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Deutsches Institut für Wirtschaftsforschung

2025

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IMPRESSUM

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<http://www.diw.de>

ISSN electronic edition 1619-4535

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Restrictive rental policies and a tough trade off: Lower rents vs. less construction in Geneva

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Abstract

We study how rent control and housing rationing shape housing investment and market tightness in Geneva using a VAR on annual data (1994–2022) with generalized impulse responses and Granger causality. We find that housing rationing functions as a binding quantity restriction as it precedes a contraction in new institutional construction and Granger-causes lower vacancy rates. This increased scarcity is an effect amplified by persistent positive net migration. At the same time, housing rationing redirects capital toward the intensive margin as both institutional and private investors shift to stock-preserving renovations. Primarily operating through the price channel, rent control induces a transitory, statistically significant rise in private renovation investments and compliance-salient upgrades, rather than sustained new-build activity. Across both instruments, the dominant margin of adjustment is short-run renovation by private owners and institutions, not additions to stock. The policy implication is clear: without complementary, density-enabling approvals and a reduction in rent control, government regulation will continue to reallocate investment from new construction to renovations. This will tighten utilization and increase scarcity in an already demand-pressured market.

Keywords: rent control; housing rationing; real estate finance; construction investments.

JEL codes: C32, O18, R31.

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1. Introduction

Several Swiss cities and cantons are now focal points in the debate over housing protection. These cities are experiencing significant increases in housing and rental prices, while the supply of available apartments has continued to shrink. Despite regional differences, Basel-Stadt, Geneva, Lucerne, and Zurich share structural features that explain the rise of such initiatives. All face acute housing shortages, with vacancy rates far below the national average, and they belong to the most expensive rental markets in Switzerland. Their political landscapes are characterized by left-leaning majorities, which place housing affordability and tenant protection high on the urban agenda, while strong tenant associations act as influential advocates. Basel-Stadt and Geneva already operate under stringent housing protection regimes; meanwhile in Zurich and Lucerne comparable initiatives are currently advancing to the ballot stage. Importantly, since a majority of Swiss residents are tenants rather than homeowners, such initiatives tend to command broad electoral support once submitted to popular vote. Concurrently, Switzerland has exhibited positive net migration continuously since at least 1999, with marked peaks in 2008 (net immigration above 100,000 persons) and again in 2023. In the latter year, net immigration reached approximately 139,100 individuals, exceeding the previous record from 2008. Despite this population growth, building permits for apartments have dropped to a 20-year low, suggesting that the housing shortage will worsen in the coming years ([Fleury et al., 2024](#)).

These developments have prompted growing calls for political intervention. Under mounting pressure, the Swiss Federal Council announced in November 2023 a set of targeted, quickly implementable measures to mitigate the surge in rents. Importantly, Switzerland already limits landlords' permissible net return by jurisprudence: since the Federal Supreme Court's 2020 ruling (BGE 147 III 14), the admissible net yield may exceed the mortgage reference rate by at most 2 percentage points (while the reference rate is at or below 2%). For higher reference-rate levels, the applicable ceiling remains to be specified and Parliament has asked the Federal Council to provide regulatory clarification. On a regional level, there have already been significant changes. In the canton of Basel-Stadt, rent adjustments after renovations, conversions, and replacement constructions have been limited since 2022, similar to regulations in the cantons

of Geneva² since 1996 and Vaud³ since 2018. Additionally, initiatives in Lucerne and Zurich propose approval requirements and rent caps for renovations, conversions, and replacement constructions.

The effectiveness of such regulations is a heated topic among stakeholders. On one side, the homeowner’s association director refers to regulations in Basel-Stadt as “the death of the real estate market in Basel.” In contrast, the tenant association views the regulation as an effective tool against “greedy” investors focused solely on maximizing returns at the tenants’ expense. Economic literature on rent price regulation suggests that rent control can effectively brake rent increases, but societal welfare losses can result from significant adverse side effects that exceed the initial positive outcomes for selected tenant groups (Kholodilin, 2024). A common critique is that strict housing protection laws, including rent caps, further reduce the supply of housing. Those who already have an apartment benefit, while those searching for a new one face higher prices (Scognamiglio et al., 2023).

Institutional investors, including insurance companies, pension funds, real estate corporations, and housing cooperatives together constitute Switzerland’s second largest group of residential property owners. As of 2020, these actors controlled approximately 40.7% of all rental apartments and 25.9% of the entire housing stock (Swiss Federal Statistical Office, 2022a). Housing cooperatives account for only around 4% of the total housing stock and, unlike profit-oriented institutional owners, they are generally exempt from government housing market regulations, reflecting their non-profit mission and public policy support. Consequently, while rent regulations have far-reaching implications for institutional property owners, the regulatory burden primarily falls on market-oriented actors such as insurers, pension funds, and real estate corporations.

Consequently, some institutional investors are considering selling individual properties rather than passively holding assets. This approach would involve renting out properties and performing only essential maintenance. This shift is due to concerns that deteriorating property conditions from lack of renovations can pose reputational risks. Furthermore, passive holding

²*Loi sur les démolitions, transformations et rénovations de maisons d’habitation (mesures de soutien en faveur des locataires et de l’emploi) (LDTR) du 25 janvier 1996 (rs/GE L 5 20).*

³*Loi sur la préservation et la promotion du parc locatif (LPPPL) du 10 mai 2016 (BLV 840.15).*

conflicts with the sustainability commitments that many pension funds, insurance companies, and fund managers have made.

2. Background on Rental Housing Regulation in Switzerland

Considering the existing literature, it is essential to account for the similarities and differences across various housing markets. Much of the literature on rent regulation centers on the effect of rent controls on rental prices and housing supply. This study focuses specifically on the regulatory framework in Geneva, aiming to assess how Geneva’s rent regulation model might offer insights applicable to other Swiss cantons with similar *rental housing market pressures*. These pressures arise in tight urban housing markets where limited supply and high demand drive up prices, contributing to affordability issues. Geneva is particularly relevant as a case study within Switzerland, as it combines stringent rent control policies with a high-demand urban rental market, reflecting challenges similar to those in other cantons, including Basel-Stadt, Vaud, and Zurich.

In Switzerland and elsewhere in the world, rent controls have contributed to a phenomenon known as the *rent gap*, which refers to the disparity between offered rents for new tenants and lower rents paid by long-standing tenants. This gap, particularly evident in high-demand areas like Lake Geneva, city of Geneva, and Zurich/Zug, leads to *lock-in effects*, where tenants remain in apartments that may no longer suit their needs due to significantly higher rents on the open market. These lock-in effects create mismatches in the housing market as tenants stay in unsuitable apartments to avoid the prohibitive cost of relocating (Scognamiglio et al., 2023).

Responding to sharp rent increases, some Swiss cantons have implemented rent control measures to reduce the burden on low-income households. For example, in Basel-Stadt, rent adjustments after renovations have been limited since 2022. Studies suggest that while such measures can provide short-term relief for existing tenants, they may also lead to a reduction in the supply of rental properties, as landlords become less incentivized to invest in maintenance or new construction (Scognamiglio et al., 2023).

Kholodilin and Kohl (2023b) examine the effect of rent price regulations on economic inequality. Their findings indicated that, while rent regulation policies historically served to reduce social inequality, they frequently encounter challenges, such as reducing housing sup-

ply and discouraging building maintenance. Analyzing the impact of rent control on housing construction across 16 developed countries between 1910 and 2016, they concluded that rent control generally hindered new construction activities ([Kholodilin and Kohl, 2023a](#)). While short-term protections were achieved for existing tenants, new entrants often faced limited supply and inflated rental prices, leading to future housing shortages.

Swiss-specific literature addresses rent regulation effects that underscore the relevance of examining Geneva’s regulations more closely. [Sager et al. \(2018\)](#) study Swiss rent controls in the context of rising rental prices, revealing that offer rents can deviate by as much as 70–80% from rents of existing tenancies. Disparities were particularly prominent around Lake Geneva, in Zurich/Zug, and in high-demand tourist regions like Lucerne, while more minor differences (10–20%) were observed in areas like Solothurn and Jura. This study shows that Swiss rent regulation fosters a growing divide between offer and existing rents in high-demand areas, leading to a “rent gap” due to stable interest rates and demand increases.

In a parallel study, [Lennartz and Lareida \(2024\)](#) analyze long-term rent trends in tenancies without turnover. They discovered that rents in properties with long-term tenants remained relatively stable. Tenants in Swiss apartments rented since 2006, for example, have seen only a 5% rent increase (quality-adjusted), while the rental price index increased by 24% over the same period.

[Maras \(2025\)](#) investigates the impact of rent control on residential mobility in Switzerland and. Using microdata from the Swiss Household Panel from 2013 to 2023, she finds that rent control reduces the residential mobility of tenants living in rent-controlled dwellings.

A study by Wüest Partner, commissioned by the Swiss Federal Housing Office (BWO), explores how rising interest rates affect housing prices and construction in Switzerland ([Wüest Partner AG, 2024b](#)). [Schlöpfer et al. \(2024\)](#) identifies critical rates, noting that rising interest rates indirectly increase rents by pushing up property prices and construction costs. Higher financing costs, investment opportunities outside of real estate, and elevated rental returns all converge to drive property values. The authors concluded that while rate hikes slowly impact real estate, the construction sector suffers as it faces delayed growth in housing stock, leading to further rent increases as demand outpaces supply.

[Scognamiglio et al. \(2023\)](#) argue that Swiss rent regulations in Basel-Stadt, Geneva, and

Vaud exacerbate the rent gap. They contend that these regulations contribute to the “lock-in effect,” where tenants are discouraged from relocating due to the prohibitive costs associated with higher market rents. This effect leads to decreased tenant mobility, resulting in a mismatch between tenants’ needs and the available housing stock, as people remain in apartments that may no longer suit their household size or requirements.

2.1. Geneva’s Rent Regulation Details

Geneva introduced the *Loi sur les démolitions, transformations et rénovations de maisons d’habitation* (LDTR) in 1983 and updated it in 1996 to preserve the city’s residential areas and quality of life. The LDTR aims to promote the preservation of rental housing and protect tenants’ rights. According to the LDTR, the following activities require approval:

- Demolition of living spaces.
- Renovation and conversion work beyond regular maintenance.
- Changing residential use to commercial or other uses.
- Sale of condominiums that have been rented out at least once.

For renovation and conversion work, the LDTR imposes a rent freeze on property owners, lasting at least three years. For major renovations, this can extend to five years, and up to ten years for demolition or reconstruction. During the rent control period, the maximum allowable rent is CHF 3,528 per room per year, with the kitchen counted as a room. For example, in a four-room apartment (excluding the kitchen), the maximum monthly rent is CHF 1,470, which is significantly below the median market rent of CHF 2,770 in Geneva. If the renovated or converted apartment was rented at a price above the allowable maximum before the renovation or conversion, the rent is capped at the last rent amount.

Rent control also applies to energy-efficient renovations or other sustainability-related modifications, with the possibility of passing on the cost savings from energy efficiency to the rent.

Implications for Renovation Activity. Geneva’s rental stock appears to be in comparatively poorer condition. Cross-city evidence indicates that 83.5% of dwellings older than 40 years in Geneva had not been renovated, versus 47.6% in Basel and 41.3% in Zurich. While these

descriptive differences do not establish causality, they are consistent with the hypothesis that Geneva’s stricter rent and housing regulations may dampen renovation activity relative to other major cities ([Avenir Suisse, 2012](#)).

Rent Price Level and Disparity. Geneva has become the most expensive of Switzerland’s five largest cities, with market rents reaching CHF 372 per square meter per year. However, this high cost is mainly seen in the rents of apartments available on the market. In contrast, ongoing rental contracts have average existing rents at CHF 279 per square meter per year. This results in a rent price disparity of 33.5% between market and existing rents, the highest among the five cities. This disparity indicates that the regulation may have exacerbated the rent gap ([Fleury et al., 2024](#)).

Increased Lock-in Effect. According to a recent market analysis, the average length of stay in the same dwelling in Switzerland is approximately 8.5 years ([Wüest Partner AG, 2024a](#)). However, tenancy durations are markedly longer in highly regulated and supply-constrained markets: on average, tenants in Geneva remain in their apartments for 13.7 years, which exceeds the national mean as well as the levels observed in other major Swiss cities ([Ganz, 2024](#)). This “lock-in” effect arises from the difference in rent levels between new and existing rental agreements. Long-term tenants benefit from lower rents and have little incentive to move, leading to misallocation of living space ([Ganz, 2024](#)).

Conclusion on the Effects of the LDTR in Geneva. According to [Office cantonal de la statistique \(2024b\)](#), housing and energy account for 16.7% of gross household income in Geneva (2015–2017). For Zurich, city statistics report a 27% share in 2014 ([Statistik Stadt Zürich, 2015](#)), while the Swiss average is around 15% (2015–2017) ([Swiss Federal Statistical Office, 2022b](#)). This aggregate includes both rent and energy expenditures and should not be conflated with rental burden. The average masks distributional differences associated with a lock-in effect: long-term tenants benefit from comparatively stable rents, whereas newcomers entering the market often face substantially higher rent-to-income ratios.

The LDTR tends to cause a redistribution of costs between new and long-term tenants rather than reducing overall housing expenses. Households that move more often, including young people, divorced individuals, and immigrants, face higher initial rents and significant

search costs. In contrast, long-term tenants enjoy lower rents but often live in poorly maintained apartments.

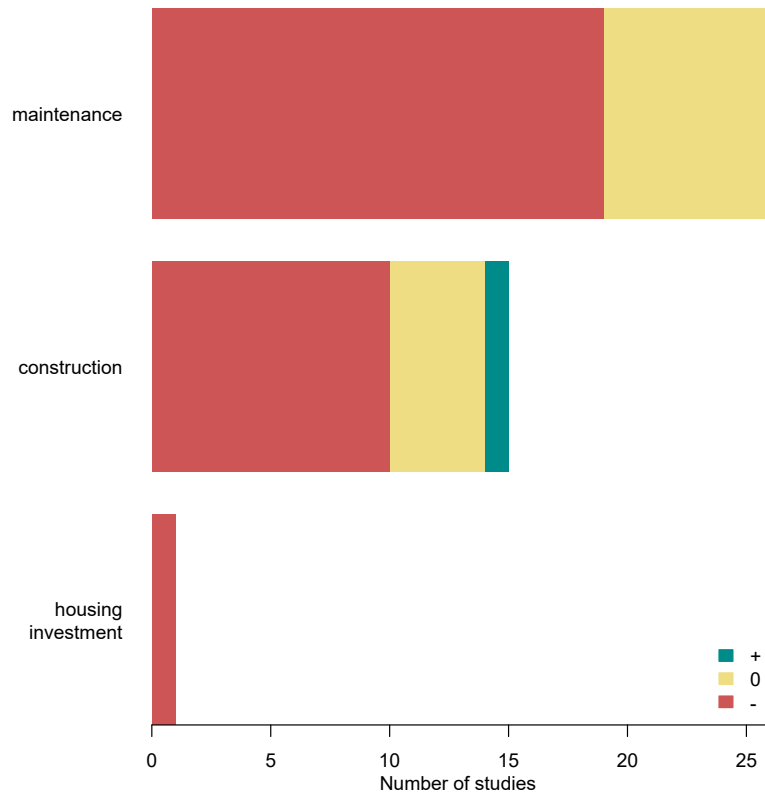
2.2. Empirical Evidence

2.2.1. Effects of Rent Control

Theory predicts a negative impact of rent control on residential construction. By imposing limits on rent increases, the regulator diminishes the return on investment in the housing sector. Therefore, market participants reduce not just their investment in new housing construction but also the maintenance and renovation of the existing housing stock. The empirical literature on the effects of rent control broadly confirms theoretical predictions ([Kholodilin, 2024](#)).

Figure 1 shows the effects of rent control found in the empirical literature. Red (green) bars denote studies that found statistically significant negative (positive) effects, while yellow stands for statistically insignificant effects.

Figure 1: Effects of rent control on housing construction and investment



In total, 26 studies examine the effects of rent control on maintenance and housing quality,

15 studies examine the effects on residential construction, and one study considers the impact of rent control on housing investment.

The vast majority of studies on maintenance find negative effects. Most studies on housing construction find that rent control reduces building activity, with only one study finding a positive effect.

This literature covers 55 countries, but the geographic distribution is uneven, with 26 studies using data from the USA. Switzerland is mentioned in only one study — [Kholodilin and Kohl \(2023a\)](#) — as a part of a multi-country analysis.

3. Empirical Analysis Geneva

3.1. Data Description

The data used in this study are annual and cover the period between 1994 and 2022. The sources and descriptive statistics of the data are reported in Table ?? in Appendix.

Private Residential Investment Data

Data on private residential construction investments were obtained from the Swiss Federal Statistical Office (BFS) and cover the period from 1994 to 2022. The dataset includes annual figures disaggregated by canton, type of investor, type of building, and construction activity. For this study, however, only data for the Canton of Geneva were used.

The investment flows are limited to private investors, excluding public entities and infrastructure operators. The construction category is restricted to structural engineering projects designated for residential purposes and is further differentiated by works. Consequently, two time series are constructed: the investment in new construction and the investment in renovation.

To ensure better comparability, all investment data were first calculated as a share of national GDP.⁴ Given the absence of official GDP data at the cantonal level, these investment-to-GDP ratios were then multiplied by a factor of 13.33. This adjustment reflects Geneva's

⁴The raw BFS investment series are reported in CHF thousands. To have same units, we convert them to millions of CHF by dividing by 1,000 and keep this unit consistently throughout the analysis.

estimated 7.5% share of Swiss economic output and enables an interpretation consistent with the cantonal economic context and facilitates accurate canton-level interpretation.

Institutional Residential Investment Data

The investment data come from the BFS and include annual construction expenditures and work in progress. The dataset, which covers the years from 1994 to 2022, is disaggregated by canton, client type and category, building type, and construction work type. For this analysis, the dataset was filtered to include only the canton of Geneva and to isolate investments by institutional and real estate companies. Additionally, only structural engineering projects intended for residential use are included.

The dataset enables differentiation between new construction and renovation investment. Correspondingly, two time series are constructed: new construction investment and renovation investment.

As for private residential investments, we have also calculated the investment-to-GDP ratio for institutional data, to ensure comparability and interpretation of investment-to-GDP ratios at the cantonal level.

Net Migration

Net migration is calculated as the annual net migration balance for the Canton of Geneva, divided by the total population of the canton in the corresponding year. This yields a normalized net migration indicator, expressed as a proportion of the resident population. The metric captures the relative demographic pressure on the regional housing market by accounting for population inflows and outflows in relation to the size of the existing population stock. The data are based on official cantonal statistics and cover the period from 1994 to 2022 on an annual basis.

Mortgage Interest Rate (Refinancing Rate)

The data on mortgage interest rates originate from the Swiss National Bank (SNB), specifically from the statistics on newly issued loans. The dataset contains monthly observations of variable-rate mortgage contracts. For the purpose of this analysis, the December value of each year has been selected to represent the annual interest level. An exception was made for the year 2024, for which the latest available monthly value (May 2024) was used due to the absence

of a full-year observation at the time of analysis. The rates are expressed in annual percentage terms and are intended to reflect the prevailing refinancing costs in the residential real estate market.

Vacancy Rate

The vacancy rate data were obtained from the Swiss Federal Statistical Office (BFS) for the period between 1997 and 2023. The dataset provides annual canton-level percentages of vacant dwellings, encompassing all residential property types, including single-family houses, apartments in multi-family buildings, new and old rental units, and ownership apartments. For this analysis, the dataset is filtered to include only the Canton of Geneva. The vacancy rate is reported as the share of all dwellings that are unoccupied, regardless of room count (from one to six or more rooms). The data used reflect the status as of June each year and are spatially referenced to the municipal structure as of January 1, 2023, the most recent update being published on September 11, 2023.

Housing regulations

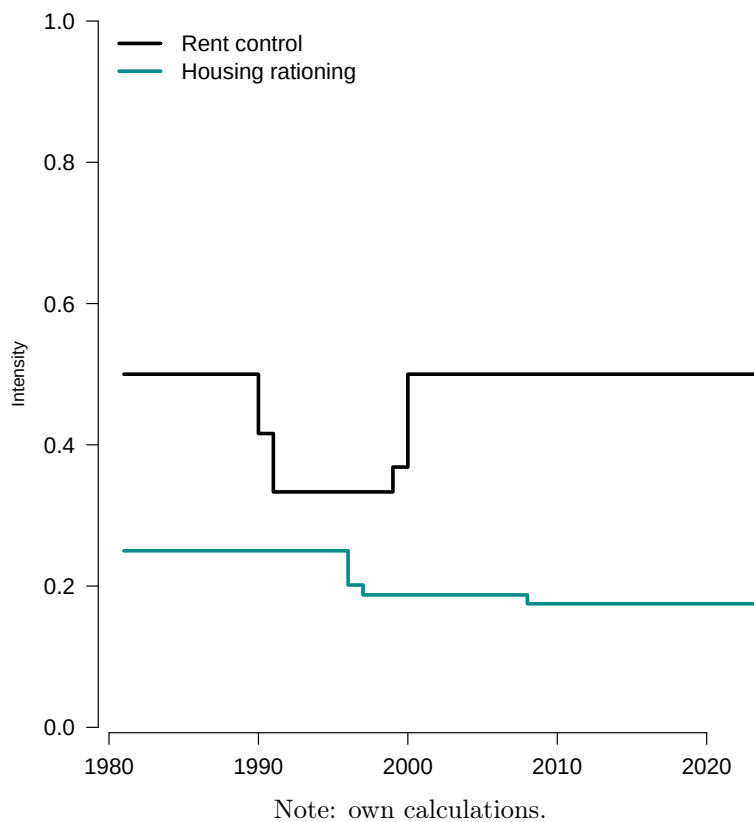
Here, we investigate the impact of two restrictive housing policies: rent control and housing rationing.⁵ The main purpose of rent control is the protection of tenants from rental increases. The authorities either freeze rents or limit rent increases to the rate of increase in the cost of living. Housing rationing may be imposed when there is an acute shortage of housing. The purpose of this policy is to make full use of the available housing stock by forcibly redistributing dwellings and, sometimes, their occupants. These measures include 1) registering both dwellings and tenants to establish a register of available and vacant dwellings as well as to establish a waiting list of potential tenants; 2) preserving dwellings by prohibiting their demolition or conversion to non-residential uses (e.g., office space or vacation homes for tourists); 3) redistributing dwellings by placing new tenants in unused or underutilized dwellings; 4) setting maximum norms for housing consumption (e.g., maximum floor area or number of rooms per person); 5) restricting mobility, i.e., creating obstacles to moving to areas with particularly acute housing shortages while facilitating migration to other areas; and 6) nationalizing private

⁵These two policies are thoroughly described in [Kholodilin \(2020, 2025a\)](#).

housing by transferring it into state ownership.

Figure 2 shows the evolution of intensity of housing regulations (rent control and housing rationing) in Geneva. The indices can vary between 0 (no governmental intervention) to 1 (very strong governmental intervention) and are built based on the methodology presented in [Kholodilin \(2020\)](#).

Figure 2: Housing regulation indices in Geneva, 1980–2024



Most of the time, the intensity of rent control remains at an intermediate level, except for the period between 1990 and 1999, when it was relaxed. In contrast, the intensity of housing rationing slowly decreases over time.

3.2. Estimation Methodology

Our data have two distinctive features. First, most of the variables persist over time. Therefore, we need dynamic models to capture the high temporal autocorrelation of many slow-moving variables measured as ratios. Second, endogeneity issues may arise: government policies can affect the housing market, but tight housing markets can lead to citizen dissatisfaction,

particularly among low-income individuals, creating pressure on authorities to introduce or strengthen regulations. These features can be captured perfectly by the vector autoregressive (VAR) model:

$$y_t = A_1 y_{t-1} + A_2 y_{t-2} + \dots + A_p y_{t-p} + \varepsilon_t \quad (1)$$

where y_t is a vector of all variables (including the dependent variable, rent control index, and control variables) for year t ; ε_t is the random disturbance; while A_p are the coefficient matrices to be estimated. Given the annual frequency of the data and the relatively small sample size, we set the lag length to $p = 1$, which balances parsimony and dynamic structure. This choice ensures model tractability and avoids overfitting, while still capturing first-order temporal dependencies.

The VAR model treats all variables explicitly as potentially endogenous and accounts for complex dynamic interactions of the variables. While not solving the problem of endogeneity, it actively models it. In addition, the VAR models allow an estimation of both short- and long-term effects using the impulse-response functions (IRF) for each variable.

The coefficients of the VAR model have no economic interpretation. Therefore, we use impulse-response functions to describe how variables respond to an external shock. More specifically, IRFs show how the effect on all factors of an external shock of a one standard deviation is distributed over time. In other words, it represents the response of the value of the i -th variable at time $t + h$ to a unit change in the shock to the j -th variable at time t :

$$IRF_{ij}^h = \frac{\partial y_{i,t+h}}{\partial \varepsilon_{j,t}} \quad (2)$$

where $\varepsilon_{j,t}$ is the shock to the j -th variable.

Given the dynamic interactions and potential endogeneity inherent in housing markets and regulatory policies, identifying the directionality of these relationships poses a significant empirical challenge. Regulatory measures (housing rationing and rent control) may directly influence housing market outcomes, but they can also respond endogenously to market conditions such as rising rents, low vacancy rates, or social pressures. Although our VAR model explicitly captures temporal autocorrelation and the joint dynamics among variables, it does not inherently reveal

predictive precedence. To empirically discern whether regulatory changes drive adjustments in investment and market performance or whether regulations themselves arise as responses to market pressures, we conduct Granger causality tests. These tests evaluate whether lagged values of one variable contain statistically significant predictive information about another variable, beyond the information embedded in its own historical values. Thus, integrating Granger causality tests enhances our methodological framework by clarifying the underlying predictive directionality of the observed VAR dynamics. Formally, for two variables x_t and y_t in our VAR(1) setting, the following equations represent the unrestricted VAR model:

$$\begin{aligned} y_t &= c_y + \phi_{yy}y_{t-1} + \phi_{yx}x_{t-1} + u_{y,t}, \\ x_t &= c_x + \phi_{xx}x_{t-1} + \phi_{xy}y_{t-1} + u_{x,t}, \end{aligned} \tag{3}$$

where $u_{y,t}, u_{x,t}$ represent zero-mean white-noise error terms.

To test whether variable x *Granger-causes* variable y , we formulate the following null hypothesis, corresponding to the exclusion of x_{t-1} from the first equation:

$$H_0 : \phi_{yx} = 0 \quad (\text{No Granger causality from } x \text{ to } y). \tag{4}$$

Rejection of this null hypothesis indicates that past values of x significantly improve the prediction of y , thus implying that x Granger-causes y . Conversely, failing to reject the null hypothesis suggests that the lagged values of x contain no significant predictive power beyond the past values of y itself.

Similarly, we test for Granger causality from y to x through the null hypothesis:

$$H_0 : \phi_{xy} = 0 \quad (\text{No Granger causality from } y \text{ to } x). \tag{5}$$

In our empirical context, these tests help to clarify whether regulatory interventions (such as housing rationing or rent control) precede changes in investment activity and housing market performance, or if they tend to follow market conditions. We chose the VAR(1) lag structure based on the annual nature of our dataset. This structure reflects expected immediate lagged reactions and mitigates concerns about over-parameterization.

This procedure enables us to distinguish empirically between endogenous responses of pol-

icy variables to market dynamics and exogenous policy-driven shocks that affect the housing market.

3.3. Results Private Investors

Investments in New Construction

Housing Rationing Shock:

A regulatory shock tightening the housing rationing regime induces a decline in private new construction investment in Geneva (Figure 3). The generalized impulse-response function (GIRF) suggests that investment drops by approximately 200 million CHF below baseline, with the negative deviation emerging around year six. However, this response is not statistically significant at the 90% level, as the confidence interval includes zero throughout. Therefore, while there is an observable downward trajectory, it cannot be robustly confirmed. Nevertheless, Granger causality tests indicate that housing rationing Granger-causes a reduction in vacancy rates at high significance levels ($p < 0.001$), supporting the theoretical expectation that housing rationing tightens supply. Despite the lack of statistical confirmation in the investment response, the overall pattern is consistent with a supply-side constraint, albeit weak in magnitude and timing.

The combination of clear directionality in vacancy responses and modest — albeit persistent — investment effects suggests that stricter housing rationing may gradually suppress private-sector construction activity, although the evidence is not statistically robust.

Rent Control Shock: In contrast, rent control shocks show no discernible effect on private new construction. The GIRF response (Figure 3) remains flat throughout the horizon, with point estimates close to zero and confidence intervals consistently spanning both positive and negative values. There is no statistical significance at any horizon, and Granger causality tests likewise do not support a directional link from rent regulation to private construction. This suggests that private developers are relatively indifferent to rent control signals in their new construction decisions, possibly because rent ceilings apply more strongly to the existing housing stock or because enforcement varies. Overall, private construction appears more sensitive to hard regulatory constraints (such as housing rationing) than to price-level interventions like rent control.

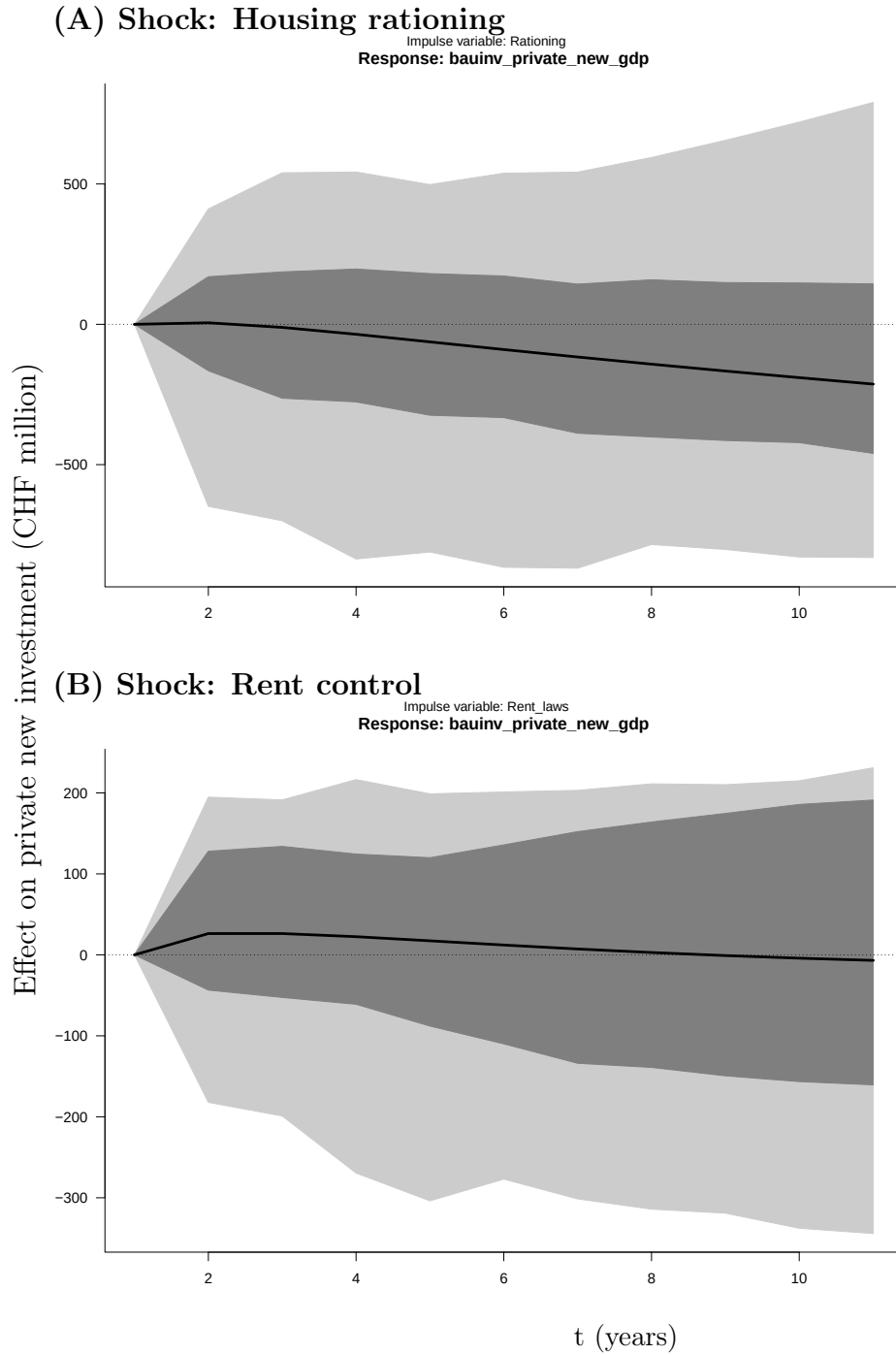


Figure 3: Generalized impulse-response functions (GIRFs) of private new investment to a one-unit tightening in (A) housing rationing and (B) rent control. The GIRF is defined as in Equation 2. A one-unit shock corresponds to a tightening of the respective regulation. Shaded regions denote pointwise confidence intervals: light gray indicates the 90% interval, dark gray the 67% interval.

Housing Rationing Shock:

Following a housing rationing shock, private renovation investment rises in the short run, with a peak of about +200 million CHF above baseline over roughly years 1–3 (Figure 4). The 90% confidence band lies above zero in this early window, indicating statistical significance. Thereafter the response steadily declines, crosses zero midway through the horizon, and turns slightly negative (around –50 million CHF) from approximately year 6 onward. A plausible mechanism is short-run substitution away from new construction, which becomes more difficult under stricter housing rationing. Instead, investors may reallocate capital toward upgrades of the existing stock, with the effect tapering only modestly over the remainder of the horizon (Commission externe d’évaluation des politiques publiques, 2003).

Housing rationing and rent control aim to maximize the effective use of a scarce rental stock. Our estimates are consistent with this objective: housing rationing Granger-causes a decline in vacancies. Although the vacancy GIRF is statistically not significant, the Granger result offers directional evidence of short-run vacancy rate reductions. In tandem, rent caps on post-renovation increases and housing rationing constraints on demolition, change of use, and condominium conversion align with the observed rise in private renovation outlays, a reallocation from new development to stock-preserving upgrades that keep units rentable and occupied, thereby limiting outflows from the rental sector.

Rent Control Shock:

A tightening of rent control induces a transitory increase in private renovation outlays, peaking at roughly +150 million CHF between years 1 and 3 (Figure 4). The 90% confidence band is above zero during this interval, implying statistical significance. The effect then decays and is statistically indistinguishable from zero by about year 5. No Granger causal link is detected from rent control changes to renovation activity, suggesting a short-lived adjustment rather than a persistent causal impulse.

Rent control tightening leads owners to bring forward works on existing buildings (e.g., facade repairs, insulation and window upgrades, heating replacements) increasing renovation spending in years 1–3, while new projects are deferred. By about year 5, the surge fades as the quick, compliance-salient items are completed and tighter caps limit cost recovery on deeper

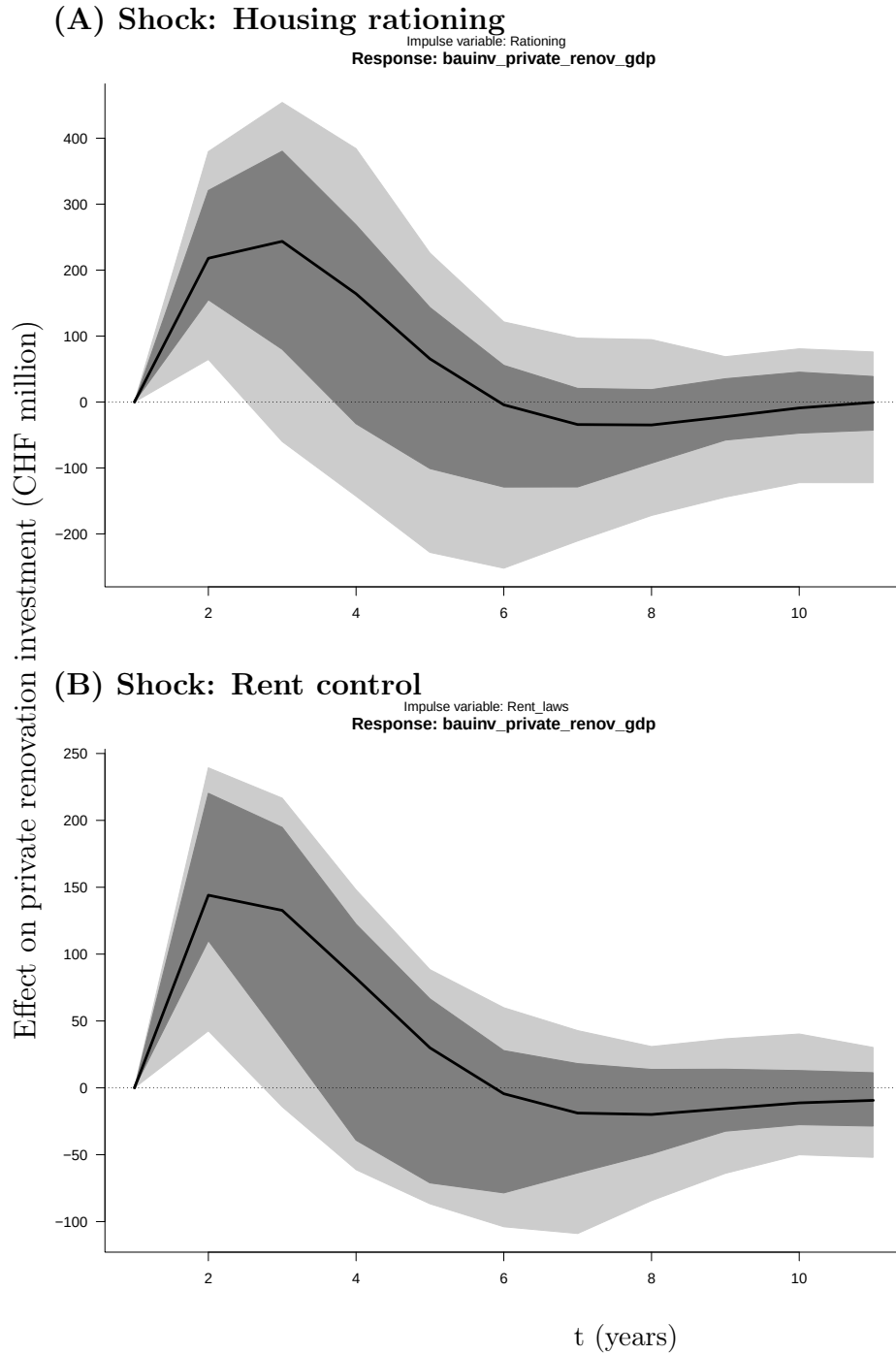


Figure 4: Generalized impulse-response functions (GIRFs) of private renovation investment to a one-unit tightening in (A) housing rationing and (B) rent control. The GIRF is defined as in Equation 2. A one-unit shock corresponds to a tightening of the respective regulation. Shaded regions denote pointwise confidence intervals: light gray indicates the 90% interval, dark gray the 67% interval.

retrofits. The net result is incremental quality gains without added units, aligning with a one-off adjustment rather than a sustained renovation cycle ([Commission externe d'évaluation des politiques publiques, 2003](#)).

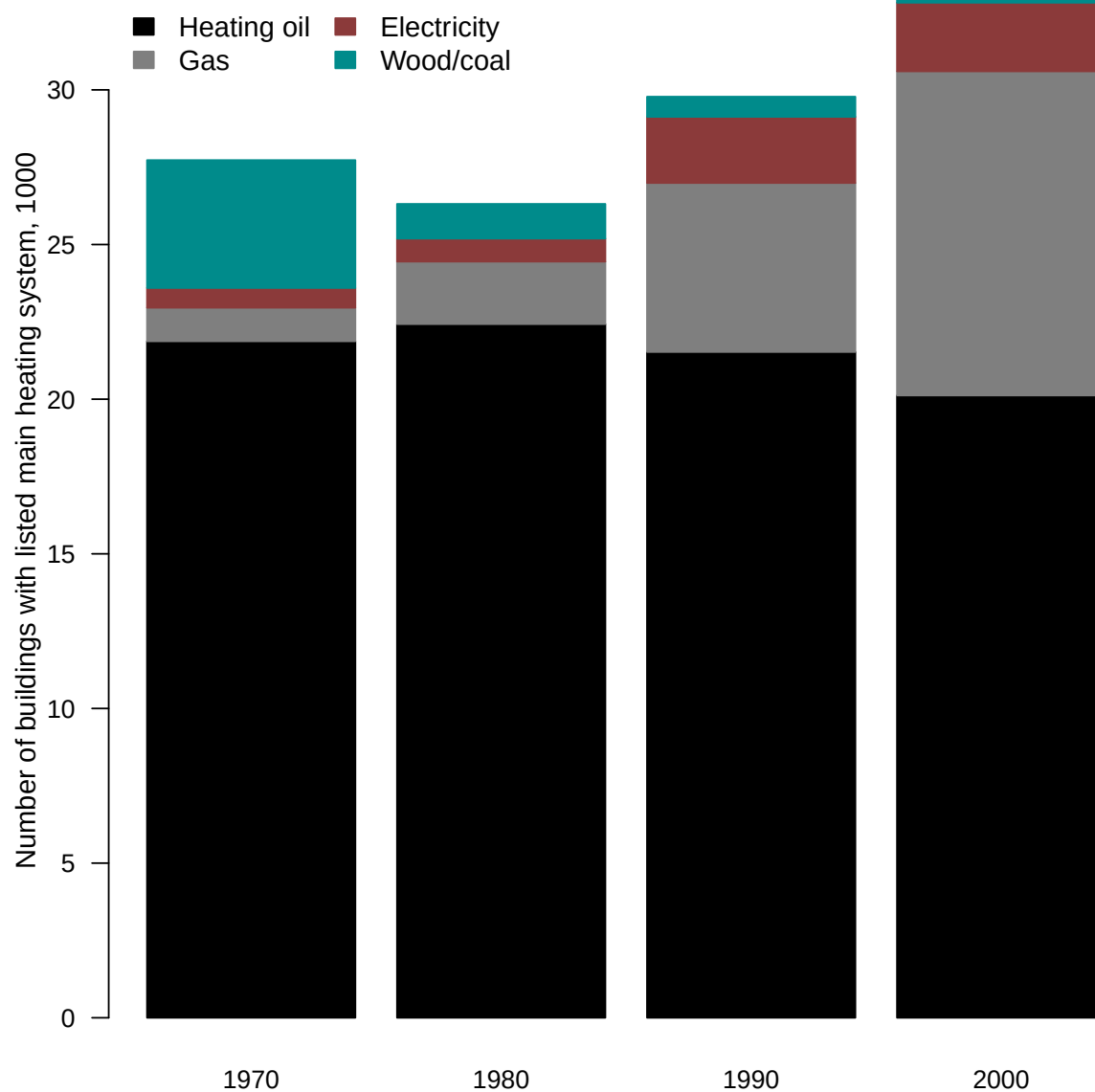
Conclusion Private Investors: Taken together, rent caps on post-renovation increases and housing rationing rules that restrict demolition, changes of use, and condo conversion make large redevelopment projects harder to justify for private investors. Thus, capital is redirected to stock-preserving upgrades that are modular, quicker to execute, and accelerate the restoration of rent flows (e.g., insulation and window packages, heating system replacements, and targeted interior refreshes). This mechanism fits the short-run rise in renovation outlays (years 1–3) and the Granger evidence that housing rationing pushes vacancy rates down, even if the vacancy GIRF is statistically not significant. The heating technology mix in Geneva underscores the point (Figure 5): between 1970 and 2000, wood/coal based heating systems fall from 4,133 to 309 buildings, gas rises from 1,085 to 10,480, and heating oil declines from 21,872 to 20,120, a pattern consistent with renovation-led boiler replacements that stabilize occupancy rather than expand supply. Crucially, this incremental, compliance-salient renovation margin is exactly what the Geneva evaluation reports describe: under LDTR price and authorization constraints, owners privilege short-term, punctual interventions over deep, capital-intensive overhauls ([Commission externe d'évaluation des politiques publiques, 2003](#)). In sum, rent control and housing rationing channel private investment away from new builds and toward stock-preserving upgrades that keep existing units rentable and occupied, delivering small but timely quality gains and fewer exits from the rental stock. However, by increasing approval risk and capping post-works rents, these instruments constrain redevelopment and dampen new construction, leaving scarcity pressures unchanged or even heightened over the medium term.

3.4. Results Institutional Investors

Investments in New Construction

Housing Rationing Shock: As displayed in Figure 7 a housing rationing shock that tightens controls on demolitions, changes of use, and condo conversions is associated with a very large contraction of –400 million CHF in institutional new construction investments (significant at the 90% confidence level), and this direction is also strongly supported by Granger causality from housing rationing to new construction at the 99% confidence level. The mechanism is

Figure 5: Space-heating systems of buildings in the Canton of Geneva, 1970–2000



Source: Swiss Federal Statistical Office (BFS), “Gebäude nach Energiequelle Hauptheizung,” table px-x-0902020100_122.

Note: Categories shown are Heating oil, Gas, Electricity, and Wood/coal only; other systems (e.g., district heating, “other”) are excluded.

straightforward: under the LDTR, demolition, change of use/PPE,⁶ and conversion to condominiums are subject to prior authorization and are frequently approved only with binding conditions (e.g., one-for-one replacement of rental units, rent caps after renovation, relocation obligations for tenants) or refused in shortage areas. In other words, these measures restrict the standard “exit routes” used by institutional investors to decommission, repurpose, or dispose of assets, namely demolition/redevelopment, reclassification to non-residential or higher-end use, or conversion to PPE. By raising permit/entitlement risk, lengthening project timelines, and limiting recoverable cash flows, the LDTR reduces residual land values and weakens the investment case for redevelopment, especially for institutional projects targeting the rental market, as it depresses expected net present value (NPV) and shifts capital away from new builds. In line with this, housing rationing also Granger-causes lower vacancy rates (99% confidence level), consistent with fewer removals of rental dwellings and tighter short-run utilization, even though this does not signal improved slack but rather, it reflects supply tightening under stricter housing rationing. The LDTR and its implementing guidance set out this preservation logic (authorization requirements and post-works rent caps); see also [Commission externe d’évaluation des politiques publiques, 2003](#); [Salvi, 2012](#) on the challenging project economics for teardown and rebuild under the LDTR.

Rent Control Shock:

Rent control shocks have a smaller, marginally significant impact on institutional new construction (Figure 6). Stricter rent control is associated with a contraction of –100 million CHF in institutional new construction investment, statistically significant at the 67% confidence level. Economically, stricter rent control compresses expected achievable rents and rent growth, narrows allowable pass-throughs, and lowers residual land values, which weakens project NPVs and raises financing hurdles (e.g., tougher underwriting and higher pre-letting thresholds). Institutional developers, whose business model relies on predictable cash flows thus defer or downsize pipeline projects, reallocating marginal capital toward lower-risk stock maintenance. This di-

⁶Propriété par étages (Stockwerkeigentum): the Swiss term for condominium ownership. Each owner holds a share of the building plus exclusive rights to a specific unit (Swiss Civil Code/Obligationenrecht Art. 712a ff.). In Geneva policy language, *aliénation en PPE* means converting and/or selling rental apartments as condos, which under the LDTR typically requires prior authorization and is often restricted to prevent losses from the rental stock.

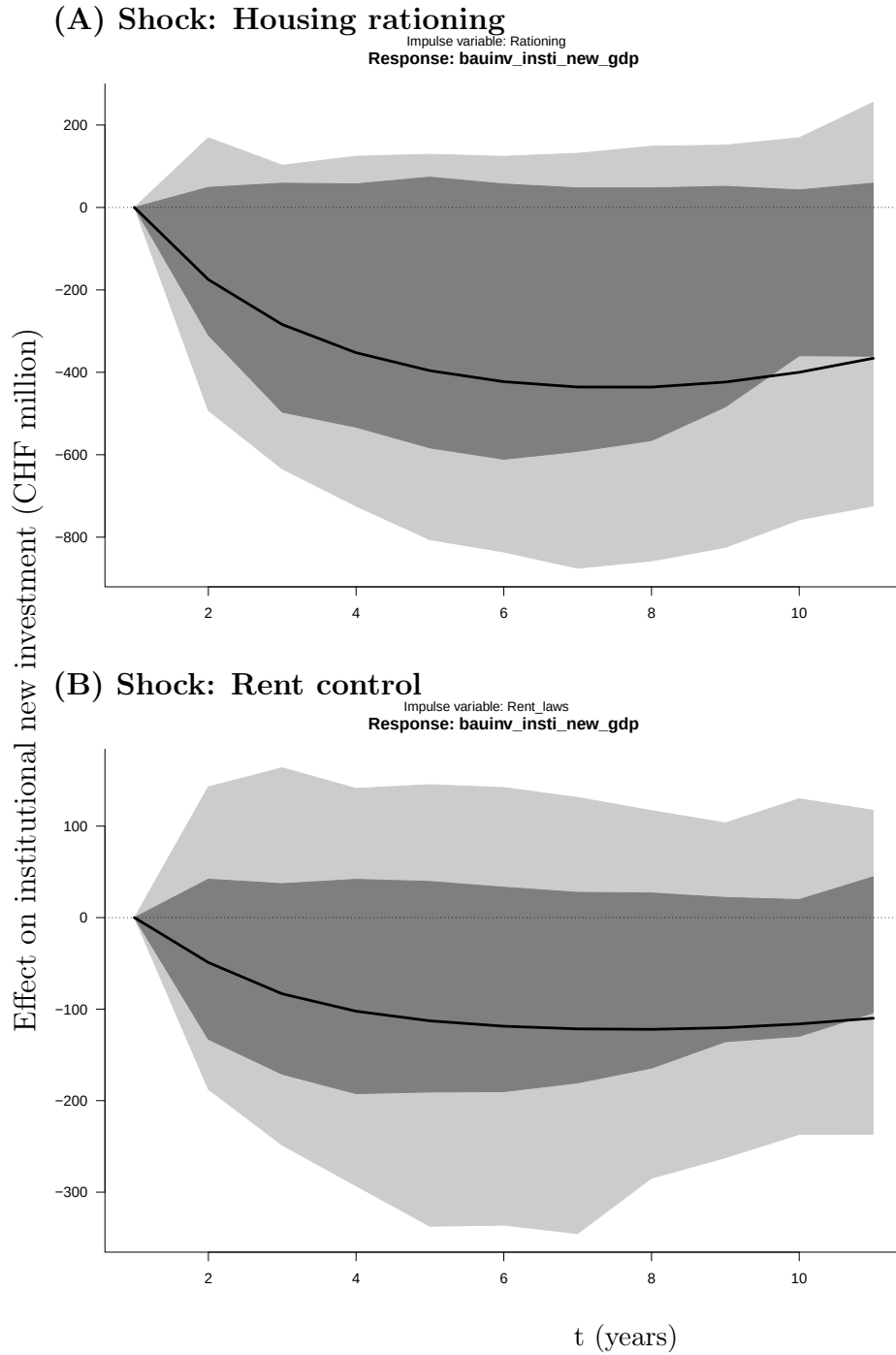


Figure 6: Generalized impulse-response functions (GIRFs) of institutional new investment to a one-unit tightening in (A) housing rationing and (B) rent control. The GIRF is defined as in Equation 2. A one-unit shock corresponds to a tightening of the respective regulation. Shaded regions denote pointwise confidence intervals: light gray indicates the 90% interval, dark gray the 67% interval.

rection is consistent with Geneva evidence that LDTR-type constraints (including post-works rent caps) steer owners toward punctual, compliance-salient works rather than redevelopment ([Commission externe d'évaluation des politiques publiques, 2003](#)) and that the regulatory mix dampens redevelopment economics ([Salvi, 2012](#)). Stricter rent control tempers institutional new-build activity. When housing rationing measures (e.g., authorization gatekeeping for demolition, change of use, and condo conversion) bind at the same time, the redevelopment pipeline is further impaired, consistent with larger contractions in new construction. This finding is in line with Geneva-specific reports on LDTR's preservation logic ([Commission externe d'évaluation des politiques publiques, 2003](#); [Salvi, 2012](#)), and with cross-country evidence that both rent control and housing rationing reduce construction and investment ([Kholodilin and Kohl, 2023a](#)).

Investments in Renovation

Housing Rationing Shock:

A housing rationing shock that tightens authorization gatekeeping for demolition, change of use, and condo conversion is associated with a short-run rise in institutional renovation outlays (around +100 million CHF through $t \approx 2$, significant at 90% confidence level). Economically, when exit routes are harder and redevelopment NPVs weaken, institutional investors reallocate capital expenditures to stock-preserving works (envelope and systems renewal, unit refreshes, and heating systems as supported in [Figure 5](#)) to keep assets compliant and income-producing under LDTR oversight. This mechanism is squarely in line with Geneva's own record: the LDTR and its application practice emphasize preserving existing housing and allow the authority to cap post-works rents, which encourages punctual, compliance-salient interventions over deep overhauls or teardowns ([Commission externe d'évaluation des politiques publiques, 2003](#)).

Our finding that housing rationing Granger-causes a decline in the vacancy rate (99% confidence level) reinforces this interpretation: tighter housing rationing curbs outflows from the rental stock and pushes utilization up, even if it does not expand supply. That stock preservation logic and the attendant shift toward renovations rather than new buildings is also consistent with external evaluations of Geneva's regime and with comparative evidence that housing rationing and strict rent control depress new construction while redirecting investment to existing

stocks (Commission externe d'évaluation des politiques publiques, 2003; Salvi, 2012).

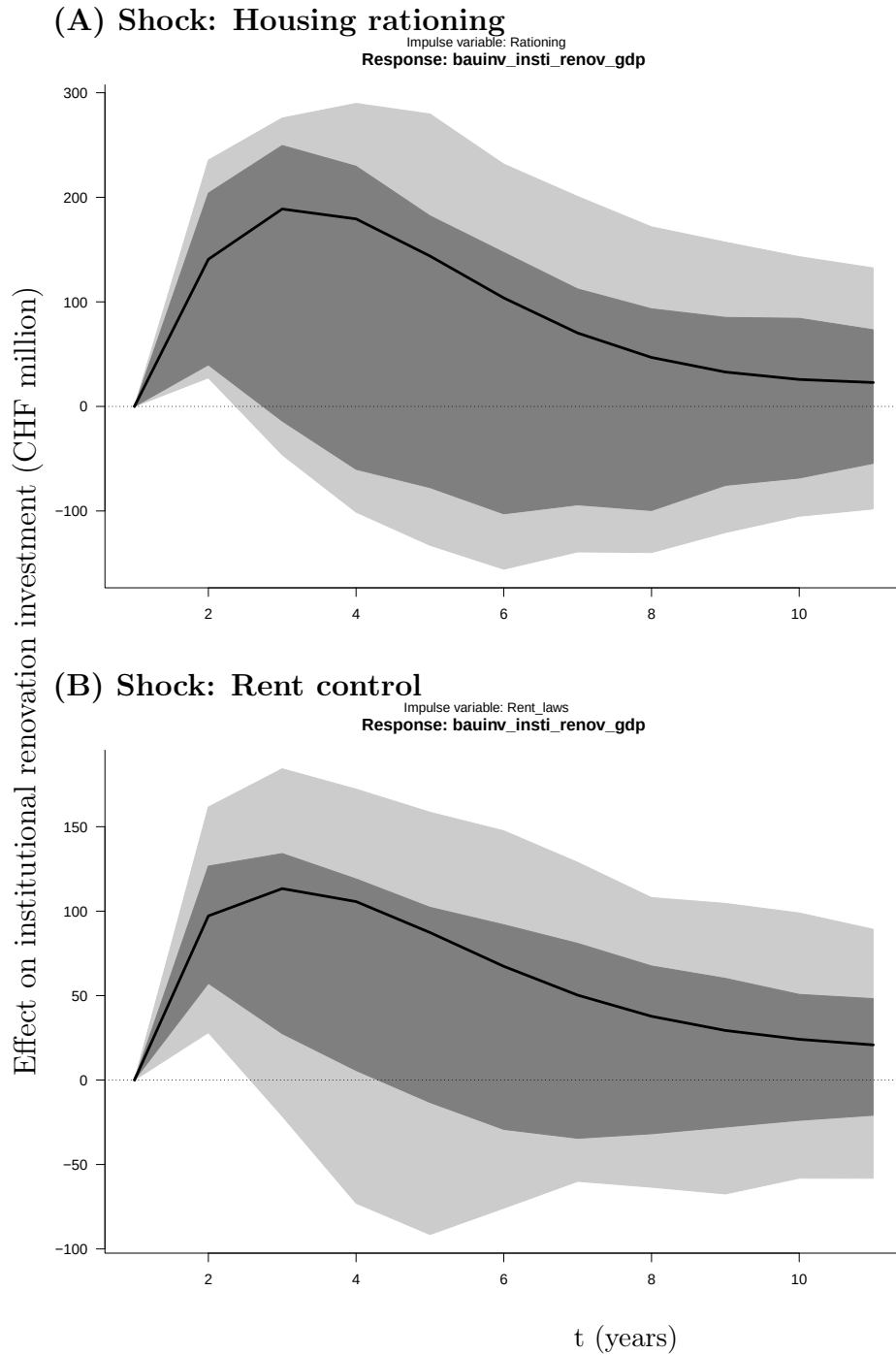


Figure 7: Generalized impulse-response functions (GIRFs) of institutional renovation investment to a one-unit tightening in (A) housing rationing and (B) rent control. The GIRF is defined as in Equation 2. A one-unit shock corresponds to a tightening of the respective regulation. Shaded regions denote pointwise confidence intervals: light gray indicates the 90% interval, dark gray the 67% interval.

Rent Control Shock:

Stricter rent control is associated with a small negative response of institutional renovation outlays (point estimate of -100 million CHF), but the effect is statistically not significant. Economically, the estimate is plausible as tighter caps on post-works rents and narrower pass-throughs reduce the payoff to deep retrofits, so some larger projects may be deferred or scaled down. However, the lack of significance suggests that, on average, institutions maintain baseline, stock-preserving capital expenditures to keep assets compliant and income-producing. In short, rent control tightening alone does not reliably depress institutional renovation spending; pronounced shifts arise mainly when additional constraints (e.g., housing rationing of demolitions/changes of use/condo conversions) also bind.

Cash Flow Return

Housing Rationing Shock:

The GIRF following tighter housing rationing regulations shows a small short-term decline in cash flow returns of -0.2% , at a significance level of 67% (Figure 8). This pattern fits a preservation regime: tighter authorization for demolition/change of use/condo conversion triggers compliance and maintenance outlays and occasional downtime, which compress near-term cash yields.

Rent Control Shock:

The GIRF following a rent control tightening (Figure 8) indicates a small but statistically significant short-run decline of about -0.2% (90% confidence level). Economically, tighter rent rules, most notably post-works rent caps and limited pass-throughs, compress rent growth on existing leases and raise compliance/maintenance outlays, which marginally narrows operating margins and lowers cash flow returns.

Capital Return

Housing Rationing Shock:

The point estimate of $+3\%$ in capital returns following a housing rationing shock is not statistically significant (Figure 9). However, the sign is consistent with housing rationing that increases utilization rather than expands supply. Because housing rationing Granger-causes lower vacancy rates (99% confidence level), higher near-term occupancy can modestly support the income component of capital returns and reduce vacancy risk. Any such increase is offset by

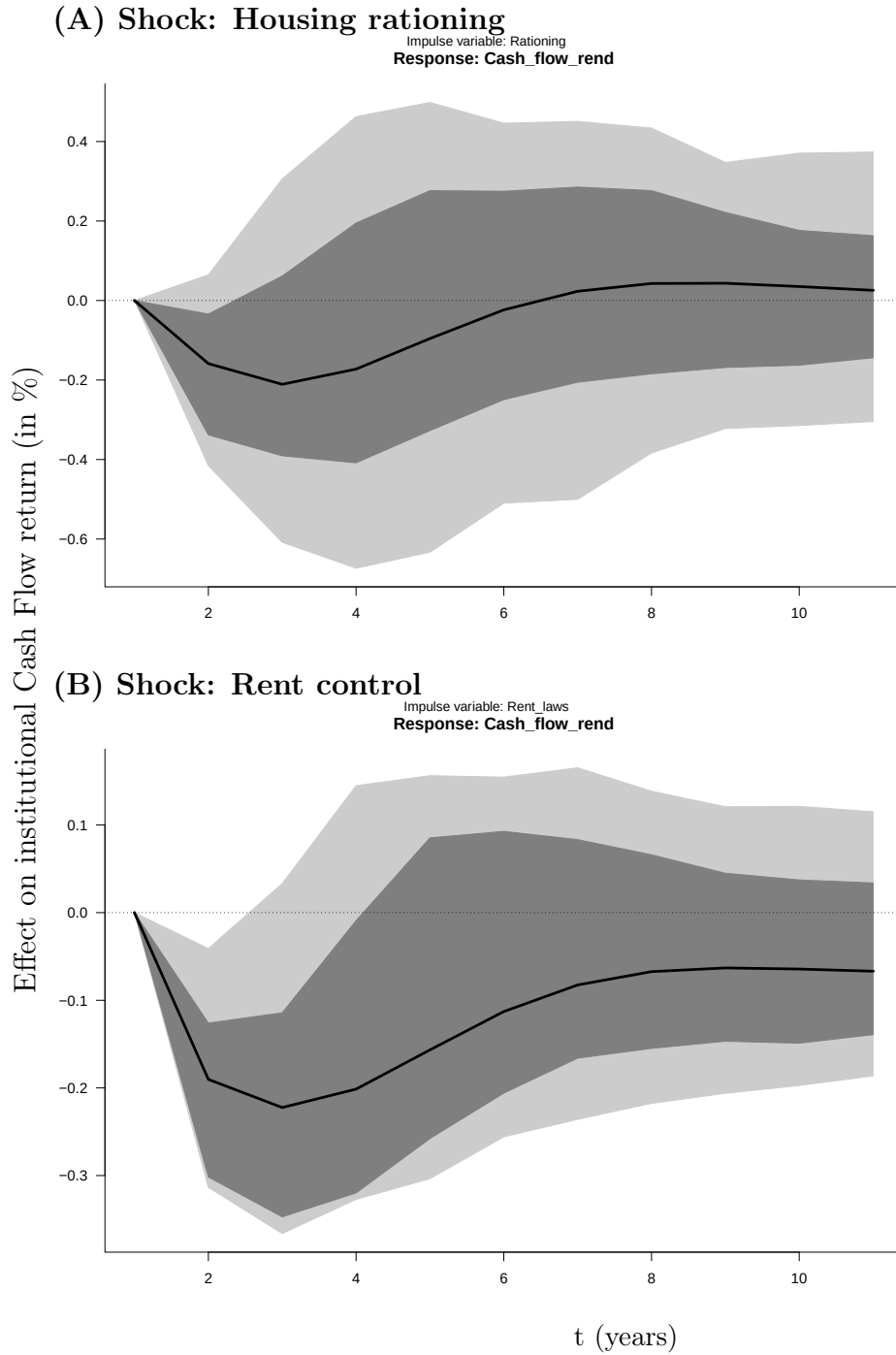


Figure 8: Generalized impulse-response functions (GIRFs) of institutional cash flow returns to a one-unit tightening in (A) housing rationing and (B) rent control. The GIRF is defined as in Equation 2. A one-unit shock corresponds to a tightening of the respective regulation. Shaded regions denote pointwise confidence intervals: light gray indicates the 90% interval, dark gray the 67% interval.

constrained rent growth under the rent control regime (including post-works caps), the infrequent opportunity to reset rents given long tenant durations ([Office cantonal de la statistique, 2024a](#)), ongoing compliance and maintenance capital expenditures typical under the LDTR, as well as heightened regulatory risk that raises required discount rates ([Commission externe d'évaluation des politiques publiques, 2003](#)). Overall, the effect on capital returns for private and institutional investors is modest and insignificant. Occupancy-driven gains are largely counterbalanced by capped rental upside, additional costs, and a higher cost of capital, leaving average capital returns broadly unchanged. From a policy perspective, the pattern is consistent with a preservation equilibrium: housing rationing reallocates activity toward the existing stock and improves utilization, but does not reliably increase capital returns without complementary measures that enhance feasible rent recovery or expand supply.

Rent Control Shock:

Stricter rent control is associated with an approximately +2% increase in capital returns (Figure 9), but the effect is not statistically significant. The positive sign is consistent with a utilization channel in a tight market, where lower vacancies can modestly support the income component of capital returns. However, under Geneva's LDTR any uplift is offset by capped rent growth (including post-works ceilings), infrequent rent resets due to long tenant durations ([Office cantonal de la statistique, 2024a](#)), and ongoing compliance and maintenance outlays typical under the LDTR. On balance, rent-law tightening does not yield a reliable improvement in capital returns absent complementary measures that enhance feasible rent recovery or expand supply.

Conclusion Institutional Investors:

Taken together, rent caps on post-renovation increases and LDTR housing rationing that conditions or restricts demolition, change of use, and condominium conversion raise entitlement risk, extend timelines, and depress residual land values, making large-scale redevelopment difficult for institutional investors. According to the GIRF, housing rationing shocks coincide with a pronounced contraction in institutional new-build investment (−400 million CHF), and the direction is confirmed by Granger causality from housing rationing to new construction. Rent control tightening is associated with a contraction of −100 million CHF. On the intensive margin, housing rationing induces a short-run reallocation toward stock-preserving renovations

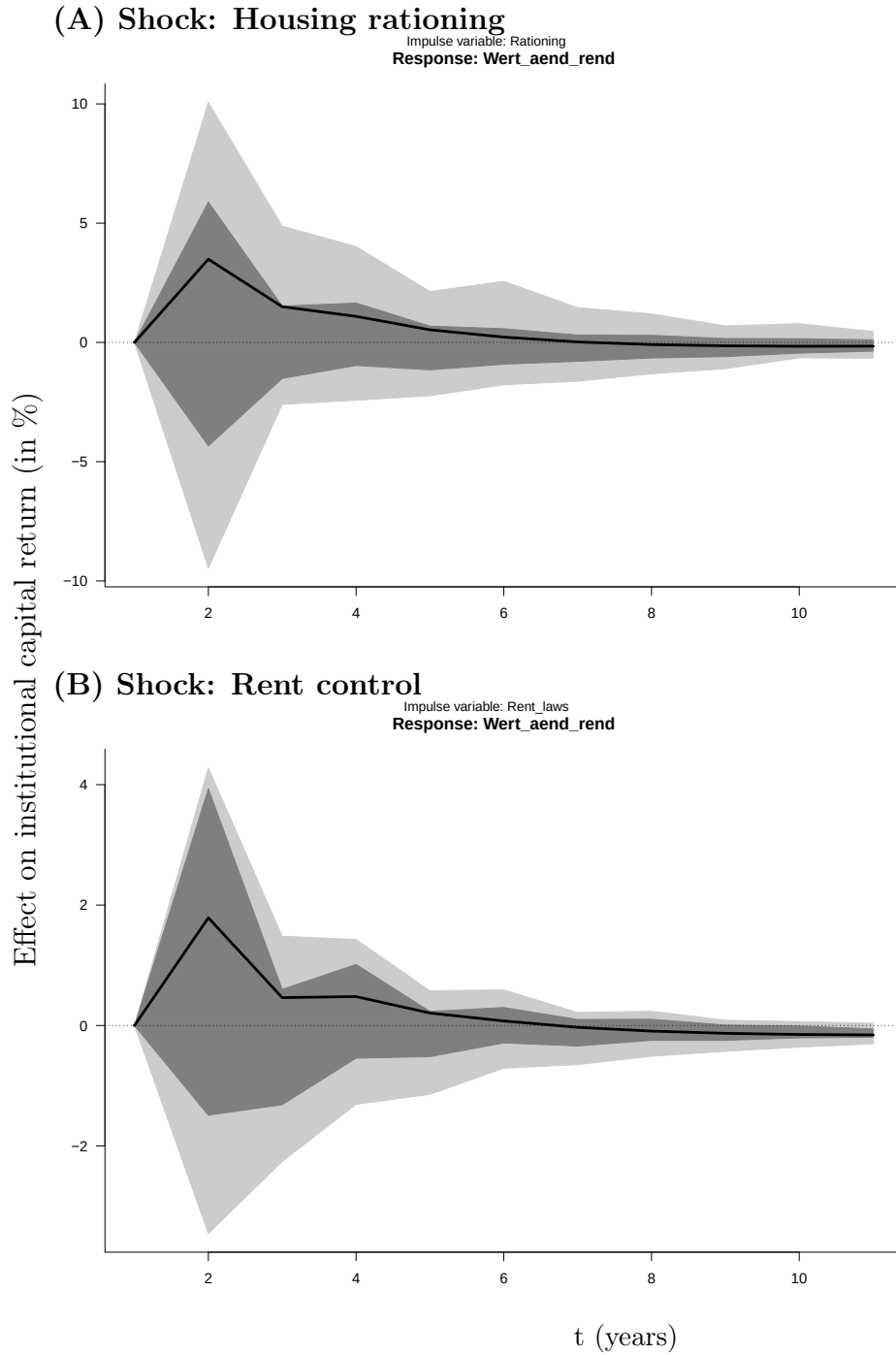


Figure 9: Generalized impulse-response functions (GIRFs) of institutional capital returns to a one-unit tightening in (A) housing rationing and (B) rent control. The GIRF is defined as in Equation 2. A one-unit shock corresponds to a tightening of the respective regulation. Shaded regions denote pointwise confidence intervals: light gray indicates the 90% interval, dark gray the 67% interval.

(+100 million CHF through year 2), whereas rent control tightening alone leaves institutional renovation outlays broadly unchanged. Returns respond little: cash-flow returns dip slightly under both regimes, while capital returns show no reliable improvement, as any occupancy-driven lift from lower vacancies is offset by rent ceilings, infrequent rent resets due to long tenancy durations ([Office cantonal de la statistique, 2024a](#)), compliance and maintenance capital expenditures, as well as a higher regulatory risk premium ([Commission externe d'évaluation des politiques publiques, 2003](#)). These patterns align with Geneva's preservation logic and external assessments of redevelopment headwinds under the LDTR ([Commission externe d'évaluation des politiques publiques, 2003](#); [Salvi, 2012](#)), alongside comparative evidence that stricter rent control and housing rationing depress new construction ([Kholodilin and Kohl, 2023a](#)). In sum, for institutional investors, the policy mix shifts activity from the extensive to the intensive margin, stabilizing utilization but leaving housing quantity and average returns largely unchanged. In particular, the pronounced contraction in institutional new-build investment implies minimal or, at times, effectively zero net additions to the housing stock.

4. Conclusion

This study provides empirical evidence on the dynamic effects of two key regulatory instruments, housing rationing and rent control, on Geneva's housing market. The analysis shows that the two policies operate through distinct channels and differ in magnitudes and investor responses.

Housing rationing shocks are associated with pronounced reductions in construction investment by both private and institutional investors, with an aggregate decline of roughly -600 million CHF. Scaled by the canton, this contraction equals about 1% of Geneva's GDP and about 11% of total construction outlays, indicating an economically material effect at the aggregate level and a substantial impact within the construction sector ([Office cantonal de la statistique, 2024b](#)).

These supply-side constraints are accompanied by statistically significant reductions in vacancy rates, indicating that housing availability tightens materially following a housing rationing intervention. In terms of performance, the returns response is mixed rather than expansionary: the capital-returns GIRF yields a small positive point estimate that is not statis-

tically significant, while the cash-flow return shows a modest short-run decline (-0.2%). Taken together, the evidence suggests that housing rationing primarily reallocates activity toward the existing housing stock, which results in tighter utilization but does not deliver a robust increase in investor returns.

Compared to housing rationing, rent control shocks have smaller effects on construction. Although new investment volumes decrease, the changes are not consistently statistically significant. On asset performance, capital returns register a small positive point estimate (+2%) that is statistically not significant, whereas cash-flow returns decline slightly (-0.2%) at a 10% significance level. Importantly, there is no evidence that rent control shocks trigger a short-run withdrawal of supply: vacancy rates remain broadly unaffected in the wake of rent control tightening.

These findings underscore the different economic mechanics of the two interventions. Housing rationing functions as a quantity restriction: it directly curtails the scope for new additions to the stock and increases competition for existing dwellings, thereby tightening the market without reliably improving investor returns. Rent control operates as a price restriction: it compresses the profitability of rental housing, especially by limiting post-works rent increases and the payoff to deeper upgrades. However, it does not immediately reduce the housing stock.

The distributional and sectoral effects are also heterogeneous. Institutional investors are disproportionately exposed to housing rationing, consistent with the scale, complexity, and forward planning required for their redevelopment pipelines, whereas private investors show more adjustment on the renovation margin. Granger-causality tests support the supply-side interpretation by confirming that housing rationing shocks precede declines in vacancy rates, establishing a temporal link between policy-induced supply constraints and market tightening. By contrast, rent control appears to mainly reshape housing price dynamics under conditions of pre-existing scarcity rather than acting as a primary driver of short-run stock changes.

These results point to instrument-specific trade-offs. Housing rationing preserves the existing rental stock by curbing exits (demolition, change of use, and condo conversion), but it also constraints additions to the housing stock. In practice, this tightens availability (lower vacancies), intensifies competition for existing dwellings while delivering little improvement in average investor returns. Rent control primarily acts through the price channel: it moderates

rent growth for sitting tenants and compresses landlords' upside, but our evidence shows that it does not reduce vacancies in the short run; its main risk lies in weaker incentives for deep upgrades and redevelopment if cost recovery is uncertain.

Policy should therefore weigh the benefits of tenant protection against the costs of suppressing supply growth and investment quality. Quantity-based restrictions (housing rationing) are most likely to entrench scarcity if they are open-ended and not paired with avenues for compliant densification.

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Appendix A. Descriptive Statistics

Table A.1: Summary statistics for the Canton of Geneva (1999–2022; N=24)

Variable	Source	Minimum	Mean	Maximum	Standard Deviation
Net migration per person	Swiss Federal Statistical Office (2025b)	0.002	0.008	0.017	0.004
Mortgage rate in %	Swiss National Bank (2025)	0.026	0.030	0.045	0.005
Vacancy rate in %	Swiss Federal Statistical Office (2023)	0.002	0.004	0.014	0.003
Rent control index between 0 and 1	Kholodilin (2020, 2025b)	0.368	0.495	0.500	0.027
Housing rationing index between 0 and 1	Kholodilin (2020, 2025b)	0.175	0.180	0.188	0.006
Institutional new construction investment as % of GDP	Swiss Federal Statistical Office (2024a) and Swiss Federal Statistical Office (2025a); for time series construction details see section 3.1	3.511	9.649	20.597	4.397
Institutional renovation investment as % of GDP	Swiss Federal Statistical Office (2024b) and Swiss Federal Statistical Office (2025a); for time series construction details see section 3.1	1.978	4.093	8.631	2.158

Variable	Source	Minimum	Mean	Maximum	Standard Deviation
Private new construction investment as % of GDP	Swiss Federal Statistical Office (2024c) and Swiss Federal Statistical Office (2025a) ; for time series construction details see section 3.1	16.203	20.062	29.302	3.601
Private renovation investment as % of GDP	Swiss Federal Statistical Office (2024d) and Swiss Federal Statistical Office (2025a) ; for time series construction details see section 3.1	7.246	9.924	14.799	2.314
Cash flow return in %	Fahrländer Partner Raumentwicklung (2024b)	0.026	0.042	0.061	0.010
Capital return in %	Fahrländer Partner Raumentwicklung (2024a)	-0.006	0.055	0.136	0.036