administrative tax data that contains information about the tenure status, intra-family wealth transfers and other household characteristics. We exploit a unique administrative data set comprising the universe of individual tax records in the canton of Bern from 2007 to 2016.[8] Bern is Switzerland's second-largest canton, accounting for 12% of the total population (Federal Statistical Office, 2019a). It features both rural and urbanized areas. The data set contains information on 723,273 individual taxpayers, resulting in 5.7 million observations.

Every tax record includes detailed information on the taxpayer's income and wealth. It also comprises the taxpayer's marital status and age, tax deductions for childcare, and second- and third-pillar withdrawals for financing the down-payment necessary to acquire the principal residence.

An important feature of the data set is that it allows us to differentiate between two types of intergenerational wealth transfers, predeath bequests and inheritances. While predeath bequests can be planned for, the exact timing of inheritances is unpredictable in most cases. In particular, bequests can be timed to serve as additional equity in a planned purchase of a home.[9]

[8]Other authors use the same data but in different contexts. Galli and Rosenblatt-Wisch (2022) analyze the consumption and saving pattern of households, while Brülhart et al. (2021) study the effects of wealth taxation on reported wealth.

[9]In the canton of Bern, predeath bequests and inheritances to descendants, stepchildren or foster children, as well as predeath bequests between spouses or people in a registered partnership are tax-free (Grand Council of the Canton of Bern, 2014).

In Switzerland, married couples are required to file taxes jointly. So they are recorded as a single taxpayer, although we observe the income and age of each spouse. Our main analysis focuses on households of married couples.[10]

We observe the tax-assessed value of each household's real estate holdings, which allows us to follow the household's tenure status and identify a potential transition into homeownership. We consider a household to be a homeowner if the tax-assessed value of one of its properties exceeds CHF 100,000.[11] This threshold ensures that non-habitable properties, such as garages or small plots of land, are excluded.

In addition to the tax-assessed value, 39.4% of households transitioning into homeownership also report the purchase price of the acquired property. However, reporting is voluntary. Table B.2 in the Appendix compares the characteristics of reporting and non-reporting households in the year they acquire the property. While for many characteristics, the differences in means are statistically significant due to the large sample size, most of them are economically modest.

We observe each household's place of residence as a so-called MS-region. MS-regions are small labour market areas with a functional orientation towards centres. They are constructed by the Federal Statistical Office and feature a high degree of spatial homogeneity (FSO, 2019). There are 16 MS-regions in the canton of Bern. We match each household's MS-region with a price index for single family houses and a rent index for apartments, which allows us to construct local price-to-rent indices.[12]

Besides the administrative data from Bern, we use the nationwide SHP data and administrative tax data from the canton of Lucerne to assess the external validity of our results. We discuss these additional data sets and the results we derive from them in Section 8.2.3.

4 Descriptive Analysis

In this section, we provide descriptive evidence suggesting that borrowing constraints for households tightened with the introduction of macroprudential measures in 2012. We show that the share of households transitioning into homeownership decreased starting in 2012, and that wealth and income became more important for making such a transition. Moreover, the evidence suggests that, since 2012, young and middle-aged households that transitioned into homeownership have relied more on predeath bequests compared to their peers who stayed renters or already owned a home.

[10]We cannot identify individual taxpayers living in cohabitation and identify their homeownership status. However, in Section 8.1, we present a robustness check that relies on an alternative data set without such a restriction on the civil status.

[11]The tax-assessed value of a property is periodically updated by the tax authority and corresponds to approximately 70% of the market value (Steuerverwaltung Kanton Bern, 2020).

[12]Figure C.1 in the appendix shows all MS-regions in Switzerland. We are grateful to Fahrländer Partner for providing price indices at the MS-region level.

4.1 Renter Households

To analyze the effects of macroprudential policies on homeownership, we are interested in the propensity of a household to transition into homeownership. Consequently, we restrict our focus to married households who initially rent and follow their tenure status over the subsequent years. This leaves us with 126,708 households and 780,955 observations. We identify 26,335 households who transitioned from renting to owning over our sample period from 2007 to 2016. A household is removed from the sample the year after they become homeowners.

Table 1 shows summary statistics for these households. On average, 3.3% of them transition into homeownership per year. The average purchase price of the acquired property is CHF 534,400. 4.9% of the households who are renting in the previous year receive a predeath bequest and 4.7% an inheritance. On average, the mean age of the main taxpayer and the spouse is 51.6 years. Average joint income is CHF 85,600 and average financial wealth amounts to CHF 107,200.

Table 1: Summary Statistics

	(1) Mean	(2) Std. Dev.	(3) N
ΔHO	3.3	17.8	780,955
Received a Predeath Bequest (0/100)	4.9	21.5	780,955
Received a Predeath Bequest kCHF 1 to 10 (0/100)	0.8	8.7	780,955
kCHF 10 to 25	1.3	11.4	780,955
kCHF 25 to 50	0.8	8.9	780,955
kCHF 50 to 100	0.9	9.4	780,955
kCHF 100 or more	1.1	10.3	780,955
Received an Inheritance (0/100)	4.7	21.2	780,955
Received an Inheritance kCHF 1 to 10 (0/100)	1.0	10.1	780,955
kCHF 10 to 25	1.1	10.4	780,955
kCHF 25 to 50	0.9	9.3	780,955
kCHF 50 to 100	0.8	8.8	780,955
kCHF 100 or more	0.9	9.6	780,955
Purchase Price (in kCHF)	534.4	284.1	10,365
Age	51.6	15.9	780,955
Share of people with age ≤ 35 (0/100)	17.9	38.3	780,955
$35 <$ Age ≤ 50	34.1	47.4	780,955
$50 <$ Age ≤ 100	48.1	50.0	780,955
Income (in kCHF)	85.6	44.8	780,955
Wealth (in kCHF)	107.2	389.5	780,946
Has Children (0/100)	45.4	49.8	780,955
Second Pillar Withdrawal (0/100)	0.9	9.5	780,955
Third Pillar Withdrawal (0/100)	1.0	9.8	780,955
Price-to-Rent ratio (100 = 2007)	108.1	9.2	780,955

Notes: The table shows the summary statistics of all variables for households renting in the previous year $t-1$. Variables with (0/100) in parentheses are dummy variables scaled from 0 to 100 to indicate percentages. ΔHO refers to the share of households who rented in year $t-1$ and transitioned into homeownership in year t. For both predeath bequests and inheritances, we consider transfers bigger or equal to CHF 1,000 in order to eliminate small transfers and reporting errors. Age refers to the mean age of the main taxpayer and the spouse. The base year of the price-to-rent ratio index is 2007.

4.2 Share of Households Transitioning into Homeownership

Figure 3 shows how the share of households transitioning into homeownership evolved over the sample period. More precisely, it depicts the share of households who transitioned into homeownership in a given year t conditional on being renters in the previous year $t-1$ and remaining in the data set in t. The share decreased around the introduction of the macroprudential policies: it dropped by 11.8 percent from an average of 3.4% per year from 2007-2011 to an average of 3.0% per year from 2012-2016.[13]

[13]The low share in 2014, followed by a rebound in 2015, is likely due to a reform in tax law in the canton of Bern, which was passed in 2014 and came into force in 2015. This reform reduced the taxes on property purchases (Kanton Bern, 2020). Households therefore had an incentive to postpone property purchases from 2014 to 2015. Note that the general pattern and the pronounced drop around 2012 in the rate of transition into homeownership also occurs in the canton of Lucerne, as shown in the Appendix Figure E.1; in fact, the drop there is even larger (in both absolute and relative terms).

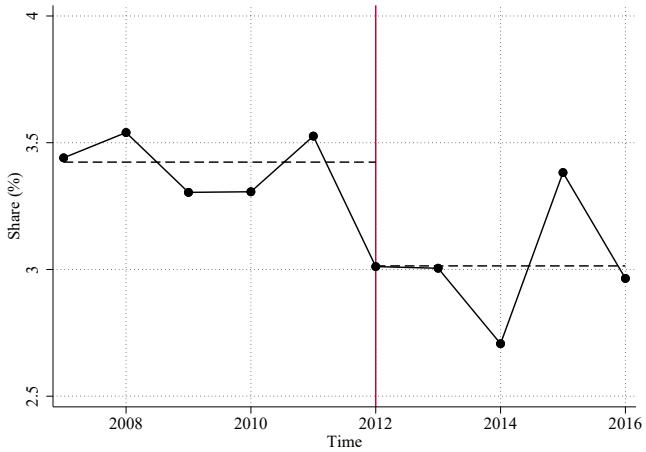


Figure 3: Annual Share of Households Transitioning into Homeownership in Bern

Note: The figure shows the share of households transitioning into homeownership for each year in the canton of Bern. The dashed lines indicate the mean before and after 2012. The vertical line shows the timing of the introduction of macroprudential policies in Switzerland. The sharp drop in 2014 and the following spike in 2015 are likely due to a cantonal tax reform in 2015 that gave an incentive to postpone property transactions from 2014 to 2015. The analogous figure for the canton of Lucerne can be found in Appendix Figure E.1.

Next, we look at different age groups, as the propensity to transition into homeownership varies throughout a household's life-cycle. For instance, the median age for households transitioning into homeownership is 40 years, while the first and third quartiles are 34 and 58 years, respectively.[14]

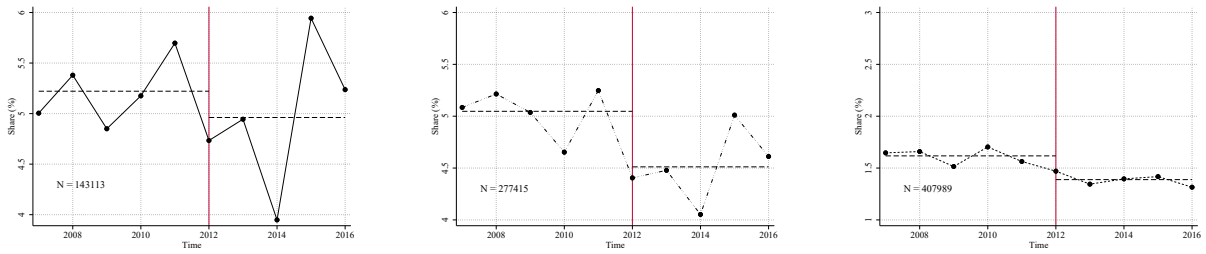
Variation in homeownership timing may have various reasons. Besides career and family planning, financial considerations probably play an important role as accumulating the required savings for making a down-payment takes time. Thus, borrowing constraints likely vary with age.

To explore this point, we split the households into three different age categories according to the mean age between the main taxpayer and the spouse: up to 35 years (category 1), 36-50 years (cat. 2), or above 50 years (cat. 3).

Figure 4 shows the share of households transitioning into homeownership for each of the three age categories. For the youngest households in age category 1, the mean share of households transitioning into homeownership decreases slightly from 5.2% before 2012 to 4.9% after 2012. The decrease is much more pronounced for the second age category, where the mean share of households transitioning into homeownership falls from 5% before 2012 to 4.5% after 2012. In age category 3, the mean share of households transitioning into homeownership before 2012 is 1.6% compared to 1.4% after 2012. Note that the share of households transitioning into homeownership is more volatile in the younger age categories as there are fewer observations.[15]

[14]For details, we show the age histogram for households transitioning into homeownership and for all households in Appendix Figure A.1 for Bern and in Appendix Figure E.2 for Lucerne.

[15]Similar figures for the canton of Lucerne can be found in Appendix Figure E.3. There as well, the



(a) Age ≤ 35 (b) $35 <$ Age ≤ 50 (c) $50 <$ Age ≤ 100

Figure 4: Share of Households Transitioning into Homeownership by Age Category

Note: The figure shows the share of households transitioning into homeownership in the canton of Bern, separately for the three age categories. Dashed horizontal lines without symbols represent the average before and after 2012. "N" indicates the total number of households renting in the previous year $t-1$ per age category.

4.3 The Role of Income and Wealth

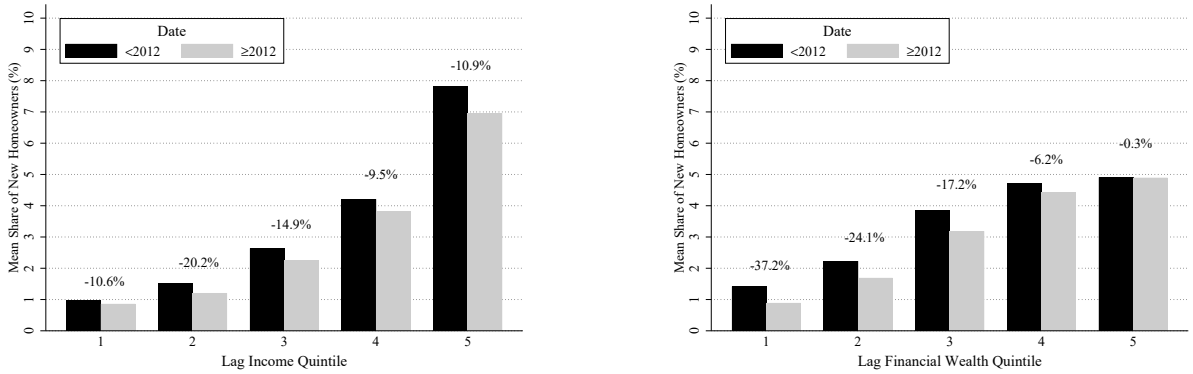
Next, we look at how income and wealth relate to the propensity to transition into homeownership. Figure 5 illustrates that, after 2012, income and especially wealth became more important. It shows the mean share of households transitioning into homeownership before and after 2012, conditional on their lagged income quintile (Panel a) and lagged wealth quintile (Panel b). The numbers above the bars indicate relative changes in percent.

For lagged income quintiles, there are two main observations. First, high-income households are more likely to transition into homeownership, both before and after the introduction of the macroprudential policies in 2012. Second, the relative change in the share of households transitioning into homeownership before versus after 2012 is generally more pronounced for low- and middle-income households than for high-income households. For example, the share in the second income quintile was 1.51% before 2012 and 1.21% thereafter, corresponding to a relative change of -20.2%. In contrast, the share of households transitioning into homeownership in the fifth income quintile was 7.81% before 2012 and 6.96% thereafter, corresponding to a smaller relative change of -10.9%.

For lagged wealth quintiles, we observe a similar pattern. First, wealthy households are more likely to transition into homeownership. Second, the relative change in the share of households transitioning into homeownership before versus after 2012 is stronger for the low wealth quintiles. For instance, in the bottom quintile, the relative change in the share of households transitioning into homeownership is -37.2%, while in the top quintile, it is just -0.3%, and the pattern is monotonic in between.

In summary, these results suggest that income and wealth have become more important for enabling households to transition into homeownership.

decrease is most pronounced for the middle age category.



(a) Conditional on Lag Income

(b) Conditional on Lag Financial Wealth

Figure 5: Share of Households Transitioning into Homeownership by Income and Wealth

Note: The figure shows the share of households transitioning into homeownership conditional on the position in the lag income and wealth distributions for the periods before and after 2012. The percentage at the top of each bar indicates the relative change in the share before versus after 2012. All quantiles are calculated over all households renting in the previous year $t-1$.

Figure 6 focuses on second-pillar withdrawals conditional on the household's position in the wealth distribution. It suggests that the restriction on withdrawals from pension savings introduced in 2012 primarily affects low-wealth households. It reveals that low-wealth households who transitioned into homeownership strongly relied on withdrawals from their pension savings before 2012 and that the propensity to use such withdrawals fell significantly thereafter.

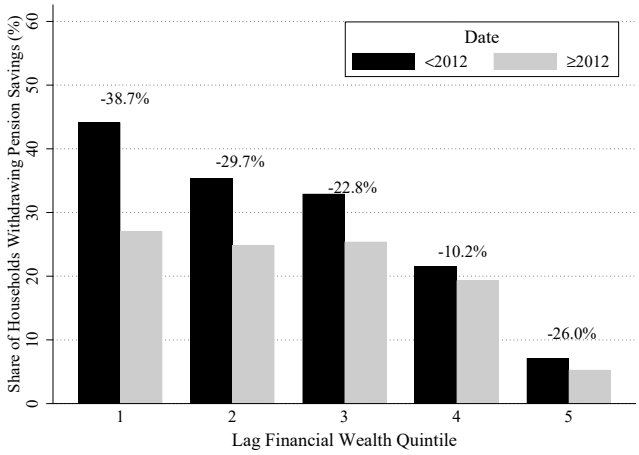


Figure 6: Share of Households Transitioning into Homeownership using Pension Saving Withdrawals by Wealth Quintile

Note: The figure shows the share of households withdrawing vs. not withdrawing second-pillar pension savings to finance the transition into homeownership, conditional on their position in the wealth distribution. The sample conditions on all households renting in the previous year $t-1$ and transitioning into homeownership in t. The percentage at the top of each bar indicates the relative change in the share before versus after 2012. The wealth quintiles are calculated over all households renting in $t-1$.

4.4 The Role of Intergenerational Wealth Transfers

Households with insufficient wealth may rely on intergenerational wealth transfers to transition into homeownership. Predeath bequests might be particularly effective for that purpose as they can be timed, in contrast to inheritances that are relatively unpredictable.

Figure 7 displays the share of households who receive a wealth transfer, conditional on their age category and tenure status.[16] A wealth transfer refers either to a predeath bequest or an inheritance received during the current year t or the previous year $t-1$. We consider three different tenure statuses. The first tenure status, "ΔHO", represents households who were renting in the previous year $t-1$ and transitioned into homeownership in the current year t. The second, "Staying Renter", refers to households who were renting in both years $t-1$ and t. The third, "Staying Owner", refers to households who owned a home in both years $t-1$ and t.

The upper panels show the share of households receiving a predeath bequest. There are three key observations. First, across all age categories, households who transition into homeownership are more likely to receive a predeath bequest than households who stay renters or already own a home. Thus, predeath bequests are commonly used to finance homeownership. Second, young and middle-aged households who transition into homeownership receive a predeath bequest more often than their older counterparts. This is probably because they have had less time to accumulate the wealth necessary to finance the purchase of a home. Third, the share of young and middle-aged households who transition into homeownership and receive a predeath bequest increases sharply after 2012. This is particularly the case for households in the youngest age category 1. The average share increases from 28% before 2012 to 36% thereafter. This observation suggests that borrowing constraints got tighter after 2012 and, in response, households started relying more on intergenerational wealth transfers.[17]

The lower panels show the share of households receiving an inheritance. They reveal three noteworthy observations. First, in age categories 1 and 2, the share of households receiving an inheritance does not vary with tenure status. Second, in the older age category 3, the share is higher for households who transition into homeownership than for those who stay renters or already own a property. Third, there is no systematic increase in the share of households receiving an inheritance around 2012. Overall, these three observations suggest that, due to their unpredictable nature, inheritances are less well suited than bequests to overcome the tighter borrowing constraints after 2012.

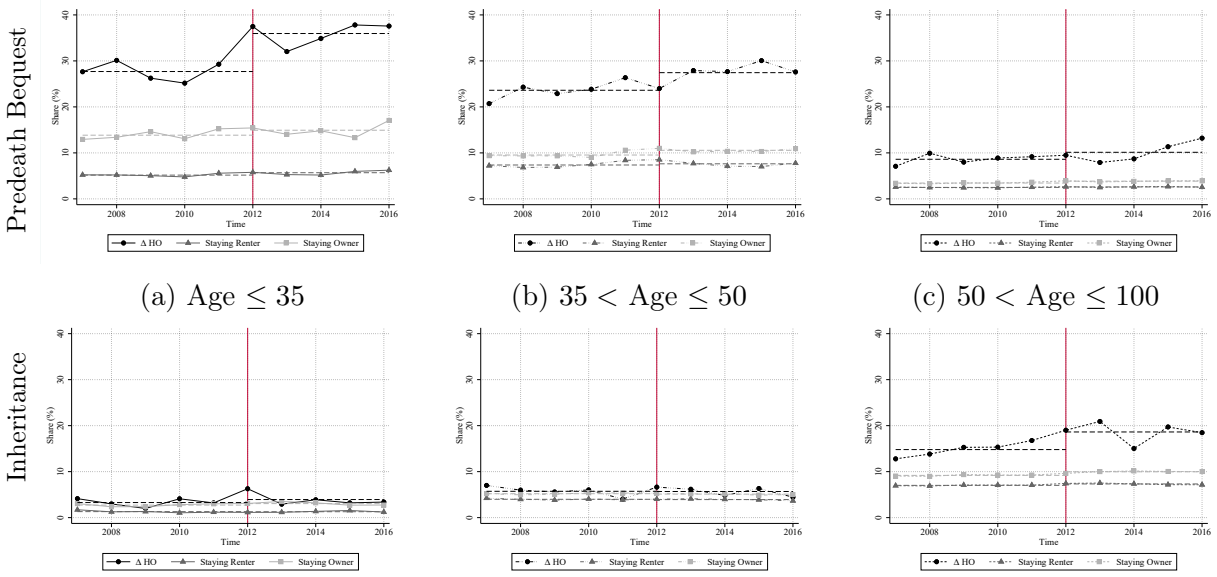
To summarize, we observe a pronounced drop in the share of households transitioning into homeownership around 2012—especially for young and middle-aged households. In addition, wealth and income have become more important after 2012. Young and middle-

[16] For more details about the distribution of the transfers over time, see Appendix Figure F.1.

[17] Note that these results are robust to a different lag structure where the transfer dummy is equal to one if the household has received any transfer (CHF $> 1,000$) in the last two years and zero otherwise.

aged households who accumulated less wealth often receive predeath bequests. Around 2012, the share of such households receiving bequests and transitioning into homeownership increased and has stayed at a higher level since then. Thus, it seems that, following the introduction of the macroprudential policies, young and middle-aged households have had to rely more on family wealth to overcome the tighter borrowing constraints.

Next, we provide a simple theoretical framework to illustrate that, as down-payment requirements increase, we expect the propensity of low-income households to transition into homeownership to decrease, but that this decrease should be weaker for households that are able to access their future family wealth via a predeath bequest. The framework will motivate our main regressions in Section 6.



(a) Age $\leq$ 35 (b) 35 $<$ Age $\leq$ 50 (c) 50 $<$ Age $\leq$ 100

(d) Age $\leq$ 35 (e) 35 $<$ Age $\leq$ 50 (f) 50 $<$ Age $\leq$ 100

Figure 7: Share of Households Receiving a Transfer by Tenure Status and Age Group

Note: The figure shows the mean share of households receiving a transfer (predeath bequest or inheritance) conditional on their tenure status and age category. The dashed lines without symbols indicate the means before and after 2012.

5 Theoretical Framework

In this section, we discuss the setup of a theoretical framework, which is based on a modified version of Balke et al. (2022). We also solve it numerically for two different scenarios.

5.1 Setup

There are many households. Each household lives for two periods, $t = 1$ and $t = 2$, and earns a constant income Y in every period. However, income is heterogeneous across

households. We assume that income in the second period also incorporates family wealth. In the first period, the households choose their consumption. Additionally, they have the possibility to save using a risk-free bond b. In this model, we abstract from lending as access to homeownership is only possible through savings. In the second period, the households use their second-period income and savings (1+r)b to finance their consumption c_2.

The model features a down-payment restriction $b^* > b$. If a households saves more than b^*, it is considered as a homeowner and gets a homeownership utility bonus Φ.[18] If the household saves less than b^*, the household is a renter.

Additionally, households can access family wealth from the second period via transfers TR (e.g., predeath bequests). However, transfers have additional utility costs, such as liquidation costs when family assets are illiquid, transaction costs when legal documents are required, and the psychological cost related to the discomfort of asking the family for money. This utility cost is proportional to the transfer size and represented by the parameter λ.

The households lifetime utility is the sum over the per-period utilities plus the eventual utility gain of homeownership net of the costs of transfers,

$$\sum_{t=1}^{2} u(c_t) + \mathbb{I}\Phi - \mathbb{I}_{TR}\lambda TR, \text{ with } t = 1, 2, u' > 0, \text{ and } u'' < 0 \text{ s.t.},$$

$$c_1 = y_1 - b + TR$$

$$c_2 = y_2 + b - TR$$

$$b \geq 0$$

$$0 \leq TR < y_2$$

$$\mathbb{I}_{\Phi} = \begin{cases} 1 & \text{if } b \geq b^* \\ 0 & \text{else} \end{cases}$$

$$\mathbb{I}_{\text{TR}} = \begin{cases} 1 & \text{if } TR > 0 \\ 0 & \text{else} \end{cases}$$

Notice that households face a trade off between consumption smoothing, the utility benefit of housing, and the disutility from the potential use of transfers. Next, we use a simple calibration of the model to illustrate how households solve this trade off in two different scenarios.

[18]The assumption of a utility gain for homeownership is common in the literature. The higher utility may represent that housing serves as an important savings instrument (Goodman and Mayer, 2018) and provides consumption insurance (Lustig and Van Nieuwerburgh, 2005). Other studies find that homeownership is associated with an increase in personal well-being (White and Schollaert, 1993).

5.2 Parameters

In both scenarios, we study the behavior of a continuum of households that vary in their income $Y \in (0.1, 1)$. We assume the following parameters: $b^* = 0.3$, $\Phi = 0.3$ and $\lambda = 1$. We abstract from discounting of future utility and assume that interest rates are zero. We specify the utility function to be the log of consumption.

5.3 Scenario 1: No transfers versus transfers

In the first scenario, we compare the optimal decisions of households that have access to family wealth via transfers to those of households that do not.

Without transfers, households finance the down-payment only if the marginal benefit of homeownership is higher than the marginal cost of unequal consumption.

With transfers, in contrast, the number of households that finance the down-payment and are considered as homeowners increases relatively to the situation without transfers. Households use transfers to finance homeownership as long as the marginal benefit of homeownership is bigger than the marginal disutility of unequal consumption plus the marginal disutility of transfers. Note that the disutility of unequal consumption is partially set-off by transfers.

In both cases, households with total income smaller than the down-payment restriction are forced to stay renters.

5.4 Scenario 2: Increase down-payment restriction

In the second scenario, we increase the down-payment restriction from $b^* = 0.3$ to $b^{**} = 0.4$. Such an increase could result from a tightening in macroprudential policies. Again, we compare households that have access to transfers to those who don't.

Overall, fewer households are considered as homeowners as costs for homeownership increase. Moreover, households that finance the down-payment also increase the amount of transfers used while this increase is stronger for low-income households.

5.5 Summary

Figure 8 summarizes the simulation results for the two scenarios. Panel (a) shows the maximum utility households can obtain when they 1) stay renter, 2) finance the down-payment (homeowners) but have no access to transfers, 3) finance the down-payment and have access to transfers. The vertical lines indicate the income level at which households have higher utility from transitioning into homeownership.

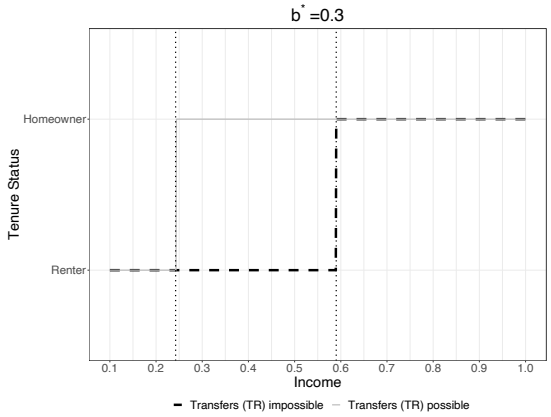
If households have no access to transfers, only households with income equal or above to 0.59 are homeowners. All households with an income below have a higher utility

as renters. In contrast, when households have access to transfers, all households are homeowners if their total income is larger than 0.24.

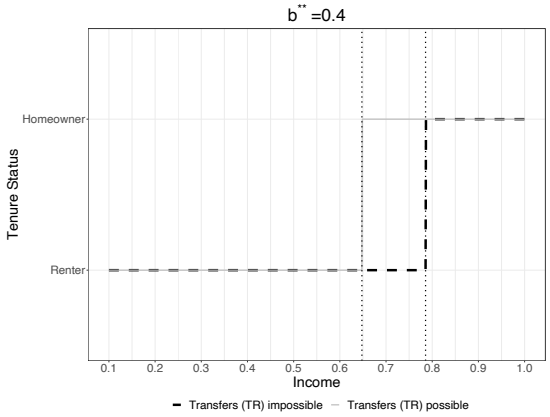
Panel (b) is the same graph but the households face a higher down-payment requirement. In that case, less households are able to afford homeownership. Only households with an income above or equal to 0.79 manage to finance the down-payment if they don't have access to transfers. If households have access to transfers, they transition into homeownership if their income is higher or equal to 0.65.

Panel (c) shows the size of the used transfers as a share of the households' income in the two scenarios. If households stay renters, they do not use transfers as they can perfectly smooth consumption. Overall, low-income households use larger transfers relative to their income than high-income households. Moreover, when down-payment restrictions tighten, the level of transfers increases for a given income level.

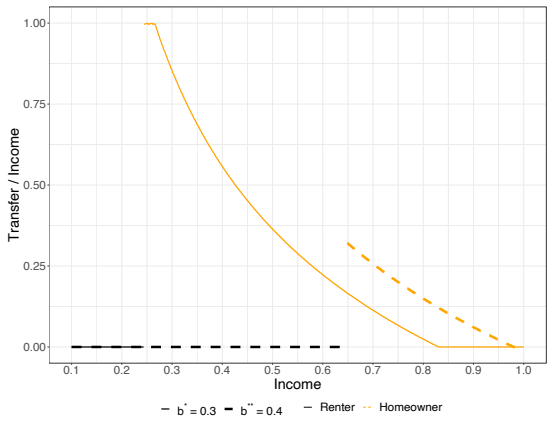
Panel (d) emphasizes this fact. It shows the average differences in the share of transfers by income level bin of size 0.05 for households that are homeowners in both down-payment scenarios. The Households with lower income level increase their transfers more to finance homeownership after down-payment restrictions tighten.



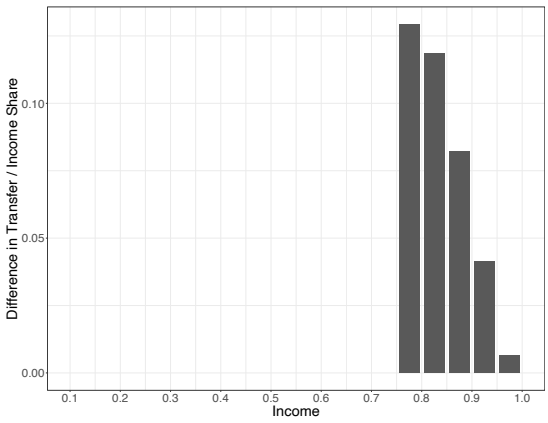
(a) Homeownership Scenario 1



(b) Homeownership Scenario 2



(c) Share Transfer to Income



(d) Differences in Transfer Share

Figure 8: Results from Illustrative Calibration

Note: The figure shows the results of the numerical calibration for the two scenarios described in the text for 1000 households with different levels of income. Panel (a) displays the maximum utility households can obtain when they stay renter, transition into homeownership with and without the access to transfers. Panel (b) is the same graph but households are faced with a higher down-payment constraint ($b^* < b^{**}$). Panel (c) plots the size of used transfers relative to the households' income (y_2) for both scenarios. Panel (d) plots the average differences in the share of transfers after the increase in the down-payment restriction for each income bin of 0.05.

6 Empirical strategy

In an ideal experimental set-up, we could measure the causal effect of the introduction of macroprudential policies on homeownership and borrowing constraints directly, as households would be randomly assigned to a treatment group subject to tighter borrowing constraints and a control group facing no policy change. However, in our set-up, the introduction of macroprudential policies affects all households at the same time.

Thus, we exploit the equilibrium relationship outlined in the theoretical framework and use intergenerational wealth transfers to identify a potential change in borrowing constraints. More precisely, we compare the impact of intergenerational wealth transfers on the probability of transitioning into homeownership (extensive margin) and the price

of the acquired home (intensive margin) before and after 2012. This strategy is similar to Blickle and Brown (2019), who also rely on intergenerational wealth transfers to identify borrowing constraints.

Our main analysis focuses on the extensive margin. It exploits the panel structure of the data and controls for various potential confounds by applying the following linear probability model, conditional on all households renting in the previous year $t-1$:

$$\Delta \mathrm{HO}_{i,t} = \alpha_{m(,t)} + \beta_1 \mathrm{TR}_{i,t} + \beta_2 MP_t + \beta_3 \mathrm{TR}_{i,t} \times \mathrm{MP}_t + \beta_4 \mathrm{HH}_{i,t} + \epsilon_{i,t}\,. \tag{1}$$

The dependent variable, $\Delta \mathrm{HO}_{i,t}$, is a dummy indicating whether household i transitions into homeownership. It takes the value 100 if the household buys a home in year t and is 0 otherwise. Once a household has transitioned into homeownership, it exits the sample in the following period.

The main independent variable of interest is $\mathrm{TR}_{i,t}$, a dummy indicating whether household i receives a wealth transfer. This dummy takes the value of 1 if the household receives a transfer in the current year t or the previous year $t-1$. We include transfers in the previous year to take into account that the decision to buy a home might not be immediate, or that the transfer occurs just before the end of the reporting period for taxes. As the theoretical framework illustrates, borrowing constrained households tend to rely on intergenerational wealth transfers to meet the down-payment requirement when transitioning into homeownership. Hence, we interpret β_1 as a measure of how tight borrowing constraints are.

Another important independent variable is the dummy MP_t, which takes the value of 1 between 2012 and 2016 when the macroprudential policies are in force, and 0 otherwise. Its coefficient, β_2, indicates how the introduction of the macroprudential policies affects the probability of transitioning into homeownership of households that do not rely on transfers.

We interact the indicator for the transfer with the dummy MP_t. Again, as the theoretical framework suggests, the households' reliance on wealth transfers increases when borrowing constraints tighten. Thus, a positive β_3 signals that borrowing constraints became tighter after 2012.

We use two specifications of the model to discriminate between the effects of inheritances and bequests. In the first specification, $\mathrm{TR}_{i,t}$ indicates that the household received a predeath bequest, while in the other, it indicates that it received an inheritance.

To estimate the effects of different transfer sizes, we also use alternative versions of the above specifications and replace the dummy $\mathrm{TR}_{i,t}$ with six categorical variables, indicating the following transfer sizes: CHF 1,000–9,999; CHF 10,000–24,999; CHF 25,000–49,999; CHF 50,000–99,999; and CHF 100,000 or higher. Receiving no transfer is always the base category. This categorical variable also takes into account potential non-linear effects of

transfers.

$HH_{i,t}$ is a vector of control variables at the household level. It includes three measures for the household's financial strength as well as demographic variables. The first two measures for financial strength are the household's position in the income and wealth distribution at first observation in ventiles, i.e., 20 categorical dummies each for income and for wealth. Another measure is the household's log income, which we lag by one period to avoid endogeneity bias. Demographic control variables include the mean age of the main taxpayer and the spouse (rounded to the nearest integer to allow for the use of age fixed effects), and a lagged dummy indicating whether any children live in the household at $t-1$.

α_m represent MS-region fixed effects. They control for heterogeneous local housing market conditions as well as for other local characteristics, such as the structure of the local banking market. We also estimate a version of the model with year $\times$ MS-region fixed effects, $\alpha_{m,t}$, which further capture changes in market conditions and local characteristics over time but also absorb the MP_t-dummy.

Adding these fixed effects along with the household characteristics captures various potential confounds. For instance, it captures that older households had more time to build up wealth and, therefore, are less likely to rely on transfers; or that households with children might have different housing preferences than households without children.

Besides the extensive margin, we also study the intensive margin. That is, we estimate an analogous model but use as the dependent variable the log purchase price of the property to estimate how the introduction of the macroprudential policies affected the average purchase price.

7 Results

In this section, we present and interpret the estimation results. At the extensive margin, we show that households have, on average, a lower probability to transition into homeownership after the introduction of macroprudential policies. However, this is not the case for households that could tap into family wealth via predeath bequest. Their probability of transitioning into homeownership stays roughly the same. At the intensive margin, the results are similar. After 2012, receiving a predeath bequest as well as having more wealth increases the purchase price of the acquired property.

7.1 Extensive margin

Table 2 shows the effects of predeath bequest and inheritances on a household's probability of transitioning into homeownership. In Columns (1), (2), (4) and (5), we provide the results for the model specified in Equation 1 using an indicator for wealth transfers and

including either MS-region fixed effects or year × MS-region fixed effects. In Columns (3) and (6), we focus on categorical transfer sizes.

Column (1) displays the main result. Before 2012, receiving a predeath bequest increases the probability of transitioning into homeownership by 11.99 percentage points. After 2012, the probability of transitioning into homeownership decreases by 0.45 percentage points but only for households that receive no predeath bequests. Households that could draw on predeath bequests have a 0.35 (= 0.8 - 0.45) percentage point higher transition probability after the introduction of the macroprudential policies, although this combined effect is not statistically significantly different from zero (p =0.35).

Column (2) shows the same regression with year × MS-region fixed effects, which leave the estimated effect of bequests and the change in this effect after 2012 essentially unchanged. Thus, after the introduction of the macroprudential policies, predeath bequests have become more important for households to transition into homeownership.

Table 2: Effect of Transfer on the Probability of Transitioning into Homeownership

	Predeath Bequest			Inheritance		
	(1) ΔHO	(2) ΔHO	(3) ΔHO	(4) ΔHO	(5) ΔHO	(6) ΔHO
Transfer=1	11.99***	12.00***		2.40***	2.41***	
	(0.27)	(0.27)		(0.17)	(0.17)	
$MP_{t,12}$=1	-0.45***			-0.36***		
	(0.04)			(0.04)		
$MP_{t,12}$=1 × Transfer=1	0.80**	0.77**		0.23	0.20	
	(0.38)	(0.38)		(0.24)	(0.24)	
kCHF 1 to 10			0.30			-0.00
			(0.35)			(0.26)
kCHF 10 to 25			2.77***			-0.10
			(0.35)			(0.26)
kCHF 25 to 50			8.58***			1.09***
			(0.59)			(0.34)
kCHF 50 to 100			16.82***			3.12***
			(0.69)			(0.44)
kCHF 100 or more			30.35***			9.15***
			(0.77)			(0.56)
$MP_{t,12}$=1 × kCHF 1 to 10			-0.38			-0.04
			(0.47)			(0.37)
$MP_{t,12}$=1 × kCHF 10 to 25			0.62			0.29
			(0.50)			(0.37)
$MP_{t,12}$=1 × kCHF 25 to 50			2.10**			-0.15
			(0.87)			(0.48)
$MP_{t,12}$=1 × kCHF 50 to 100			2.15**			0.08
			(1.00)			(0.63)
$MP_{t,12}$=1 × kCHF 100 or more			0.35			-0.05
			(1.06)			(0.78)
Year FE × MS Region FE	No	Yes	Yes	No	Yes	Yes
Main Controls	Yes	Yes	Yes	Yes	Yes	Yes
Age FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	780,955	780,955	780,955	780,955	780,955	780,955
$\bar{y}$	3.28	3.28	3.28	3.28	3.28	3.28

Note: The table shows the effect of a transfer (predeath bequest or inheritance) on the probability of transitioning into homeownership. In Columns (1), (2), (4) and (5), "Transfer" is a dummy equal to one if a household received a transfer of at least CHF 1,000 in year t or $t-1$, and zero otherwise. Columns (3) and (6) use categorical variables for different transfer sizes (omitted category: households who receive no transfer). Columns (1) and (4) are estimated without year but MS region fixed effects while columns (2), (3), (5) and (6) include year × MS Region fixed effects. Main controls include lag income, having children, financial wealth and income ventiles at first observation. $MP_{t,12}$ is a dummy indicating when macroprudential policies are active during our sample period (2012 to 2016). ΔHO indicates whether a household transitioned into homeownership. Regressions are calculated for households renting in the previous year $t-1$. $\bar{y}$ is the mean of the dependent variable. * p<0.10, ** p<0.05, *** p<0.010. Standard errors are clustered at the household level. In the Appendix Table I.1 we provide results for different specifications of the model.

The estimates in Column (3) show that the effect of predeath bequests increases with their size. Receiving under CHF 10,000 has no significant effect on the probability of transitioning into homeownership, while a predeath bequest of CHF 100,000 or more increases this probability by 30.4 percentage points (relative to not receiving a transfer). After 2012, predeath bequests between CHF 25,000-50,000 or CHF 50,000-100,000 have a

significantly stronger effect on the probability of transitioning into homeownership. Notice that predeath bequests in that range are most likely to alleviate the additional borrowing constraints for households on the margin of being able to make a down-payment after the introduction of the restriction on pension savings withdrawals. Overall, the results suggest that, after 2012, borrowing constraints became tighter.

Next, we turn to inheritances, which are less easily planned for than predeath bequests. In Column (4), the estimates reveal that receiving an inheritance increases the probability of transitioning into homeownership by 2.4 percentage points. This effect is smaller than the one of receiving a predeath bequest but still significant. The effect is not significantly changed after the introduction of the macroprudential policies, although the point estimate is also positive, like for predeath bequests. Adding year $\times$ MS-region fixed effects does not alter these coefficients (Column 5). In Column (6), we see that larger inheritances increase the probability of transitioning into homeownership but these effects are not significantly different in the post-2012 period.

Inheritances are not only less easily planned for than predeath bequests but also tend to occur later in the life-cycle of a household. The results confirm that these features make them less suitable for overcoming tighter borrowing constraints—particularly for young and middle-aged households who are most affected by the tighter borrowing constraints after 2012. Thus, from now on, we focus exclusively on the effects of predeath bequests.

In Table 3, we present several modifications of our baseline model. For better comparability, Column (1) shows our baseline estimates with year $\times$ MS-region fixed effects. Column (2) interacts predeath bequests with the age categories. Columns (3) and (4) control for real estate prices to avoid a potential confound.

Column (2) reveals that receiving a predeath bequest has a stronger effect on the probability of transitioning into homeownership for households in the younger two age categories than for those where the mean age between the main taxpayer and the spouse is 50 and older (the omitted category for the interaction terms). This holds over the sample period as a whole, as indicated by the economically and statistically highly significant interaction terms of the dummy for receiving a predeath bequest with the dummies for being in the youngest age category 1 or the middle-aged category 2. The effect sizes are +15.3 percentage points and + 7.4 percentage points, respectively. After 2012, the effect of receiving a predeath bequest increases by an additional 3.0 percentage points (or 19%) for households in age category 1, and by 2.1 percentage points (or 29%) for households in age category 2 relative to households where the mean age is 50 and older.[19]

A potential concern for our analysis is that the increased importance of predeath bequest could reflect not only the tightening of borrowing constraints due to macroprudential

[19]The table also shows that the simple interactions of being in the post-2012 period with the two age category dummies are negative, meaning that for households with mean age below 50 years and without a predeath bequest, the probability of becoming a homeowner decreases post-2012 relative to older households.

policy but also the general increase in Swiss real estate prices (see Figure 1 above). In this case, we would expect that predeath bequests have a stronger effect in regions with a higher price-to-rent ratio or price index. To test whether this is the case, in Columns (3) and (4), we interact the dummy for receiving a predeath bequest with the lag price-to-rent ratio and the lag of the price index, respectively.

These interaction terms are small and insignificant for the lag price-to-rent ratio or significantly negative (at the 10% level). More importantly, the estimate of receiving a predeath bequest interacted with the MP dummy remains similar to our baseline results in Column (1). Consequently, the increased importance of predeath bequests after 2012 appears to be due to tighter borrowing constraints rather than to the upward trend in real estate prices.

Table 3: Heterogeneity across Age Categories and Effect of Real Estate Prices

	Baseline	Age Categories	Lag Price-to-Rent Ratio	Lag Price
	(1)	(2)	(3)	(4)
	ΔHO	ΔHO	ΔHO	ΔHO
Predeath Bequest=1	12.00***	4.44***	12.51***	14.81***
	(0.27)	(0.39)	(1.95)	(1.62)
$MP_{t,12}$=1 × Predeath Bequest=1	0.77**	-0.88*	0.82*	1.29***
	(0.38)	(0.52)	(0.43)	(0.49)
Predeath Bequest=1 × Age Category=1		15.29***		
		(0.76)		
Predeath Bequest=1 × Age Category=2		7.37***		
		(0.54)		
$MP_{t,12}$=1 × Age Category=1		-0.41***		
		(0.11)		
$MP_{t,12}$=1 × Age Category=2		-0.52***		
		(0.09)		
$MP_{t,12}$=1 × Predeath Bequest=1 × Age Category=1		2.97***		
		(1.07)		
$MP_{t,12}$=1 × Predeath Bequest=1 × Age Category=2		2.12***		
		(0.75)		
Predeath Bequest=1 × Lag Price-to-Rent Ratio			-0.00	
			(0.02)	
Predeath Bequest=1 × Lag Price				-0.02*
				(0.01)
Year FE × MS Region FE	Yes	Yes	Yes	Yes
Main Controls	Yes	Yes	Yes	Yes
Age FE	Yes	Yes	Yes	Yes
Observations	780,955	780,955	780,955	780,955
$\bar{y}$	3.28	3.28	3.28	3.28

Note: The table shows the effect of receiving a predeath bequest on the probability of transitioning into homeownership. Column (1) shows the baseline results. We interact the dummy for receiving a predeath bequest with the age category in Column (2). Columns (3) and (4) show the effect of receiving a predeath bequest when controlling for the interaction of the predeath bequest with the lag price-to-rent ratio as well as the lag price index. Main controls include lag income, having children, financial wealth and income ventiles at first observation. $MP_{t,12}$ is a dummy indicating when the macroprudential policies are active during our sample period (2012 to 2016). ΔHO indicates whether a household transitioned into homeownership. Regressions calculated for all households renting in the previous year $t-1$. $\bar{y}$ is the mean of the dependent variable. * p<0.10, ** p<0.05, *** p<0.010. Standard errors are clustered at the household level.

In Table G.1 in the Appendix, we use an alternative approach to control for the effect of real estate price dynamics. We split the sample in half based on either the level or the growth rate of the regional price-to-rent ratio. If the stronger effect of predeath bequests

was solely due to increase in real estate prices, we would expect our interaction coefficient of interest to be larger in regions with an above-median price-to-rent ratio. However, we find it to be larger in regions with relatively low price-to-rent ratios.

7.2 Intensive Margin

Next, we turn to the intensive margin. Evidence from the United States and Italy shows that households tend to buy larger homes after they received a wealth transfer (Engelhardt and Mayer, 1998; Guiso and Jappelli, 2002). We use the purchase price reported by the households transitioning into homeownership as a proxy for the size and quality of a property.[20]

Table 4 analyzes how receiving a predeath bequest and a household's position in the wealth and income distributions affect the price of the purchased property, and how this changed after 2012. Our results suggest that a positive effect of wealth transfers on the intensive margin also exists in Switzerland, and that this effect got stronger after 2012.

All models are estimated conditional on the household reporting the purchase price. The dependent variable, the purchase price of the property, is in logs. As independent variables, we use a dummy for having received a predeath bequest, and dummies indicating whether the household's income or wealth is above the median. We use lagged income and wealth, as the current levels might be affected by the home purchase. We include the same controls and fixed effects as in the previous extensive margin analysis.[21]

Column (1) reveals that receiving a predeath bequest has a positive effect on the purchase price of the new property. Households who had received a predeath bequest spend, on average, 9% more on their new home than households who buy without having received a predeath bequest. Moreover, the difference increases by another 3 percentage points after the introduction of the macroprudential policies in 2012. However, the effect is less precisely estimated than the one at the extensive margin, due to the relatively small sample size. In Appendix Table H.1, we show that the effect after 2012 is significant and positive mostly for transfers between CHF 50,000 and 100,000, which is also the category for which extensive-margin effects were largest.

Column (2) reveals that households whose wealth is above the median acquire homes which are, on average, 14% more expensive than those of households whose wealth is below the median. This effect significantly increases by an additional 5 percentage points after the introduction of the macroprudential policies.

[20]For those not reporting the purchase price, one could consider using the tax-assessed value available in the tax data of all households. As noted earlier, this is supposed to correspond to about 70% of the property's market value. However, anecdotally, these tax-assessed values contain quite a bit of variation around this target, so that we are reluctant to use them for the intenive-margin analysis.

[21]An exception is that we do not show a model estimated without year fixed effect. As prices of real estate increase over time, in the model without year fixed effects the time dummy for macroprudential policies is necessarily positive.

Column (3) shows that households whose income is above the median buy properties which are, on average, 6% more expensive than those of households whose income is below the median. This effect does not change significantly after the introduction of the macroprudential policies. Column (4) jointly controls for above-median wealth and income, and their interactions with the post-2012 indicator, and shows that the results from the previous two columns remain unchanged when doing so.

In sum, we find that receiving a predeath bequest as well as having more wealth and income are relevant for the purchase price of a property. Moreover, wealth has become more important after the introduction of the macroprudential policies.

Table 4: Effect of Transfer, Wealth, and Income on the Log Purchase Price

	Transfer	Position in the wealth/income distribution		
	(1)	(2)	(3)	(4)
	ln PP	ln PP	ln PP	ln PP
Predeath Bequest=1	0.09***			
	(0.02)			
$MP_{t,12}$=1 × Predeath Bequest=1	0.03			
	(0.03)			
Above median Wealth		0.14***		0.13***
		(0.02)		(0.02)
$MP_{t,12}$=1 × Above median Wealth		0.05**		0.05**
		(0.02)		(0.02)
Above median Income			0.06**	0.06**
			(0.02)	(0.02)
$MP_{t,12}$=1 × Above median Income			0.01	0.00
			(0.03)	(0.03)
Year FE × MS Region FE	Yes	Yes	Yes	Yes
Main Controls	Yes	Yes	Yes	Yes
Age FE	Yes	Yes	Yes	Yes
Observations	10,365	10,365	10,365	10,365
R^2	0.20	0.20	0.19	0.20
$\bar{y}$	13.02	13.02	13.02	13.02

Note: Column (1) shows the effect of receiving a transfer on the log purchase price of the new property. Columns (2) and (3) separately estimate the effects of having above-median wealth and income on the log purchase price of the new property. Column (4) estimates these effects jointly. The medians were calculated for the households reporting the purchase price of the new property. Main controls include lag income, having children, financial wealth, and income ventiles at first observation. $MP_{t,12}$ is a dummy indicating when the macroprudential policies are active during our sample period (2012 to 2016). $\bar{y}$ and $\sigma(y)$ indicate the mean and standard deviation of the dependent variable. * p<0.10, ** p<0.05, *** p<0.010. Standard errors are clustered at the year × MS-Region level. In Table I.2 in the Appendix, we provide results for both types of wealth transfers and different specifications of the model.

8 Additional Evidence

In this section, we present additional evidence that borrowing constraints got tighter after the introduction of the macroprudential policies. In particular, we show that the increased effect of predeath bequests on the probability of acquiring a home is only present for first-

time buyers. For supposedly less credit-constrained households who already own a home and could acquire an additional property, predeath bequests have the same effect before and after the introduction of the macroprudential policies. Moreover, we conduct several robustness checks and discuss the external validity of our results.

8.1 Existing Homeowners Buying Additional Properties

Withdrawals of second-pillar pension savings to finance the down-payment for buying a property are only allowed for the principal residence. For this reason, the macroprudential policy requiring households to finance at least 10% of the housing value without second-pillar savings only constrains households who have been renting and transition into homeownership but not those who already own a home and buy an additional property. Moreover, as homeownership is costly, we can expect households with multiple properties to be less credit-constrained in general. Accordingly, predeath bequests may be less important for these households.

Figure 9 shows the share of households who already own a home in the previous year $t-1$ and acquire an additional property in the current year t. The share varies little over the sample period. In contrast to the share of households transitioning into homeownership for the first time, there is no abrupt change around 2012 when the macroprudential policies were introduced.

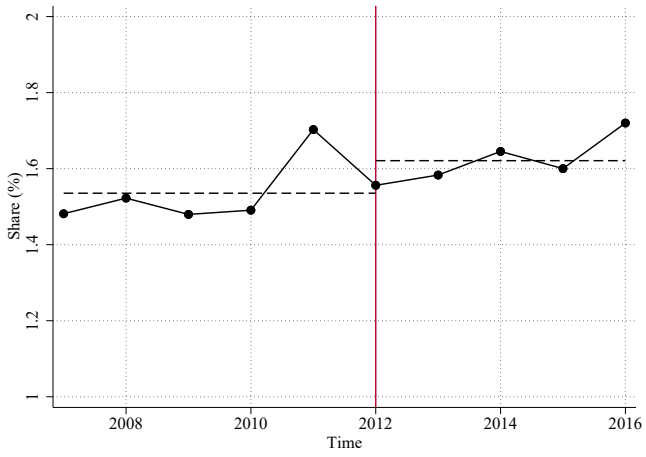


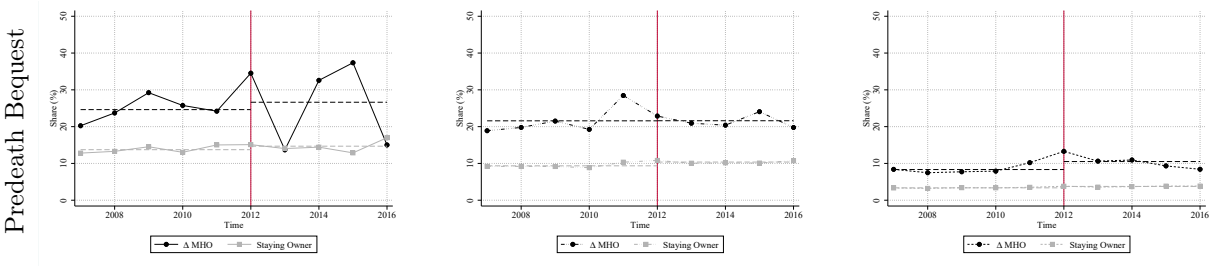
Figure 9: Share of Households Buying an Additional Property

Note: This figure shows the annual share of households who already own at least one home and acquire an additional property. The vertical line indicates when macroprudential policies were introduced in Switzerland.

Figure 10 exhibits the share of households receiving a predeath bequest, conditional on their age category and tenure status. The tenure status refers to two different categories of households. The first tenure status, "ΔMRE", refers to households who already own at least one property in $t-1$ and acquire an additional one in t. The second tenure status,

"Staying Owner", refers to households who own at least one property in $t-1$ and keep their real estate holdings constant in t.

There are two noteworthy observations. First, households who acquire an additional property receive a predeath bequest more often than households who keep their real estate holdings constant. Second, the share of households receiving a predeath bequest varies only slightly around the introduction of the macroprudential policies. For the youngest age category, the share is highly volatile due to the few observations of young households who acquire an additional property. For the older two age categories, the share is constant.



(a) Age ≤ 35 (b) $35 <$ Age ≤ 50 (c) $50 <$ Age ≤ 100

Figure 10: Share of Households Receiving a Predeath Bequest by Age Group and Tenure Status

Note: The figure shows the share of households who receive a predeath bequest, conditional on their tenure status and age group. The tenure status refers to two different categories of households. The first tenure status, "ΔMRE", refers to households who own already at least one home in the previous year $t-1$ and acquire additional real estate in year t. The second tenure status, "Staying Owner", refers to households who own at least one home in $t-1$ and keep their real estate holdings constant in t.

In Table 5, we use a similar regression model as in Section 7.1 for estimating the effects at the extensive margin. However, the dependent variable ΔMRE indicates households already owning a property in $t-1$ and acquiring an additional one in t. The fixed effects and main control variables are the same as in the baseline specification, except for the income and wealth ventiles at first observation, which are calculated conditional on all households already owning at least one property.

In Column (1), we observe that predeath bequests have a significant effect for households who acquire an additional property. However, the effect is much smaller than for first-time home buyers. Moreover, the effect of receiving a predeath bequest on the probability of acquiring an additional property does not increase after the introduction of the macroprudential policies.

In Column (2), we observe similar results for the different transfer sizes. Larger predeath bequests have a stronger effect on the probability of acquiring an additional property. Yet, across almost all transfer sizes, the effect remains unchanged after the introduction of the macroprudential policies. An exception are transfers between CHF 25,000 and 50,000 which have a stronger effect after 2012. However, the effect is only marginally significant and smaller compared to transfers of the same size for households

who were renting before.

Table 5: Effect of Receiving a Predeath Bequest for Households Buying an Additional Property

	(1) ΔMRE	(2) ΔMRE
Transfer=1	1.98***	
	(0.11)	
$MP_{t,12}$=1 × Transfer=1	-0.02	
	(0.15)	
kCHF 1 to 10		0.21
		(0.25)
kCHF 10 to 25		0.54***
		(0.17)
kCHF 25 to 50		0.34*
		(0.19)
kCHF 50 to 100		1.71***
		(0.23)
kCHF 100 or more		4.84***
		(0.27)
$MP_{t,12}$=1 × kCHF 1 to 10		-0.28
		(0.32)
$MP_{t,12}$=1 × kCHF 10 to 25		-0.11
		(0.23)
$MP_{t,12}$=1 × kCHF 25 to 50		0.48*
		(0.29)
$MP_{t,12}$=1 × kCHF 50 to 100		-0.24
		(0.31)
$MP_{t,12}$=1 × kCHF 100 or more		0.38
		(0.38)
Year FE × MS Region FE	Yes	Yes
Main Controls	Yes	Yes
Age FE	Yes	Yes
Observations	1,049,114	1,049,114
$\bar{y}$	1.57	1.57

Note: ΔMRE is a dummy indicating households who already own at least one home in the previous year $t-1$ and buy an additional property in t. Transfer is a dummy for a predeath bequest that takes the value of one if the transfer is $\geq$ CHF $1,000$ and zero otherwise. Main controls include lag income, having children, financial wealth and income ventiles at first observation. $MP_{t,12}$ is a dummy indicating when the macroprudential policies are active during our sample period (2012 to 2016). $\bar{y}$ is the mean of the dependant variable. * p<0.10, ** p<0.05, *** p<0.010. Standard errors are clustered at the household level.

8.2 Robustness Checks

8.2.1 Timing of the Introduction of the Macroprudential Policies

As described in Section 2, the introduction of the macroprudential policies occured gradually. While the first policy change was announced in June 2012, it became effective in July 2012 and allowed for a transition period of 5 months. For this reason, we verify whether our results still hold when we use two alternative definitions for the introduction of the macroprudential policies. First, we treat the policies as active from 2013 to 2016.

Second, we drop all observations from 2012.

We find that our results are robust to both definitions. Table 6 shows the effect of predeath bequests on the probability of transitioning into homeownership for the two alternative definitions. In Column (1), we set the dummy for active macroprudential policies equal to one from 2013 to 2016. In Column (2), we estimate the model without the observations from 2012. The effect of receiving a predeath bequest on the probability of transitioning into homeownership is very close to our baseline estimate in Table 2. The coefficient on the interaction of the predeath bequest with the macroprudential policy dummy in Columns (1) and (2) is larger. Thus, if anything, our main result is stronger under these alternative definitions.

Table 6: Robustness Checks for Different Definitions of the Macroprudential Policy Dummy

	(1)	(2)
Δ HO	Dummy 2013	without 2012
Transfer=1	11.85***	11.99***
	(0.25)	(0.27)
MP_t=1	1.37***	1.22***
× Transfer=1	(0.39)	(0.41)
Year FE × MS Region FE	Yes	Yes
Main Controls	Yes	Yes
Age FE	Yes	Yes
Observations	780,955	703,906
$\bar{y}$	3.28	3.30

Note: The table shows the effect of receiving a predeath bequest on the probability of transitioning into homeownership using different definitions of the dummy for the introduction of macroprudential policies. In Column (1), we set the macroprudential policy dummy equal to 1 for 2013 to 2016. In Column (2), we drop observations from 2012 completely. Transfer is a dummy for a predeath bequest that takes the value of one if the transfer is $\geq$ CHF 1,000 and zero otherwise. Main controls include lag income, having children, financial wealth, and income ventiles at first observation. ΔHO indicates whether a household transitioned into homeownership. Regressions are calculated for households renting in the previous year $t-1$. MP_t is a dummy indicating when the macroprudential policies are active; in these specifications, this dummy is = 1 for 2013 to 2016. $\bar{y}$ is the mean of the dependent variable. * p<0.10, ** p<0.05, *** p<0.010. Standard errors are clustered at the household level.

8.2.2 Change in Preferences among Age Groups

Preferences over tenure choices among age groups might change over time. For example, after 2012, homeownership might have become more desirable for households where the mean age of the main taxpayer and the spouse is between 30 and 35. Separate age and year fixed effects do not absorb such a potential change in preferences. For this reason, we include an additional control variable and interact the year of an observation with a variable that groups households according to their mean age in 5 year bins.

Table 7 provides evidence that our results are robust to the inclusion of this additional control variable. Column (1) shows the effect of receiving a predeath bequest on the probability of transitioning into homeownership without the additional control variable. Column (2) adds the additional control variable. Columns (3) and (4) show the analogous

regressions replacing the dummy for receiving a predeath bequest with the categorical variables for the size of the predeath bequest. The estimates remain robust across all specifications. Thus, we conclude that the additional effect of predeath bequests after 2012 cannot be explained by a change in preferences over tenure choices among different age groups.

Table 7: Additional Fixed Effects Absorbing Shifts in Preferences for Housing Tenure Choice

	(1) ΔHO	(2) ΔHO	(3) ΔHO	(4) ΔHO
Transfer=1	12.00***	11.93***		
	(0.27)	(0.27)		
MP_t=1 × Transfer=1	0.77**	0.92**		
	(0.38)	(0.38)		
kCHF 1 to 10			0.30	0.25
			(0.35)	(0.35)
kCHF 10 to 25			2.77***	2.71***
			(0.35)	(0.35)
kCHF 25 to 50			8.58***	8.50***
			(0.59)	(0.59)
kCHF 50 to 100			16.82***	16.72***
			(0.69)	(0.69)
kCHF 100 or more			30.35***	30.25***
			(0.77)	(0.77)
MP_t=1 × kCHF 1 to 10			-0.38	-0.27
			(0.47)	(0.47)
MP_t=1 × kCHF 10 to 25			0.62	0.74
			(0.50)	(0.50)
MP_t=1 × kCHF 25 to 50			2.10**	2.25***
			(0.87)	(0.87)
MP_t=1 × kCHF 50 to 100			2.15**	2.32**
			(1.00)	(1.00)
MP_t=1 × kCHF 100 or more			0.35	0.54
			(1.06)	(1.06)
Year FE × MS Region FE	Yes	Yes	Yes	Yes
Main Controls	Yes	Yes	Yes	Yes
Age FE	Yes	Yes	Yes	Yes
Year FE × 5 Year Age Groups	No	Yes	No	Yes
Observations	780,955	780,947	780,955	780,947
$\bar{y}$	3.28	3.28	3.28	3.28

Note: The table shows the effect of receiving a predeath bequest on the probability of transition into homeownership. It compares two different specifications. In Column (1), we show our baseline model. In Column (2), we add an additional fixed effect from the interaction of the year and five year age group. In Column (3), we have the baseline model specification using a categorical variable for the transfer size. In Column (4), we add to this specification the fixed effect of the interaction of the year and five year age group. The dummy of a transfer is equal to one if the households receives a predeath bequest $\geq$ CHF $1,000$. The additional fixed effect absorbs potential shifts in preferences for housing tenure choice across age groups. Main controls include lag income, having children, financial wealth, and income ventiles at first observation. $MP_{t,12}$ is a dummy indicating when the macroprudential policies are active during our sample period (2012 to 2016). ΔHO indicates whether a household transitioned into homeownership. Regressions are calculated for households renting in the previous year $t-1$. $\bar{y}$ is the mean of the dependent variable. * p<0.10, ** p<0.05, *** p<0.010. Standard errors are clustered at the household level.

8.2.3 External Validity

Besides the administrative data from Bern, we use two additional data sets to assess the external validity of our results.

First, we exploit the nationwide SHP data. The SHP project is based at the Swiss Centre of Expertise in the Social Sciences (FORS) and financed by the Swiss National Science Foundation. The advantage of this data set is that it is representative for the entire country, and that we can include households without restrictions on their civil status. However, compared to the administrative data set from the canton of Bern, the SHP data is only a sample and does not contain the universe of taxpayers. Moreover, it provides just one transfer variable and does not allow to distinguish between inheritances and predeath bequests.

Overall, our main results also hold in the SHP data. Wealth transfers have a significant and positive effect on the probability of transitioning into homeownership. After 2012, we observe a stronger effect of wealth transfers, even though the effect is estimated imprecisely due to the limited number of observations and therefore not statistically significant. Reassuringly and similar to the results for the canton of Bern, wealth transfers with a size from CHF 50'000-100'000 have the strongest effect on the probability of transitioning into homeownership after 2012. Details can be found in Appendix J.

Second, we use a similar administrative data set of individual tax records from the canton of Lucerne. Lucerne provides a particularly useful check on external validity, as it experienced stronger real estate price growth over the sample period than Bern. Transaction prices of single-family houses in Lucerne increased by about 37% from 2007 to 2016, versus about 27% in Bern (SNB, 2020). As tax reports share a common structure between cantons, observable characteristics are similar in both administrative data sets (see Table E.1 in the Appendix for summary statistics for Lucerne). However, the data set from Lucerne has two limitations. First, it does not allow us to discriminate between predeath bequests and inheritances. Second, it does not allow us to identify the individual properties owned by a taxpayer. Due to these limitations, we use this data set primarily to compare the descriptive results between Bern and Lucerne. Conditional on households renting in the previous year, the administrative data from Lucerne comprises 334,014 observations.[22]

The descriptive patterns in the data from Lucerne are similar to those from Bern. In Appendix Figure E.3, we find a similar but more pronounced drop in the share of new homeowners after 2012 across all age categories. Additionally, the patterns in Figure E.4 depicting the share of homeowners transitioning into homeownership conditional on wealth and income quintiles in Lucerne are comparable to those in the analogous Figure

[22]For the canton of Lucerne, tax reports show no information about the age of the spouse. Hence, we use the age of the main taxpayer. However, results from Bern are similar when using the mean age or only the main taxpayer's age.

5 for Bern. First, households with higher income and wealth are more likely to transition into homeownership. Second, the share of households transitioning into homeownership drops by more after 2012 when income and wealth are low.

9 Conclusion

Using administrative tax data from Switzerland, we study how the introduction of macroprudential policies affects the propensity of households to become homeowners and the borrowing constraints they face. We identify borrowing constraints by analyzing the effect of receiving a predeath bequest on renter households' probability of transitioning into homeownership. We find that the yearly share of renter households transitioning into homeownership decreased from an average of 3.4% in the four years prior to the introduction of the macroprudential policies to 3.0% in the four years afterward. However, this decrease is not present for households that could draw from family wealth via predeath bequests. As borrowing constraints tightened, predeath bequests have become more important for financing the transition into homeownership, especially for young and middle-aged households. We also find similar evidence at the intensive margin. Predeath bequests and wealth have stronger effects on the purchase price of homes acquired after the introduction of macroprudential policies.

The results are robust to different model specifications. In particular, while predeath bequests became more important for first-time home buyers, this is not the case for households who already own at least one home and acquire additional property. These households are presumably less borrowing-constrained and are not affected by the policy limiting withdrawals of pension savings. Finally, we use a representative nationwide sample and similar tax data form a second canton to check for external validity. Qualitatively, our results hold in these samples too.

Our results have implications for the discussion surrounding macroprudential policies. In Switzerland, these policies have aimed at countering potentially damaging developments in the mortgage and real estate markets, and at strengthening the resilience of the banking system. If effective, macroprudential policies reduce the likelihood and depth of a housing market downturn. Among other things, this happens by tightening borrowing constraints with the aim of preventing households from taking on excessive debt. The reduced ownership propensities of low-wealth and low-income households suggest that the macroprudential policies in Switzerland achieve this aim. At the same time, such policies could have distributional consequences to the extent that homeownership has potential long-run wealth benefits. Some households are able to overcome the tighter constraints via predeath bequests, but this is certainly not an option for all households, as family wealth is highly heterogeneous. To the extent that homeownership has potential long-run wealth benefits, such policies therefore likely also have distributional consequences. A full

evaluation of this aspect should, however, also take into account the effects of the policies on home prices, which we have not attempted to study in this work.

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Appendix

A Age Histogram

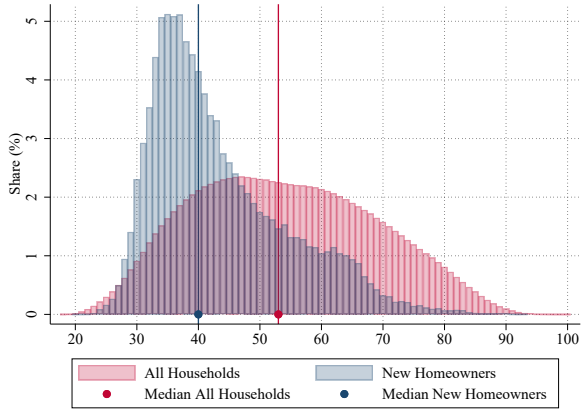


Figure A.1: Age Histogram for Households in Bern

Note: The figure shows age distribution separately for all households in the sample and households that rented in year $t-1$ and then transitionied into homeownership in year t for the canton of Bern. The vertical lines indicate the median age for each group of households.

B Intensive Margin T-tests

Table B.2: Intensive Margin - Tests across Groups

	(1) Mean Price reported	(2) Mean No Price reported	(3) Difference	(4) Std.	(5) N
Age	44.59	40.97	3.62***	.14	26335
Received an Inheritance (0/100)	9.76	5.86	3.90***	.35	26335
Received a Predeath Bequest (0/100)	23.43	26.66	–3.23***	.54	26335
Lag Income (in kCHF)	114.58	118.16	–3.57***	1.06	26335
Lag Wealth (in kCHF)	197.1	159.67	37.43***	6.44	26317
Has Children (0/100)	65.58	74.07	–8.50***	.58	26335
Year	2011.21	2011.31	–0.10**	.04	26335
Price-to-Rent ratio (100 = 2003)	119.65	120.5	–0.84***	.16	26335
Max. Number of Obs. in sample	11.24	10.78	0.46***	.04	26335

Notes: The table shows the characteristics of households that are not reporting the purchase price and those households reporting the purchase price in the tax report. Reporting the purchase price in the tax report is voluntary. "Difference" shows the difference in mean for the characteristics of the households. The stars indicate the significance of the difference in mean among the households not reporting and those that do not using a t-test. "Std." and "N" indicate the standard deviation and the number of observations, respectively. "Max. Number of obs. in sample" represents the maximum number of observations a household was observed in the Sample. The number of observations refers to the total number of new homeowners in our sample.

C Map of Switzerland

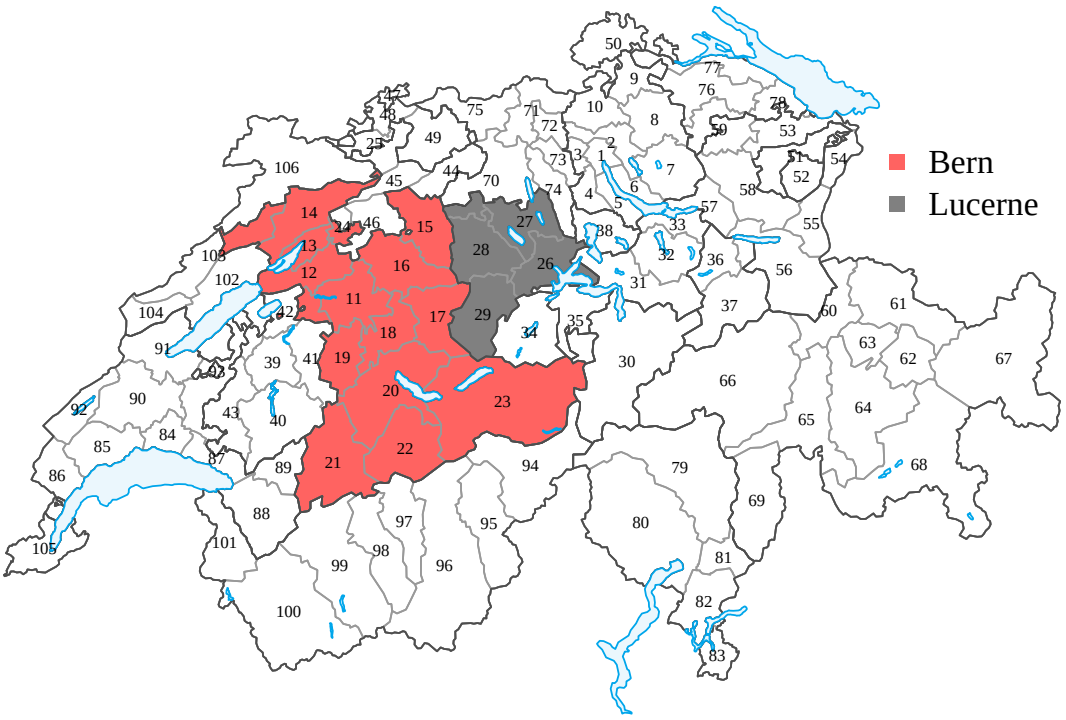


Figure C.1: MS-regions of Switzerland

Note: The figure shows all 106 MS-regions of Switzerland (FSO, 2020c). The MS-regions are small labour market areas with a functional orientation towards centres and are characterized by a certain spatial homogeneity. Highlighted are the canton of Bern and the canton of Lucerne. Dark grey lines show cantonal borders whereas light grey lines indicate different MS-regions.

D Macroprudential Policies in Switzerland - Timeline

Table D.1: Timeline Introduction Macroprudential Policies

(1) Announced	(2) Effective	(3) Policy
June 2012	July 2012, with a 5 month transition period	The Swiss Bankers Association tightened the down-payment requirements in its catalogue of self-regulations. Under the new requirements, home buyers need to finance at least 10% of the purchase price with "hard" equity capital, without drawing from second-pillar pension savings.
June 2012	January 2013	The Swiss Federal Council (the executive branch of the Swiss government) raised banks' capital requirements for originated mortgage loans with high LTV ratios: by January 2013, the risk-weights for the loan tranche exceeding an LTV ratio of 80% increased from 75% to 100%.
February 2013	September 2013	The Swiss Federal Council activated the sectoral countercyclical capital buffer (CCyB), requiring banks to hold additional common equity Tier 1 (CET1) capital on domestic residential mortgage loans. The CCyB was set to 1% of a bank's relevant risk-weighted assets.
January 2014	June 2014	The Swiss Federal Council increased the sectoral CCyB to 2% of a bank's relevant risk-weighted assets.
June 2014	September 2014, with a 5 month transition period	The Swiss Bankers Association tightened the amortisation structure in its catalogue of self-regulations. New mortgages must be amortised to a LTV of two-thirds within 15 years, subject to linear repayment.

Notes: The table shows the timeline of the introduction of Macroprudential Policies in Switzerland from 2012 to 2016. Sources: Behncke (2022); Swiss Financial Market Supervisory Authority FINMA (2014)

E Lucerne Tax Data

E.1 Summary Statistics from Lucerne

Table E.1: Summary Statistics

	(1) Mean	(2) Std. Dev.	(3) N
ΔHO (0/100)	3.1	17.4	334,014
Age	53.2	16.6	334,014
Share of people with age $\leq$ 35 (0/100)	16.4	37.0	334,014
$35 <$ Age ≤ 50	34.0	47.4	334,014
$50 <$ Age ≤ 100	53.9	49.9	334,014
Lag Income (in kCHF)	84.5	49.4	334,014
Lag Wealth (in kCHF)	129.3	506.8	334,014
Has Children (0/100)	45.7	49.8	334,014
Price-to-Rent ratio (100 = 2007)	126.1	14.3	334,014

Notes: The table shows the summary statistics of all variables for households renting in the previous year $t-1$. Variables with (0/100) in parentheses are dummy variables scaled from 0 to 100 to indicate percentages. ΔHO refers to the share of households who rented in year $t-1$ and transitioned into homeownership in year t. Age refers to the mean age of the main taxpayer. The base year of the price-to-rent ratio index is 2007.

E.2 Descriptive Evidence from Lucerne

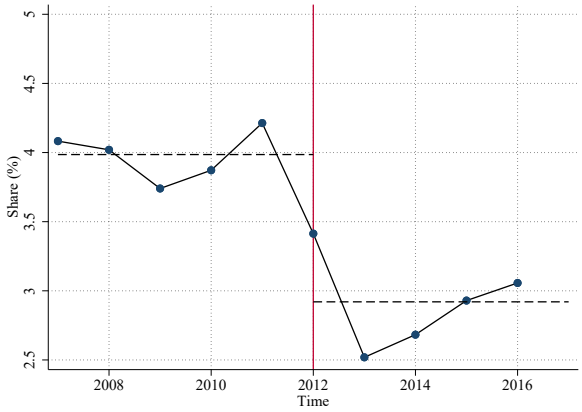


Figure E.1: Share of Households transitioning into Homeownership in Lucerne

Note: The figure shows the share of households transitioning into homeownership for the canton of Lucerne. It is calculated conditional on all households renting at time $t-1$. Horizontal lines indicate means before and after 2012.

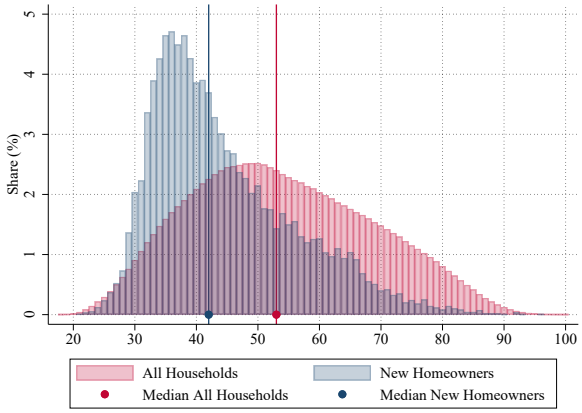
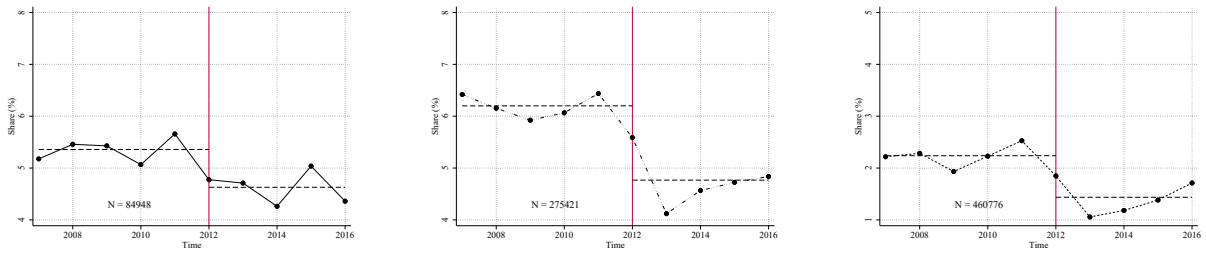


Figure E.2: Age Histogram for Households in Lucerne

Note: The figure shows age distribution for households who were renting in year $t-1$ and transitioned into homeownership in year t as well as the overall age distribution of all households in the sample.



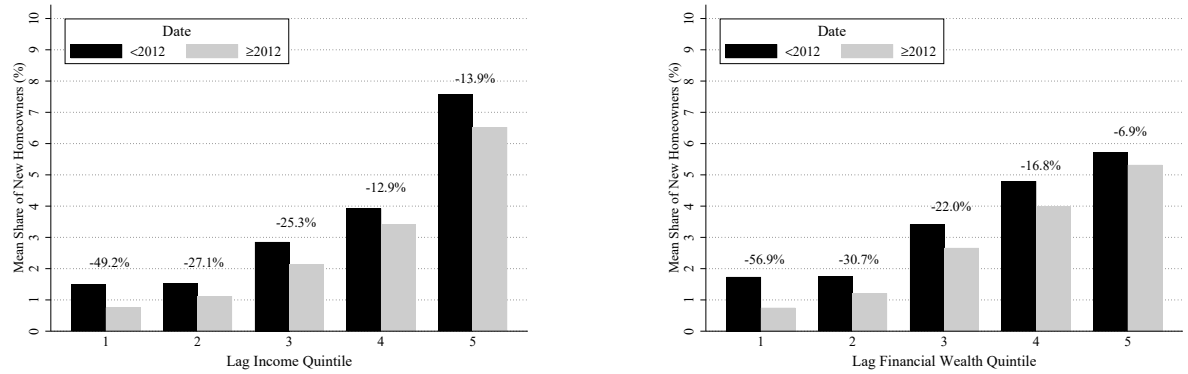
(a) Age category 1 (b) Age category 2 (c) Age age category 3

Figure E.3: Share of New Homeowners conditional on Age in Lucerne

Note: The figure shows the mean share of new homeowners for the canton of Lucerne conditional on the age category. "N" is the number of all renters in year $t-1$ in each age category. Horizontal lines indicate means before and after 2012.

E.3 Changing Effects of Wealth and Income

The pattern in Lucerne is qualitatively similar as in Bern: after 2012, the propensity to enter homeownership decreased relatively more for renters with low income and/or low wealth.

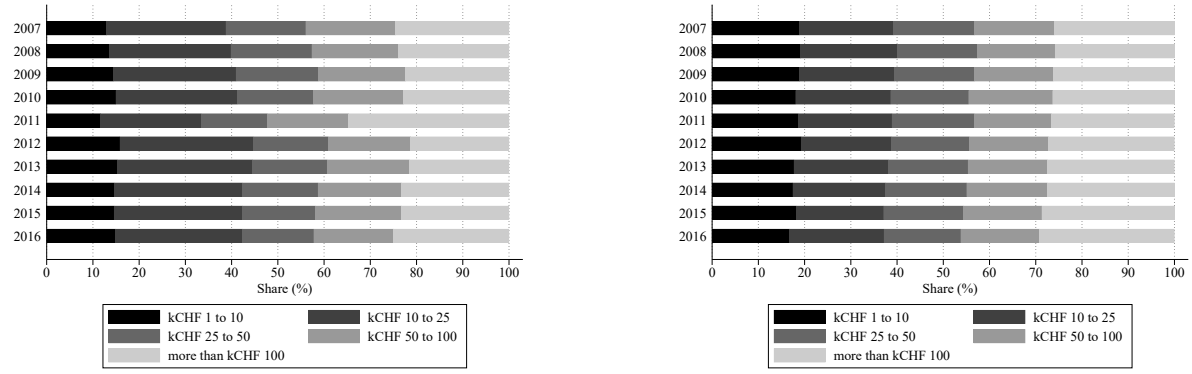


(a) Conditional on Lag Income (b) Conditional on Lag Financial Wealth

Figure E.4: Share to transition into Homeownership conditional on Wealth and Income Quintile in Lucerne

Note: The figure shows the share of households transitioning into homeownership conditional on their lag income and wealth quintile for periods before 2012 and after, respectively for Lucerne. The quintiles are calculated conditional on being a renter in year $t-1$. The numbers above the bars indicate the percentage change of the share before and after 2012.

F Distribution of Transfers over Time



(a) Predeath Bequest

(b) Inheritances

Figure F.1: Share of transfers conditional on having received a positive transfer

Note: The figure shows distribution of predeath bequests and inheritances over time, conditional on households who received a positive transfer of CHF > 1000.

G Regions with Different Price Dynamics

Table G.1: Effect of a Predeath Bequest for Regions with Different Price Dynamics

	Growth: Below Median	Growth: Above Median	Level: Below Median	Level: Above Median
	(1)	(2)	(3)	(4)
	ΔHO	ΔHO	ΔHO	ΔHO
Transfer=1	11.98***	12.03***	11.15***	12.87***
	(0.40)	(0.38)	(0.38)	(0.39)
MP_t=1	1.06*	0.55	2.22***	-0.65
× Transfer=1	(0.55)	(0.53)	(0.54)	(0.54)
Year FE × MS Region FE	Yes	Yes	Yes	Yes
Main Controls	Yes	Yes	Yes	Yes
Age FE	Yes	Yes	Yes	Yes
Observations	369,443	411,512	372,105	408,850
$\bar{y}$	3.52	3.06	3.72	2.89

Note: The table shows the effect of a predeath bequest on the probability of transition into homeownership. The columns refer to different samples. In Columns (1) and (2), we split the sample across households that live in regions with below or above median price-to-rent ratio growth, respectively. In Columns (3) and (4), we split the sample across households that live in regions with below or above median price-to-rent ratio, respectively. "Transfer" is a dummy equal to one if a household received a transfer of at least CHF 1,000 in year t or $t-1$, and zero otherwise. Main controls include lag income, having children, financial wealth and income ventiles at first observation. $MP_{t,12}$ is a dummy indicating when the macroprudential policies are active during our sample period (2012 to 2016). ΔHO indicates whether a household transitioned into homeownership. Regressions calculated conditional on households renting year $t-1$. $\bar{y}$ is mean of the dependent variable. * p<0.10, ** p<0.05, *** p<0.010. Standard errors are clustered at the household level.

H Intensive Margin and Different Transfer Sizes

Table H.1: Effect of different Transfer Sizes on the Log Purchase Price

	Predeath Bequest	
	(1)	(2)
	ln PP	ln PP
Transfer=1	0.09***	
	(0.02)	
$MP_{t,12}$=1 × Transfer=1	0.03	
	(0.03)	
kCHF 1 to 10		-0.03
		(0.12)
kCHF 10 to 25		-0.03
		(0.05)
kCHF 25 to 50		0.03
		(0.04)
kCHF 50 to 100		0.04
		(0.03)
kCHF 100 or more		0.18***
		(0.03)
$MP_{t,12}$=1 × kCHF 1 to 10		0.01
		(0.16)
$MP_{t,12}$=1 × kCHF 10 to 25		0.02
		(0.07)
$MP_{t,12}$=1 × kCHF 25 to 50		0.03
		(0.06)
$MP_{t,12}$=1 × kCHF 50 to 100		0.11**
		(0.05)
$MP_{t,12}$=1 × kCHF 100 or more		-0.01
		(0.04)
Year FE × MS Region FE	Yes	Yes
Main Controls	Yes	Yes
Age FE	Yes	Yes
Observations	10,365	10,365
R^2	0.20	0.20
$\bar{y}$	13.02	13.02

Note: Column (1) shows the effect of receiving a transfer on the log purchase price of the new property. Column (2) uses categorical variables for different trasnfer sizes (ommitted cateogry: households who receive no transfer). Main controls include lag income, having children, financial wealth, and income ventiles at first observation. $MP_{t,12}$ is a dummy indicating when the macroprudential policies are active during our sample period (2012 to 2016). $\bar{y}$ and $\sigma(y)$ indicate the mean and standard deviation of the dependent variable. * p<0.10, ** p<0.05, *** p<0.010. Standard errors are clustered at the year × MS-Region level.

I Different Model Specifications for the Extensive and Intensive Margin

Table I.1: Different Model Specifications for the Effect of a Predeath Bequest on Homeownership

	(1) ΔHO	(2) ΔHO	(3) ΔHO	(4) ΔHO	(5) ΔHO	(6) ΔHO
Transfer=1	13.59***	12.45***	12.00***			
	(0.27)	(0.28)	(0.27)			
MP_t=1	0.86**	0.81**	0.77**			
× Transfer=1	(0.38)	(0.38)	(0.38)			
kCHF 1 to 10				0.86**	0.59*	0.30
				(0.35)	(0.35)	(0.35)
kCHF 10 to 25				3.73***	3.05***	2.77***
				(0.34)	(0.35)	(0.35)
kCHF 25 to 50				9.97***	8.97***	8.58***
				(0.58)	(0.59)	(0.59)
kCHF 50 to 100				18.65***	17.32***	16.82***
				(0.69)	(0.70)	(0.69)
kCHF 100 or more				32.95***	31.04***	30.35***
				(0.76)	(0.77)	(0.77)
MP_t=1				-0.26	-0.40	-0.38
× kCHF 1 to 10				(0.46)	(0.47)	(0.47)
MP_t=1				0.85*	0.72	0.62
× kCHF 10 to 25				(0.49)	(0.50)	(0.50)
MP_t=1				2.25***	2.11**	2.10**
× kCHF 25 to 50				(0.86)	(0.87)	(0.87)
MP_t=1				2.29**	2.19**	2.15**
× kCHF 50 to 100				(1.00)	(1.01)	(1.00)
MP_t=1				0.11	0.38	0.35
× kCHF 100 or more				(1.05)	(1.06)	(1.06)
Year FE × MS Region FE	Yes	Yes	Yes	Yes	Yes	Yes
Main Controls	No	Yes	Yes	No	Yes	Yes
Age	No	No	Yes	No	No	Yes
Observations	828,517	780,955	780,955	828,517	780,955	780,955
$\bar{y}$	3.22	3.28	3.28	3.22	3.28	3.28

Note: The table shows the effect of a predeath bequest on the probability of a household to transition into homeownership for different model specifications. In Columns (1) to (3), "Transfer" is a dummy equal to one if a household received a transfer of at least CHF 1,000 in year t or $t-1$, and zero otherwise. Columns (4) to (6) use categorical variables for different transfer sizes (omitted category: households who receive no transfer). Main controls include lag income, having children, financial wealth and income ventiles at first observation. $MP_{t,12}$ is a dummy indicating when the macroprudential policies are active during our sample period (2012 to 2016). ΔHO indicates whether a household transitioned into homeownership. Regressions calculated conditional on households renting in the previous year $t-1$. $\bar{y}$ is the mean of the dependent variable. * p<0.10, ** p<0.05, *** p<0.010. Standard errors are clustered at the household level.

Table I.2: Different Model Specifications for the Effect of a Transfer on the Log Purchase Price

	Predeath Bequest			Inheritance		
	(1) ln PP	(2) ln PP	(3) ln PP	(4) ln PP	(5) ln PP	(6) ln PP
Transfer=1	0.11***	0.10***	0.09***	-0.03	-0.02	0.01
	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)	(0.03)
MP_t=1 × Transfer=1	0.02	0.03	0.03	0.04	0.06	0.06
	(0.03)	(0.03)	(0.03)	(0.05)	(0.05)	(0.05)
Year FE × MS Region FE	Yes	Yes	Yes	Yes	Yes	Yes
Main Controls	No	Yes	Yes	No	Yes	Yes
Age	No	No	Yes	No	No	Yes
Observations	11,002	10,368	10,365	11,002	10,368	10,365
$\bar{y}$	13.02	13.02	13.02	13.02	13.02	13.02
$\sigma(y)$	0.65	0.64	0.64	0.65	0.64	0.64

Note: The table shows the effect of a transfer (predeath bequest or inheritance) on the log purchase price of the new property for different model specifications. Main controls include lag income, having children, financial wealth and income ventiles at first observation. $MP_{t,12}$ is a dummy indicating when the macroprudential policies are active during our sample period (2012 to 2016). $\bar{y}$ and $\sigma(y)$ are mean and st. dev. of the dependent variable. * p<0.10, ** p<0.05, *** p<0.010. Standard errors are clustered at the household level.

J Results for Nationwide SHP Data

In Tables J.1 and J.2, we compare results from the SHP panel data set to the tax data from Bern. The SHP data also encompasses non-married households and observations from all cantons. However, it only contains data for a general wealth transfer and does not allow to distinguish between a predeath bequest and inheritance. This wealth transfer could include predeath bequests and/or inheritances.

To compare the results of the SHP data set to the tax data, we use information about inheritances and predeath bequests in the tax data to generate a similar variable of wealth transfer. In more detail, the dummy for a wealth transfer in the tax data is equal to one if a household has received a predeath bequest or an inheritance in year t or $t-1$.

Then, we estimate similar regressions for the extensive margin using both the SHP and the tax data set from Bern over the same sample periods. We use the same control variables in both data sets with the exception of initial wealth ventiles. The SHP data set does not include information about the wealth of the households. For this reason, we only control for initial income ventiles in the regressions with the SHP data.

Table J.1 shows the results of the extensive margin regressions for both data sets. Comparing columns (1) and (4), we find that a wealth transfer increases the probability of transitioning into homeownership by 2.09 and 7.62 percentage points in the SHP and the tax data, respectively. On average, after 2012, the probability of transitioning into homeownership decreases by 0.74 and 0.45 percentage points. Receiving a wealth transfer after 2012 increases the probability of transitioning into homeownership by 0.90 percentage points in the SHP data and by 0.50 in the tax data, although the SHP estimate is not

very precise. Adding year × MS-region fixed effects in columns (2) and (5) changes the estimates only marginally and does not affect the significance level of the coefficients.

The estimates in Columns (3) and (6) show that the effect of a wealth transfer increases with their size in both data sets. After the introduction of the macroprudential policies, the effect is the strongest for transfers in between CHF 50,000 to 100,000 for the SHP data, which is similar to the observation of our main result in Table 2 with the tax data and predeath bequests. For wealth transfers in the tax data, the effects are strongest between CHF 25,000 to 50,000, closely followed by transfers between CHF 50,000 to 100,000.

Table J.2 shows the results of the interaction of transfers with an age category dummy. Due to the lower number of observations in the SHP data, we separated the samples in two age categories using an age cut-off at 50 years. In both data sets, receiving a transfer is important for all households. It increases the probability to transition into homeownership significantly by 2.22 percentage points in the SHP data and 2.76 percentage points in the tax data, respectively. While the transfer is significantly more important for younger households in the tax data, the effect for the SHP data is insignificant and negative. Potentially, this is due to the lower number of reported large transfers in the SHP data. Nevertheless, in both data sets, the probability of young households to transition into homeownership decreases after 2012, by 1.53 and 0.47 percentage points for the SHP data and tax data, respectively. Similarly, receiving a transfer after 2012 increases the probability of younger households transitioning into homeownership in both data sets. For the SHP data, the probability increases by 1.11 percentage points, versus 1.52 percentage points for the tax data. In general, the results from the nationwide SHP data go in the same direction as in the tax data, even though the effects are less precisely measured due to the smaller sample size and presumably larger measurement error.

Table J.1: Comparison of the Effect of a Wealth Transfer using SHP and Tax Data

	Wealth Transfer, SHP Data			Wealth Transfer, Tax Data		
	(1)	(2)	(3)	(4)	(5)	(6)
	ΔHO	ΔHO	ΔHO	ΔHO	ΔHO	ΔHO
Transfer = 1	2.09***	1.98***		7.62***	7.63***	
	(0.54)	(0.53)		(0.17)	(0.17)	
$MP_{t,12} = 1$	–0.74*			–0.45***		
	(0.38)			(0.04)		
$MP_{t,12} = 1 \times$ Transfer = 1	0.90	0.87		0.50**	0.47**	
	(0.74)	(0.74)		(0.23)	(0.23)	
kCHF 1 to 10			–0.25			0.28
			(0.62)			(0.21)
kCHF 10 to 25			–0.04			1.56***
			(0.78)			(0.23)
kCHF 25 to 50			3.37**			4.71***
			(1.49)			(0.33)
kCHF 50 to 100			3.85**			10.82***
			(1.90)			(0.44)
kCHF 100 or more			13.98***			20.81***
			(2.32)			(0.50)
$MP_{t,12} = 1 \times$ kCHF 1 to 10			0.59			–0.23
			(0.83)			(0.29)
$MP_{t,12} = 1 \times$ kCHF 10 to 25			1.36			0.44
			(1.12)			(0.32)
$MP_{t,12} = 1 \times$ kCHF 25 to 50			–0.07			0.87*
			(1.95)			(0.49)
$MP_{t,12} = 1 \times$ kCHF 50 to 100			4.51			0.67
			(2.96)			(0.62)
$MP_{t,12} = 1 \times$ kCHF 100 or more			–0.74			–0.01
			(3.34)			(0.69)
Year FE × MS Region FE	No	Yes	Yes	No	Yes	Yes
Main Controls	Yes	Yes	Yes	Yes	Yes	Yes
Age FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	13,786	13,697	13,697	780,955	780,955	780,955
$\bar{y}$	4.26	4.23	4.23	3.28	3.28	3.28

Notes: The table shows the effect of a wealth transfer on the probability of transitioning into homeownership for the nationwide SHP data. In Column (1), (2), (4) and (5) is a dummy equal to one if a household received a transfer of at least CHF 1,000 in year t or $t-1$, and zero otherwise. Columns (3) and (6) use categorical variables for different transfer sizes (omitted category: households who receive no transfer). Main controls include lag income, having children, financial wealth (only for tax data) and income ventiles at first observation. $MP_{t,12}$ is a dummy indicating when macroprudential policies are active during our sample period (2012 to 2016). ΔHO indicates whether a household transitioned into homeownership. Regressions are calculated for households renting in the previous year $t-1$. $\bar{y}$ is the mean of the dependent variable. Compared to columns (2) and (5), Columns (1) and (4) have no year fixed effects but control for MS-Region Fixed Effects. * p<0.10, ** p<0.05, *** p<0.010. Standard errors are clustered at the household level.

Table J.2: Comparison of the Effect of a Wealth Transfer Conditional on Age using SHP and Tax Data

	(1) SHP Data	(2) Tax Data
Transfer = 1	2.22***	2.76***
	(0.79)	(0.17)
$MP_{t,12} = 1\times$ Transfer = 1	0.20	–0.16
	(1.13)	(0.23)
Transfer = 1 × Age Category = 1	–0.38	9.30***
	(1.06)	(0.32)
$MP_{t,12} = 1\times$ Age Category = 1	–1.53*	–0.47***
	(0.79)	(0.07)
$MP_{t,12} = 1\times$ Transfer = 1 × Age Category = 1	1.11	1.52***
	(1.49)	(0.46)
Year FE × MS Region FE	Yes	Yes
Main Controls	Yes	Yes
Age FE	Yes	Yes
Observations	13,697	780,955
$\bar{y}$	4.23	3.28

Notes: The table shows the effect of receiving a wealth transfer interacted with the age category on the probability of transitioning into homeownership. Age Category 1 refers to all households younger than 50 years. The omitted category are households aged 50 years and older. Column (1) shows the results for the nationwide SHP data and column (2) the results of a similar regression using the tax data from the canton of Bern. Main controls include lag income, having children, financial wealth (only for tax data) and income ventiles at first observation. $MP_{t,12}$ is a dummy indicating when the macroprudential policies are active during our sample period (2012 to 2016). ΔHO indicates whether a household transitioned into homeownership. Regressions calculated for all households renting in the previous year $t-1$. $\bar{y}$ is the mean of the dependent variable. * p<0.10, ** p<0.05, *** p<0.010. Standard errors are clustered at the household level.