To Rent or To Own? The Effect of Additional Transaction Tax on Buy-to-Let Housing Market

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Abstract

In recent years, UK housing policy has aimed to restrict investment behavior and increase the homeownership rate. This paper contributes to the literature by estimating the impact of a 3% additional transaction tax, known as stamp duty land tax (SDLT), on the Buy-to-Let (BTL) market in the UK. By comparing properties sold to BTL investors with owner-occupied housing, we find evidence of average price decreases in response to the increased SDLT. However, there is an immediate trend of price increases after the policy announcement followed by a rapid decrease after the implementation date. Furthermore, we observe that BTL investors face challenges in renting out their properties, leading to illiquidity in the rental market. Despite this, they still increase the rent level to compensate for their losses in property sales value and low sales activity. The SDLT policy results in a significant drop in BTL transaction volume and an increase in rental prices, indicating that landlords are transferring their burden and loss to tenants. These findings have important implications for housing policymakers as they suggest that measures aimed at restricting investment behavior may lead to risk-averse behavior among investors and indirectly impact the ability of tenants, particularly potential first-time buyers, to own a home. We conclude by discussing the implications of our findings and highlighting potential areas for future research.

Keywords: Rental housing, Buy-to-Rent, Buy-to-Let, Transaction tax, Housing policy.

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I.   Introduction

Buy-to-rent, commonly known as buy-to-let (BTL) in the UK, is an increasingly popular investment strategy where individuals purchase properties with the specific purpose of renting them out to tenants. This form of investment aims to generate rental income and potentially benefit from property appreciation over time. The UK buy-to-let market has played a significant role in the real estate sector, as indicated by the English Housing Survey (EHS). According to the survey, 19% of households in England reside in the private rented sector, which amounts to over 4.4 million households, accounting for approximately one in five households in England.

However, the UK buy-to-let market has experienced regulatory changes in recent years, particularly notable among them being the implementation of a special transaction tax. The UK housing policy has placed considerable emphasis on increasing the rate of homeownership while concurrently restricting investment behavior. One such policy is the introduction of a 3% additional Stamp Duty Land Tax (SDLT) on properties intended for rental purposes, rather than owner-occupation. This additional SDLT is primarily targeted at second homes and Buy-to-Let (BTL) properties to discourage excessive housing investment and provide more housing supply for first-time buyers. Nonetheless, the direct impact of this additional tax on rental housing supply and transaction prices, as well as its indirect effects on tenant burdens and homeownership rates, remain insufficiently understood.

To address our research question, we utilize two comprehensive datasets: the Land Registry (LR), which contains information on all housing sales transactions in England and Wales since 1995, and Zoopla, a prominent UK property portal that offers detailed rental and sales data. By merging these datasets based on property addresses, we can obtain listing information for both sales and rentals. While it is not possible to directly identify Buy-to-Let (BTL) properties, we define them as properties that are rented out within 12 months of the transaction date[3]. This approach allows us to employ a difference-in-differences design and estimate the effects of the additional transaction tax on the BTL housing market between 2014 and 2017, with a focus on price and rent trends.

To address our research question, we employ a difference-in-differences regression analysis. We compare the transaction prices of newly listed BTL properties subject to the additional 3%

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[3] In this paper, we identify BTL property as investors rented it out within 12 months from the purchase date.

Stamp Duty Land Tax (SDLT) with those of owner-occupied properties not subject to this tax, while controlling for relevant property characteristics and local market conditions (through location-month fixed effects). Additionally, we employ an event study design to examine price trends over time, with the announcement date serving as the treatment time. This allows us to assess any pre-trend effects and the dynamic impact of the policy over time. Our methodological approach provides valuable insights into the effects of the additional SDLT on the BTL housing market and its implications for tenant burden and homeownership rates in the UK.

Our findings indicate that the additional 3% SDLT has a significant impact on the BTL housing market, resulting in an average decrease of 2% in transaction prices. However, we also observe a dynamic trend in prices following the policy announcement. Immediately after the announcement, BTL transaction prices experience a surge as investors rush to purchase properties before the implementation date of the tax. Subsequently, prices drop by 4% in the days immediately after the tax implementation and gradually recover to a negative 2%. Our estimated effects are not attributable to pre-treatment differences in transaction prices, changes in tax relief on rental income, or the identification strategy employed to identify BTL housing in this study.

To ensure the robustness of our findings regarding investor behavior, we conducted a further analysis of the mechanisms involved. Firstly, we examined the heterogeneity of the policy effect across different property types and tenures. Our analysis revealed that both freehold and leasehold properties experienced a similar decrease in price of around 1.5 percent when subjected to the additional transaction tax. However, among property types, detached houses exhibited the most substantial negative effect, while semidetached houses showed negligible effects. These results indicate variations in investor preferences for different property types.

Additionally, while our identification strategy assumes that properties rented out within 12 months of purchase are Buy-to-Let (BTL) transactions, there is a segment of rental housing in the market that falls outside this timeframe (Non-BTL Rental). It is important to consider whether the tax policy also affects this portion of the rental housing market, as this could potentially impact our results and introduce bias by excluding non-BTL rental housing from the treated group. To address this concern, we conducted a comparative analysis of prices between non-BTL rental housing and owner-occupied housing.

Upon analysis, we discovered little evidence of differential prices between the two groups, even after controlling for locational fixed effects, available property characteristics, and other policy effects. This finding provides strong support for the accuracy of our identification strategy for the treated group in this study. It suggests that non-BTL rental housing exhibits similarities with owner-occupied housing in terms of pricing dynamics, affirming the validity and reliability of our results.

In addition to analyzing transaction prices, we also conducted a comprehensive assessment of rent differences between non-BTL rental housing and BTL housing to provide a more comprehensive understanding of the impact of the additional transaction tax. Through a difference-in-differences analysis on both groups, we uncovered significant insights into rental trends. Our analysis revealed that the additional tax policy led to a positive effect on the rent levels of BTL housing, resulting in an average increase of 6 percent following the implementation of the 3 percent additional SDLT. This indicates that BTL property owners, as the primary suppliers of rental housing, adjusted their investment behavior based on a speculative mindset, aiming to compensate for their investment losses by raising the rent. The observed rise in rent for BTL housing can be attributed to changes in the supply level of rental housing in the market after the policy implementation, which may be a result of alterations in market transaction volumes.

To examine the changes in transaction volume and its relationship with market activity, we analyzed aggregated regional-level data, encompassing districts, cities, and counties, for both BTL and owner-occupied properties. By comparing the transaction volumes before and after the policy implementation, we observed a notable decrease of approximately 19%. However, when we exclude the period beyond March 2017, this decrease reduces to around 15%[4]. This finding demonstrates a clear correlation between the drop in transaction volume and the supply level of rental housing, indicating a lower supply of rental properties available in the market. The changes in transaction volume align with the observed rent changes, highlighting the interconnectedness of low supply levels, lower transaction prices, and higher rents.

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[4] From March 2017, an alteration to landlord income tax relief occurs. Landlords' tax relief on finance costs is now limited to the basic rate of income tax. This additional tax relief changes could affect our estimation on the effect of SDLT changes.

To examine the theories of investor behavior, we investigate the market liquidity for Buy-to-Let (BTL) sales and rent as representations of investors' reactions to the Stamp Duty Land Tax (SDLT) changes. Building upon the definition by Lippman and McCall (1986), we adopt the time-on-market (TOM) as a measure of market liquidity, which measures the duration it takes to sell or rent a property. By utilizing TOM, we estimate the time difference between property sales/rents listing and registered sales/rents. Controlling for available property characteristics and locational-month fixed effects, our analysis reveals significant differences between TOM for sales and TOM for rents.

Interestingly, we find no statistically significant difference in TOM for sales before and after the SDLT changes. This implies that the TOM for sales remains relatively stable and unaffected by the tax policy. However, the TOM for rents undergoes a substantial change of approximately 25%, indicating a 25% longer negotiation period for renting compared to the period before the SDLT changes. The length of TOM is not fully under the control of sellers or landlords, as real estate investors not only face transaction price risk but also TOM risk (Cheng et al., 2008). Despite the increased risk associated with longer rental periods, investors still raise the average rent level to compensate for the loss in property sales value. This reflects a unique investment contradiction wherein landlords seek to offset their losses in property sales by imposing higher rental burdens, indirectly affecting tenants' ability to own a home.

This paper makes three key contributions. Firstly, we establish a data linkage between rental and sales data by matching government-authorized Land Registry (LR) data with private real estate agent Zoopla data. This matching method provides further insight into the connections between sales and rents, surpassing the conventional approach of studying sales or rents independently. Secondly, our study contributes to the literature on investor reactions to transaction tax changes, which are typical risks that immediately raise investors' costs. We find that investors face illiquidity in the rental market but still raise the rent level with the intention of compensating for the loss in property sales value and low sales activity. This suggests that landlords attempt to mitigate their investment losses by increasing the burden on tenants, indirectly impacting tenants' ability to transition to homeownership. Thirdly, we uncover investors' speculative behavior in response to SDLT changes, indicating that policymakers should be concerned not only with single transaction tax changes but also with other rent-specific policy regulations, such as rent control.

Through our research, we provide valuable insights into investor behavior, market liquidity, and the implications of policy interventions on both the sales and rental markets. These findings contribute to a more comprehensive understanding of the dynamics between sales and rents, the effects of transaction taxes on investors and tenants, and the need for policymakers to consider broader rental-specific policies in addition to transaction tax changes. The remainder of the paper proceeds as follows: Section II provides a literature review connecting our research to related studies, Section III describes the institutional background, residential transaction data, and Zoopla rent data, Section IV presents the main difference-in-differences analysis, followed by a further mechanisms analysis in Section V. Finally, Section VI concludes the paper.

II.   Related Literature

The housing needs of households can be fulfilled through either homeownership or renting. While homeownership is often considered the preferred choice, renting is a significant alternative, especially for lower-income households (Czerniak & Rubaszek, 2019). In the UK, the private rental market has historically been viewed as a less desirable option compared to homeownership and social housing. However, Kemp (2011) argues that the private rental market plays a crucial role in meeting the accommodation needs of households living in poverty and young people by offering affordable living spaces without the burden of a mortgage. It also provides a buffer for lower-income households against the periodic shocks in the real estate market, as evidenced by the impact of the 2008 financial subprime mortgage crisis (Arce & Lopez-Salido, 2011; Rubaszek & Rubio, 2020).

While the private rental market serves an important purpose, governments have made significant efforts to implement rental regulations aimed at increasing homeownership rates. Homeownership is often associated with the "American Dream," or the aspiration to own a home in any country (Phillips & Vanderhoff, 2004; Matthews & Turnbull, 2007). Rising homeownership rates contribute to the development of safer communities, foster friendly neighborhoods, and provide households with a means to create and accumulate wealth (Rohe et al., 2002; Haurin et al., 2002). Homeownership is associated with higher satisfaction levels for households compared to being a tenant (Elsinga & Hoekstra, 2005; Diaz-Serrano, 2009). It also offers advantages such as increased investment in education or business, economic security during illness or job loss, and the potential for intergenerational wealth transfer (Herbert et al., 2013). However, the strong emphasis on boosting homeownership raises

questions about whether this focus truly benefits lower-income households in terms of wealth accumulation and overall well-being. It is essential to shift the focus from solely increasing homeownership rates to addressing the underlying housing affordability challenges.

The existing literature on the impact of rental regulations on housing affordability is limited, and the findings are mixed. Empirical studies have explored the effect of rental regulations on housing affordability. Using different models and data sources, these studies have found a positive association: higher levels of rental regulation exacerbate housing affordability issues. Early & Phelps (1999) found that rent control policies drive up prices and reduce the supply of affordable housing in the uncontrolled rental sector due to increased demand. This outcome contradicts the initial aim of reducing the rent burden for tenants. Ambrose & Diop (2021) established a linear correlation between the rental regulation index and the percentage of renters burdened with over 30% of their income, highlighting the unintended consequence of exacerbating housing affordability issues through rental regulation. Landlord regulations may ultimately lead to a decrease in rental property supply, further impacting lower-income tenants (Ambrose & Diop, 2021). McCollum and Milcheva (2021) examined the impact of state-level renter protection regulations in the US on multifamily housing and found that higher levels of renter protection regulation result in lower cash flow volatility and better income growth prospects for institutional investors.

While the literature has extensively studied rent control, the impact of rental income tax regulations has received limited attention. There is a need for further research to explore the effects of rental income tax regulation on the private rental market and housing affordability.

III.   Background and Data

The research is set against the background of the implementation of a 3 percent higher rate of Stamp Duty Land Tax (SDLT) in the United Kingdom, which came into effect on 1 April 2016. This policy was introduced as part of a broader set of measures aimed at addressing concerns related to the increasing cost of housing and the affordability challenges faced by first-time buyers. The primary objective was to create a more level playing field for individuals seeking to purchase their first home by making it slightly more challenging for property investors and those acquiring second homes to enter the market. The government conducted a consultation on the introduction of the 3 percent higher rates of SDLT, and it was widely anticipated by

property agents and industry experts. The announcement of the 3 percent higher SDLT was made during the Spending Review and Autumn Statement in November 2015.

Under the higher rates, an additional 3 percent is levied on the existing SDLT rates for individuals purchasing an additional residential property valued above £40,000. These higher rates are applicable to both freehold and leasehold properties, including shared ownership properties and those acquired through a corporate entity. However, properties transacted at a value below £40,000, as well as houseboats and mobile homes, are exempt from the additional SDLT charges.

To investigate the impact of the additional SDLT, this research utilizes two novel datasets, which are described in detail below. These datasets provide valuable insights into the effects of the policy on the real estate market and allow for a comprehensive analysis of the dynamics and implications of the higher SDLT rates.

Residential Transaction Data

The residential property transaction data used in this study are sourced from the England and Wales Land Registry (LR) Price Paid Database, which contains comprehensive information on sales transactions dating back to 1995. In order to align the data with the available timeframe of the WhenFresh/Zoopla dataset (described below), we create a subsample of sales transactions from 2014 onwards. To ensure that the analysis focuses on the relevant period and avoids potential confounding effects from other events, we only include observations up until 31 December 2017.

The Price Paid Database (PPD) provides detailed information for each transaction, including the transaction price, date of transfer, locational information (such as postcode, apartment number, street name, city name, and district name), property type (such as flat, terraced, semi-detached, and detached), tenure type (freehold or leasehold), and an indicator for whether the property is old or newly constructed. The transaction date and price information enable us to examine the price changes over time, while the additional property characteristics allow for the control of factors that may influence the price.

Residential Rental/Sales Data

The WhenFresh/Zoopla Dataset, which is accessible through the Consumer Data Research Centre (CDRC), comprises two sub-datasets: sales and rental. These datasets provide comprehensive information on all sales and rental transactions listed on Zoopla from 2014 to 2021. For the purpose of this study, we focus on the period from 2014 to 2017 as the timeframe for residential transaction data.

Dataset Matching

Table 1: Data sources and matched dataset (From 2014 to 2017)

Panel A *Original dataset*			
	Zoopla Rents (No Duplicate)	Zoopla Sales	LR PPD
Obs.	1,569,859	1,449,429	4,089,715
Panel B *Matched dataset*			
	Zoopla Sales (Full Dataset)	LR-Zoopla sales (with TOM data)	LR-Zoopla (No missing value)
Total Obs.	1,449,429	1,339,814	570,631
BTL Obs.	.	.	49,064
Non-BTL Obs.	.	.	521,567

Notes: The tables show our main data sources and matched datasets, we get the matched rental dataset and matched time-on-market dataset and then merge them to the main LR sales dataset to get the full sales dataset with rental and time-on-market information. But there are some observations have missing information in variables, hence, the baseline model will be conducted in the dataset with no missing value.

To estimate the time-on-market (TOM) for the observations, we exploit the listing date information available in the Zoopla sales dataset[5]. This allows us to track the duration it takes for properties to be sold after being listed on Zoopla.

Furthermore, we utilize the Zoopla rental dataset to identify buy-to-let (BTL) observations within the LR price paid database. The CDRC reports that the dataset represents approximately 70% of the privately rented market in the UK and includes detailed address information and property attributes (such as property type, number of bedrooms, bathrooms, receptions, and

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[5] The time between listing and transaction date for sales is the time-on-market in this research.

energy rating) for rental properties. Additionally, the Zoopla rental dataset contains the listing date, rental price, and page views for each rental property. By comparing the transaction date in the LR price paid database with the date when the same property is listed for rent on Zoopla, we can identify buy-to-let properties[6]. This approach aligns with similar identification strategies employed by Bracke (2021), who estimates the price discount between BTL and non-BTL properties.

In Panel A of Table 1, we present the main data sources used in this study: the LR sales data and the Zoopla rents/sales dataset. We match the Zoopla rents and sales dataset separately with the LR sales dataset to obtain rental-related information and time-on-market (TOM) data for the observations.

Moving on to Panel B of Table 1, we provide details of the matched dataset, which includes rental properties, matched TOM dataset, and the full matched dataset. The Zoopla dataset contains a total of 1,449,429 property transactions between 1st January 2014 and 31st December 2017, while the LR PPD encompasses 4,089,715 transactions for the same time period. The LR PPD is a comprehensive record maintained by the UK government and is considered the most accurate and complete source of information on property transactions in England and Wales. However, Zoopla covers only approximately 38% of all transactions, as its access to property transaction data depends on cooperation with estate agents, property developers, and other third-party sources.

The Zoopla dataset provides additional property-related information that is not available in the LR PPD, such as the number of bedrooms, bathrooms, energy rating, and time-on-market. These additional details are important for our research, and hence, we will use the LR-Zoopla merged dataset for our analysis. In addition to the sales listing data provided by Zoopla, they also offer a comprehensive dataset of rental properties in the UK. This dataset includes property descriptions, rental prices, location data, and other relevant information. The rental dataset is sourced from various partners, including estate agents and property developers, who provide Zoopla with up-to-date information on rental properties across the country.

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[6] In this paper, if the relative time between sale completion and the rental listing created date for the same property is less than twelve months, we identify it as buy-to-let property.

In the matching process (Panel B), we first match the Zoopla sales data with the LR PPD data for the period of 2014 to 2017, resulting in the LR-Zoopla sales dataset, which contains 1,339,814 observations (approximately 92% of the original Zoopla sales dataset). The Zoopla sales dataset includes a unique identifier that matches with the LR PPD, allowing for a high level of matching between the two datasets. With this matching, we obtain the sales listing date and sales transaction date, which enables us to calculate the time-on-market (TOM) variable for each matched property.

Next, we match the Zoopla rent dataset with the LR-Zoopla sales dataset to obtain rental information for each property. However, the original Zoopla rent dataset lacks a unique identifier that aligns with the Zoopla sales and LR PPD datasets. To address this, we match the observations based on their address, specifically focusing on the postcode, street, and room number. This approach helps minimize matching errors caused by typing variations and ensures accurate matching with rental data. Additionally, we handle overlapping rental records by adopting a similar method as Bracke (2021), which involves keeping the first rental listing in cases of overlapping data provided by multiple real estate agents. After matching the Zoopla rent dataset with the LR-Zoopla sales dataset and excluding observations with missing values in energy rating, bedrooms, bathrooms, or TOM, we are left with the baseline dataset for our research, named the LR-Zoopla dataset. This dataset comprises 570,631 observations, with 49,064 (8.6%) identified as BTL properties and 521,567 (91.4%) as non-BTL properties.

Matched LR-Zoopla Data: Summary Statistics

Our final dataset comprises more than 4 million property transactions that occurred between 2014 and 2017. The treatment group in our analysis consists of buy-to-let (BTL) transactions, which will be affected by the additional SDLT. We conduct a difference-in-differences analysis with a series of control groups in the subsequent mechanism analysis to ensure that the main coefficient is attributable to the additional SDLT and not influenced by other events. We also examine whether non-BTL rental properties are affected by the additional SDLT, as this would impact our identification strategy for the treatment group if other rental properties in the market experience similar effects as BTL properties.

Table 2 presents the summary statistics of categorical variables for the entire dataset, as well as separately for BTL and non-BTL properties. We assess the variation in property

characteristics and energy rating levels between the two groups. Our findings indicate that there are no significant differences in these aspects between BTL and non-BTL properties (including rental and non-rental properties). Approximately 90% of the property transactions involve old properties, while around 70% pertain to freehold properties with an energy rating at the C level.

The availability of transaction data for both BTL and non-BTL (rental) properties allows us to test the effectiveness of our identification strategy. Additionally, we have sufficient numbers of BTL and owner-occupied transactions to conduct our main difference-in-differences analysis, with a solid treatment group (BTL properties) and control group (owner-occupied properties).

Table 2: Summary statistics (categorical variables)

	LR-Zoopla dataset	BTL (6 months)	BTL (1 year)	BTL (1.5 years)
Old	0.80	0.82	0.79	0.80
New	0.20	0.18	0.21	0.20
Freehold	0.80	0.73	0.73	0.73
Leasehold	0.20	0.27	0.27	0.27
Flat	0.14	0.22	0.21	0.22
Detached	0.20	0.06	0.06	0.06
Semidetached	0.30	0.21	0.21	0.21
Terraced	0.35	0.50	0.51	0.50
Other	0.01	0.01	0.01	0.01
Observations	570,631	39,245	49,064	56,567
A	0.01	0.01	0.01	0.01
B	0.03	0.04	0.03	0.03
C	0.24	0.27	0.26	0.26
D	0.48	0.47	0.46	0.47
E	0.19	0.17	0.18	0.17
F	0.04	0.03	0.03	0.04
G	0.01	0.01	0.01	0.01
Observations	570,631	39,245	49,064	56,567

Notes: The tables show summary statistics of categorical variables, including property characteristics (old/new indicator, tenure and property type) and energy rating band (from A to G). For BTL (property with renting purpose), we separate them as three groups (6 months, 1 year and 1.5 year) using time differences between sales transaction date and renting date. The BTL group we use in the baseline model is within 1 year condition.

Table 3 presents the summary statistics for the main continuous variables in our analysis, which are categorized by all observations, BTL properties, and non-BTL properties (including rental

and non-rental properties). The median BTL property in England and Wales consists of two bedrooms, one bathroom, and has been on the market for an average of 4.56 months. The median weekly rent for BTL properties is £173, with a median price of £154,000. On the other hand, the median non-BTL (rental) property has a higher median price of £173,000 compared to BTL properties.

Relative to the full sample, BTL properties tend to have a lower median price, ranging from approximately 73% to 80% of the value of other transactions. There are also other variations between BTL and non-BTL properties, as well as between rental and non-rental properties. For instance, non-rental properties generally have more bedrooms, longer time-on-market, and higher prices compared to rental properties. BTL properties, on the other hand, tend to have a shorter time-on-market, lower weekly rents, and lower prices compared to non-BTL properties.

Table 3: Summary statistics (continuous variables)

		Mean	Std. dev.	P1	P25	P50	P75	P99
All	Price (£'000)	308.56	123.54	40	135	210	325	1600
Obs: 570,631	Rent (weekly)	222.52	130.93	80	137	183	277	750
	Bedrooms	2.75	0.99	1	2	3	3	5
	Bathrooms	1.29	0.71	1	1	1	1	3
	Energy efficiency	5.90	1.12	3	5	6	7	8
	TOM (months)	5.29	2.57	1.12	3.32	4.70	6.87	11.70
BTL	Price (£'000)	211.47	266.25	34	100	154	250	1020
Obs: 49,064	Rent (weekly)	211.16	121.21	81	133	173	254	692
	Bedrooms	2.44	0.92	1	2	2	3	5
	Bathrooms	1.21	0.61	1	1	1	1	3
	Energy efficiency	5.83	1.10	3	5	6	7	8
	TOM (months)	5.08	2.55	0.95	3.19	4.57	6.60	11.60
Non-BTL	Price (£'000)	312.66	125.99	40	138	210	330	1619
(all)	Rent (weekly)	227.80	134.88	80	138	185	277	760
Obs: 521,567	Bedrooms	2.79	0.99	1	2	2	3	6
	Bathrooms	1.30	0.73	1	1	1	1	3
	Energy efficiency	5.93	1.14	3	5	6	7	8
	TOM (months)	5.30	2.57	1.15	3.35	4.73	6.87	11.70
Non-BTL	Price (£'000)	258.10	482.80	33	114	173	285	1500
(rental)	Rent (weekly)	227.80	134.88	80	138	185	277	760
Obs: 97,406	Bedrooms	2.46	1.11	1	2	2	3	6
	Bathrooms	1.28	0.61	1	1	1	1	3
	Energy efficiency	5.93	1.14	3	5	6	7	8
	TOM (months)	5.24	2.58	1.05	3.29	4.66	6.83	11.70

Non-BTL	Price (£'000)	318.13	131.25	40	140	215	333	1630
(non-rental)	Bedrooms	2.89	0.92	1	2	3	3	5
Obs: 424,161	Bathrooms	1.31	0.78	1	1	1	1	3
	Energy efficiency	5.89	1.18	2	5	6	7	8
	TOM (months)	5.31	2.56	1.15	3.42	4.83	7.00	11.70

Notes: The tables show summary statistics of continuous variables, including weekly rent, transaction price, number of bedrooms, number of bathrooms, energy efficiency and Time-on-market. Tables show summary statistics of data with all observations and four subgroups: BTL, Non-BTL (all), non-BTL (rental) and non-BTL (Non-rental).

IV.   Difference-in-Differences Analysis

This section focuses on the regression specification and the main results of the difference-in-differences analysis, which aims to estimate the effects of the additional SDLT on buy-to-let transactions. Our findings indicate that the additional SDLT has a negative impact on the average buy-to-let transaction price, resulting in a decrease of around 1.5% to 2% after the announcement of the additional SDLT. Notably, we observe a dynamic treatment effect with an immediate upward trend followed by a subsequent downward trend between the announcement and implementation dates of the policy.

In this section, we begin by presenting the regression specification used to estimate the average treatment effect and the event study design employed to capture the temporal dynamics of the treatment effect. We then proceed to present the main results of the difference-in-differences analysis. To ensure the robustness of our findings, we also test for the presence of any differential pre-trends that could potentially confound the treatment effect estimation, thereby ensuring that the observed effects can be attributed primarily to the treatment of the additional SDLT. Further mechanism analysis is conducted in the next section to provide additional insights into the observed effects.

Regression Specification

1. *Difference-in-differences estimators of additional SDLT effects*

To measure the treatment effect of additional SDLT on buy-to-let transaction, we estimate the following equation on the England and Wales housing transaction data.

$$\ln(price_{i,t}) = \alpha_i + \lambda_t + \omega_{g,t} + \alpha \cdot Post_{i,t} + \beta \cdot X_{i,t} + \epsilon_{it} \qquad (1)$$

where $price_{i,t}$ is the individual housing transaction price in time t. The variable of interest $Post_{i,t}$ is a posttreatment indicator shows whether and when the transaction is treated. The parameter of interest is α, which represents the effect of additional SDLT on treated group. The model includes group fixed effects ($\omega_{g,t}$), locational fixed effects (α_i) and time fixed effects (λ_t). Standard errors are clustered at both the year-month and district level, following the procedure in Petersen (2009).

The vector $X_{i,t}$ contains a variety of property-level and regional-level variables. To control for individual property characteristics that may affect prices, we include property size (measured by the number of bedrooms, number of bathrooms), the energy rate band (measured by the energy efficiency score and band), and property type (measured by type and new indicator).

2. Event study design

To check for trends of treatment effect over time and test whether there are differential pre-trends, we replace the single $Post_{i,t}$ indicator in equation (1) with the relative time to treatment indicators. We estimate the trends of treatment effect through the following equation:

$$\ln(price_{i,t}) = \alpha_i + \lambda_t + \omega_{g,t} + \sum_{m=-7}^{8} \beta_m \cdot SDLT_m + \epsilon_{i,t} \qquad (2)$$

where $price_{i,t}$ represents the transaction price for property i in time t. Group fixed effects ($\omega_{g,t}$), locational fixed effects (α_i) and time fixed effects (λ_t) are same as equation (1)[7]. In our primary specification, postcode defines the locational variable. $SDLT_m$ are relative time to treatment indicators, which are set to 1 for treatment groups if time t is m time from treatment, m ranges from -7 to 8 and the omitted period is $m = -7$, which is seven quarters before the announcement of additional SDLT. The parameters of interest (β_m) represents the average

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[7] UK full postcode contains two alphanumeric codes. The first named outward code, indicates the postcode area and postcode district. The second named inward code, which indicates postcode sector and delivery point. In this study, we use outward code as locational fixed effect.

change of price in treated groups relative to control groups between time m and the omitted period ($m = -7$).

We subset the data from 2014 to 2017 to focus on seven quarters preceding and eight quarters following the announcement date of the policy in order to examine the price trends immediately surrounding the announcement and implement date.

Main Results

Buy-to-let versus Owner-occupied Transactions

1. Average effects on transaction price

By estimating equation (1) of the difference-in-differences model, we can compare the effects of the additional SDLT on transaction prices between buy-to-let (BTL) housing and owner-occupied housing. Table 4 presents the results of this estimation.

The baseline estimation in column (1) of Table 4 provides the price difference between BTL and owner-occupied housing after controlling for available property characteristics and locational-month fixed effects. Using the announcement date of the additional SDLT policy as the treatment date, we find that the average transaction price decreases by a statistically significant 2 percent following the announcement.

To test the robustness of our findings, different columns in Table 4 present alternative specifications. Column (1) includes a simple post-treatment dummy variable, incorporating district and time-fixed effects, and controlling for property characteristics, energy rating, and time-on-market (TOM). Column (2) replaces district fixed effects with city-level fixed effects, while column (3) employs county-level fixed effects to assess the effects under different locational controls. Additionally, column (4) excludes the period after March 2017 to mitigate potential additional policy effects associated with changes in tax relief.

By presenting various specifications and robustness checks, we ensure the reliability and validity of our estimation results. These results provide evidence of the consistent negative effects of the additional SDLT on transaction prices of BTL properties compared to owner-occupied properties, suggesting that the policy has had a significant impact on the BTL housing market.

Table 4: Baseline results on the effect of STLD on transaction prices for BTL versus non-BTL properties

	(1)	(2)	(3)	(4)
Treat x Post	-0.014***	-0.016***	-0.021***	-0.010***
	(0.003)	(0.004)	(0.005)	(0.003)
N	570,631	570,631	570,631	433,157
Month	Yes	Yes	Yes	Yes
Property type	Yes	Yes	Yes	Yes
Tenure	Yes	Yes	Yes	Yes
Old or New	Yes	Yes	Yes	Yes
Location	District	City	County	District
Bedrooms	Yes	Yes	Yes	Yes
Bathrooms	Yes	Yes	Yes	Yes
Energy rating	Yes	Yes __	Yes __	Yes __
Time-on-market	Yes	Yes __	Yes __	Yes __
Exclude	__	__	__	>Mar 2017

Notes: The tables show results from estimating equation (1) with a single posttreatment dummy for the period of 2014 to 2017. Treatment time is defined as the announcement date of the additional 3% transaction tax on BTL housing. Treated properties is defined as the BTL housing. Control properties are those properties with living purpose. All specifications include year-month fixed effects, plus energy rating, TOM, number of bedrooms, number of bathrooms and new or old indicators. Standard errors are clustered by district and year-month level.

To ensure the robustness of our analysis and address potential confounding factors, we conduct additional robustness checks in our estimation. In column (4) of Table 4, we exclude transactions from March 2017 onward, which corresponds to the period when changes in tax relief and higher lending standards for buy-to-let (BTL) mortgages were implemented. By excluding this period, we find that the estimated effects decrease to 1%, reflecting the possibility that the change in tax relief could affect the estimation results on the effect of SDLT. This robustness check provides further evidence of the sensitivity of our results to the inclusion of this specific period.

Furthermore, we explore the influence of time-on-market (TOM) on the price discount of BTL purchases. TOM represents the time difference between the property listing date and the actual transaction date, and it can significantly affect the transaction behavior of investors due to their risk-averse mindset. We estimate TOM for each transaction and include it as a control variable in all our estimations. By controlling for TOM, we examine its impact on the estimated treatment effects. In all cases, including TOM in the regression models does not substantially affect the average treatment effects on transaction prices, which range from negative 1% to negative 2%.

By conducting these robustness checks and controlling for TOM, we enhance the reliability and validity of our analysis. These additional findings strengthen the consistency of our estimated effects of the additional SDLT on BTL transaction prices and provide further insights into the potential factors influencing transaction behavior in the housing market.

2. Effect trends prior to the event

Figure 1 presents the coefficients from equation (2), where the single indicator in equation (1) is replaced with lead and lag indicators for 7 quarters ahead and 8 quarters after the announcement of additional SDLT. The omitted period in the figure represents the seven quarters before the announcement of additional SDLT.

By analyzing these coefficients, we can assess whether there are differential trends in transaction prices between the treatment and control groups before the event occurs. This is important to address potential biases in the difference-in-differences estimates and ensure the validity of the parallel trends assumption.

Figure 1: Effects on Transaction Price
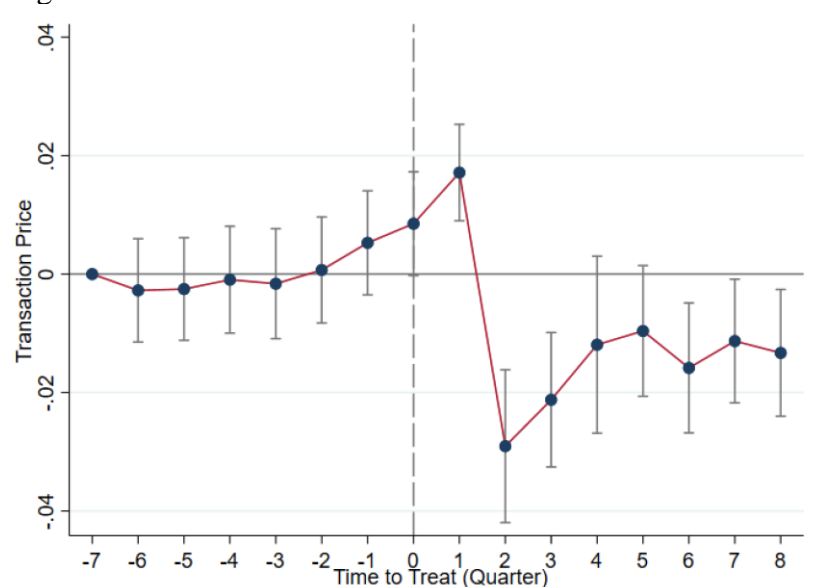
Notes: The figure shows DD coefficients and 95% confidence intervals from estimating equation (2) on transaction price. Standard errors are clustered at both year-month and district level. Treatment time is defined as the announcement date of the additional 3% transaction tax on BTL housing. Treated properties is defined as the BTL housing. Control properties are those properties with living purpose. The dotted vertical line represents the time of announcement.

From Figure 1, it can be observed that the coefficients on the time dummy variable are generally close to zero and statistically insignificant for most of the time before the announcement date, indicating that there were no significant differential pre-trends in transaction prices between the treatment and control groups. This supports the validity of the parallel trends assumption and strengthens the credibility of our difference-in-differences estimates.

However, it is worth noting that there is a slight deviation in the coefficient for the first quarter before the announcement date. This could potentially be attributed to some investors reacting to leaked information or anticipating the policy change by purchasing more buy-to-let properties before the increased SDLT comes into effect. Nonetheless, the overall pattern of the coefficients aligns with the parallel trend assumption, providing further support for the validity of our analysis.

In terms of the dynamic effects following the announcement of additional SDLT, Figure 1 shows an immediate increase in the average transaction price of buy-to-let properties by 2 percent. This reflects the behavior of investors rushing to complete buy-to-let transactions before the implementation date of the policy in order to avoid the additional tax burden. Subsequently, there is a rapid decrease in the coefficient by 3 percent after the implementation date, indicating a downward adjustment in transaction prices. The effects then gradually diminish and stabilize at around negative 1.5 to 2 percent.

These findings suggest that the additional SDLT had a significant impact on the buy-to-let market, leading to changes in transaction prices. The dynamic pattern of the coefficients provides insights into the timing and magnitude of the treatment effect, supporting the effectiveness of the policy in influencing investor behavior in the buy-to-let sector.

V.   Mechanisms Analysis

1. Heterogeneity on Property Type and Tenure

The regression results presented in Table 4 provide an average estimate of the difference-in-differences models. However, it is valuable to examine the estimates across different property types and duration tenures to understand the heterogeneity of the policy effects. By separating

the analysis based on property type and tenure duration, we can gain insights into the underlying mechanisms behind the negative policy effects on the transaction price of buy-to-let (BTL) properties.

We conducted separate regressions for each property type and tenure duration, and the graphical results are presented in Figure 2. Panel A shows the effects spread of different property type including flat, semidetached, terraced and detached. Panel B shows the effect of freehold and leasehold, respectively. These breakdowns of the data help us understand how the policy impacts vary across different property characteristics.

Figure 2: Effects on Transaction Price by Type and Tenure
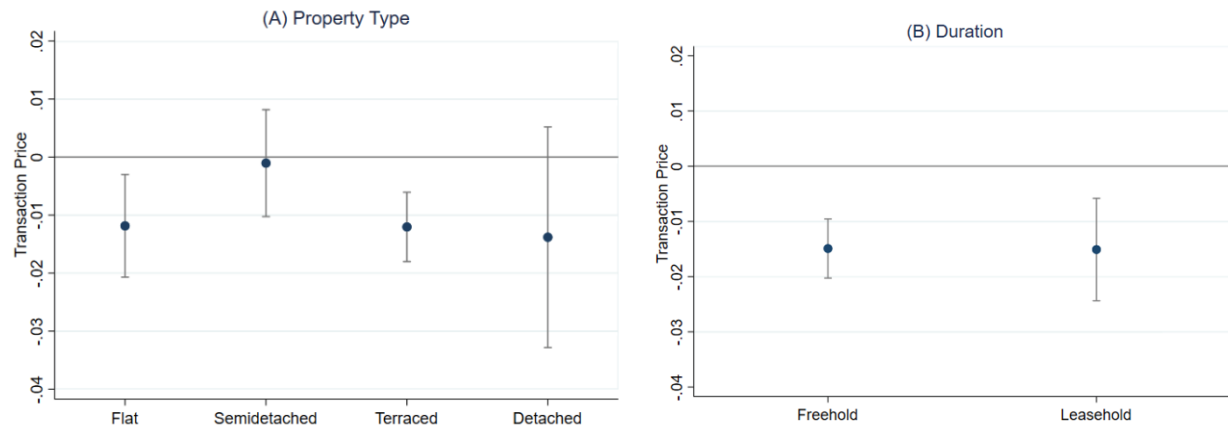
Notes: The figure shows DD coefficients and 95% confidence intervals from estimating equation (1) with different property types and tenures. Panel (A) shows the effects spread of different property types: Flat, Semidetached, Terraced and Detached. Panel (B) shows the effects for tenure: Freehold and Leasehold, respectively.

Interestingly, we found that the tenure of the property did not lead to significant differences between freehold and leasehold properties. Both property types experienced negative effects on price, with approximately a 1.5 percent decrease. This suggests that the additional SDLT had a similar impact on both freehold and leasehold properties.

When examining the effects by property type, we observed that detached houses experienced the most substantial negative effect on price. This could be attributed to the higher average price of this property type, making it more susceptible to the additional SDLT. On the other hand, the semidetached house showed negligible effects, indicating a preference among buy-to-let investors for this type of housing.

By considering the variations in property types and tenure durations, we gain a more nuanced understanding of how the policy affects different segments of the buy-to-let market. This information helps shed light on the underlying factors driving the observed negative effects on transaction prices for BTL properties.

2. Non-BTL Rental versus Owner-occupied on price

In addition to Buy-to-Let (BTL) properties, the rental housing market includes other suppliers, such as original owner-occupiers who choose to rent out properties they purchased several years ago. In this research, properties rented out after one year since their purchase are categorized as non-BTL rentals, while those rented out within one year of purchase are classified as BTL rental housing.

Table 5: Effects on transaction price (non-BTL rental vs owner-occupied)

	(1)	(2)	(3)	(4)
Treat x Post	0.003***	0.006***	0.002***	0.004***
	(0.002)	(0.003)	(0.003)	(0.002)
N	570,631	570,631	570,631	433,157
Month	Yes	Yes	Yes	Yes
Property type	Yes	Yes	Yes	Yes
Tenure	Yes	Yes	Yes	Yes
Old or New	Yes	Yes	Yes	Yes
Location	District	City	County	District
Bedrooms	Yes	Yes	Yes	Yes
Bathrooms	Yes	Yes	Yes	Yes
Energy rating	Yes	Yes	Yes	Yes
Time-on-market	Yes	Yes	Yes	Yes
Exclude	__	__	__	>Mar 2017

Notes: Table 5present the results obtained by estimating equation (1) using a single post-treatment dummy variable, with the treated group replaced by non-BTL rental properties rather than BTL housing. The estimation period covers the years from 2014 to 2017. The treated time refers to the date of the announcement of the additional 3% transaction tax on BTL housing. The controlled group is the owner-occupied housing with a living purpose. All specifications include year-month fixed effects, as well as controls such as energy rating, number of bedrooms, number of bathrooms, and indicators for whether the property is new or old. Standard errors are clustered by district and year-month levels.

If non-BTL rental housing were significantly affected by the additional SDLT compared to owner-occupied housing, it would have implications for the interpretation of our main results as it would mean that we have not included non-BTL rental housing in the treated group for the baseline regression model in Table 4. To ensure the accuracy of our findings and avoid any

misinterpretation, it is crucial to assess whether non-BTL rental housing is indeed impacted significantly by the additional transaction tax. To address this concern, we draw upon the work of Bracke (2021), who conducted a similar robustness check to account for potential contributions from non-mortgage investors in the treated group of mortgage investors.

To examine the impact of SDLT on non-BTL rental housing, we present the results of estimating equation (1) using a single post-treatment dummy variable, replacing the treated group of BTL housing with non-BTL rental housing. Table 5 displays these results across various samples and specifications. In column (1), we report the estimation using a simple post-treatment dummy variable, incorporating district and time-fixed effects, and controlling for property characteristics, energy rating, and TOM. To test the robustness of our findings under different locational controls, column (2) replaces district fixed effects with city-level fixed effects, while column (3) employs county-level fixed effects. Furthermore, column (4) excludes the period after March 2017 to mitigate additional policy effects associated with changes in tax relief.

Across all estimations, the results reveal statistically insignificant effects on non-BTL rental housing compared to owner-occupied housing under the influence of the 3% additional transaction tax. The magnitudes of the point estimates are small, indicating additional SDLT effects of less than 1 percent. These negligible effects on non-BTL rental housing validate the appropriateness of our identification strategy for the treated group in the baseline regression model presented in Table 4. The similarity in prices between non-BTL rental housing and owner-occupied housing allows non-BTL rental housing to be considered part of the control group in the baseline regression model. Therefore, our identification strategy for the treated group is valid, and the main results remain robust.

3. BTL versus Non-BTL Rental Property on Rent

The additional Stamp Duty Land Tax (SDLT) policy, despite its original aim of discouraging investment behavior and promoting homeownership, can have significant implications for the rental market. Our study compares the rent changes of buy-to-let (BTL) properties affected by the higher SDLT to non-BTL rental properties, both before and after the announcement of the 3% additional transaction tax. The findings reveal a substantial increase in rent for rented BTL properties, with an average rise of approximately 6 percent following the implementation of the 3 percent higher SDLT for additional resident housing transactions.

While existing research has primarily focused on the effects of rent regulation on newly let homes, examining differences in rent, crime rates, and housing market dynamics between areas with and without rent control (Autor et al., 2014; Autor et al., 2019; Sims, 2007), or estimating the impact of housing transaction taxes on housing prices, transaction volumes, and timing (Besley et al., 2014; Best & Kleven, 2018; Montalvo et al., 2020), our study provides evidence of the effect of housing transaction tax regulations on rental housing. It demonstrates a significant change in rent, highlighting the connection between housing transaction taxes, housing prices, and rent levels.

Table 6: Effects of STLD on listing rents (BTL versus non-BTL rental property)

	(1)	(2)	(3)	(4)	(5)	(6)
Treat x Post	0.060***	0.058***	0.057***	0.058***	0.056***	0.050***
	(0.002)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)
N	315,443	325,897	334,334	292,241	254,961	291,820
Month	Yes	Yes	Yes	Yes	Yes	Yes
Property type	Yes	Yes	Yes	Yes	Yes	Yes
Tenure	Yes	Yes	Yes	Yes	Yes	Yes
Old or New	Yes	Yes	Yes	Yes	Yes	Yes
Location	District	City	County	District	District	District
Bedrooms	Yes	Yes	Yes	Yes	Yes	Yes
Bathrooms	Yes	Yes	Yes	Yes	Yes	Yes
Energy rating	—	—	—	Yes	—	—
Time-on-market						Yes
Exclude	—	—	—	—	>Mar 2017	—

Notes: Table 6 show results from estimating equation (1) with a single posttreatment dummy, replacing the dependent variable as the rent, instead of transaction price: $\ln(rent_{i,t}) = \alpha_i + \lambda_t + \omega_{g,t} + \alpha \cdot Post_{i,t} + \beta \cdot X_{i,t} + \epsilon_{it}$. Treatment is defined as the announcement date of the additional transaction tax Treatment time is defined as the announcement date of the additional 3% transaction tax on BTL housing. Treated properties is defined as the existing rental property. Control properties are those properties with living purpose. All specifications include year-month fixed effects, plus energy rating, number of bedrooms, number of bathrooms and new or old indicators. Standard errors are clustered by district and year-month level.

Table 6 presents the results of estimating equation (1) with a single post-treatment dummy variable. Various columns test the robustness of the results using different samples and specifications. Column (1) we control for the sale location at the district level, column (2) at the city level, and column (3) at the county level. In column (4), we include a control for energy rating to assess the impact on the results. Column (5) excludes the period after March 2017 to avoid additional policy effects related to changes in tax relief. Column (6) incorporates the

control of time-on-market (TOM) in terms of rent. The results remain robust across different samples and specifications.

The observed increase in rent may be attributed to the sharp decline in transaction volumes for buy-to-let properties, which subsequently affects the overall supply of rental housing in the market. New landlords compensate for their losses resulting from the increased transaction tax by raising rents, thereby transferring the burden to tenants. As the primary suppliers of rental housing in the market, the rising rents for BTL properties place an additional financial burden on tenants and indirectly impede their ability to save for homeownership. This contradicts the original intention and objective of the policy, which was to promote homeownership.

4. Market Transaction Volumes in Different Regions

The changes in transaction volume play a crucial role in understanding the outcomes of the baseline model. Transaction volume serves as an indicator of investor activity and the level of rental housing supply. To investigate the impact of the additional Stamp Duty Land Tax (SDLT) on Buy-to-Let (BTL) transaction volumes, our analysis focuses on regional-level data, encompassing districts, cities, and counties for both BTL and owner-occupied purchases. By shifting our research focus from individual housing transactions to regions such as districts, cities, and counties, we aim to capture a more comprehensive view of the phenomenon. Consequently, key variables are now measured as regional averages.

Table 7 presents the findings regarding the effects of the additional SDLT on BTL transaction volumes. Besides price fluctuations (as shown in Table 4) and rent changes (as shown in Table 6), one of the most immediate changes to observe is the transaction volume. The volume of transactions holds significant importance as it reflects the supply level of a specific housing type and has a profound impact on supply-demand dynamics. To analyze this, we employ a difference-in-differences approach, comparing BTL purchases to owner-occupied housing. By regressing the logarithm of the number of transactions across different regions over quarterly periods, we observe a stark contrast in transaction volumes, with a decrease of more than 15 percent. This rapid decline in BTL purchasing interest indicates the cautious mindset of potential BTL investors who seek to avoid immediate additional costs associated with the SDLT increase. The significant decrease in BTL property supply could potentially affect

market liquidity and rental levels. While Section 3 has already discussed the changes in rental levels, Section 5 below will provide an analysis of market liquidity.

Table 7 : Effects on transaction volume by various areas on BTL versus Owner-occupied

	(1 - District)	(2 - City)	(3 - County)	(4 - < Mar 2017)
Treat x Post	-0.189***	-0.205***	-0.173***	-0.148***
	(0.008)	(0.016)	(0.018)	(0.010)
N	42,390	13,388	478	33,378
Quarter	Yes	Yes	Yes	Yes
Location	District	City	County	District
Avg. bedrooms	Yes	Yes	Yes	Yes
Avg. bathrooms	Yes	Yes	Yes	Yes
Avg. energy efficiency	Yes	Yes	Yes	Yes
Avg. TOM	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
Exclude	—	—	—	>Mar 2017

Notes: The tables show results from estimating equation (1) with a single posttreatment dummy, replacing the individual property with regional transaction volume, including district, city and county. Treatment is defined as the announcement date of the additional transaction tax Treatment time is defined as the announcement date of the additional 3% transaction tax on BTL housing. Treated properties is defined as the BTL property. Control group is owner-occupied property. All specifications include year-month fixed effects, plus energy rating, number of bedrooms, number of bathrooms and new or old indicators. Standard errors are clustered by district and year-month level.

One of the significant policy changes that can profoundly impact the Buy-to-Let (BTL) market is the alteration to landlord income tax relief. This policy modification, which took effect in April 2017, coincided with the Bank of England's decision to tighten lending standards for buy-to-let mortgages. Under the new policy, landlords' tax relief on finance costs is now limited to the basic rate of income tax, thereby eliminating the ability to deduct a percentage of finance costs from rental income. Consequently, landlords are required to pay higher income taxes, potentially affecting their interest in BTL properties.

In our analysis, we have already established that the changes in tax relief and stricter lending standards do not exhibit a statistically significant effect on transaction prices, as evidenced in column (4) of Table 4. However, when examining transaction volumes and excluding observations from March 2017 onwards, we find a notable 4 percent changes. This exclusion enables us to control for other policy effects and isolate the impact of the change to landlord income tax relief.

By excluding transactions after March 2017, we can more accurately capture the specific influence of the policy change on transaction volumes. The observed 4 percent difference suggests a discernible dampening effect on investor behaviour in the BTL market due to the increased income tax burden resulting from the altered tax relief and stricter lending standards.

5. Market Liquidity for Listing BTL Sales and Rents

The concept of liquidity in asset pricing encompasses two fundamental aspects: market liquidity and funding liquidity. Market liquidity is defined by the ease with which an asset can be traded, while funding liquidity pertains to the challenges traders face in obtaining financing for their purchases (Ametefe et al., 2016; Brunnermeier & Pedersen, 2009). In this study, the Time on Market (TOM) metric is utilized as a measure of market liquidity, specifically focusing on the speed at which properties are either sold or rented out.

To assess the TOM of properties, the research calculates the time difference between the initial listing for sale or rent and the actual transaction or rental agreement date. Subsequently, a difference-in-differences analysis is employed to estimate the changes in TOM for both sales and rentals of Buy-to-Let (BTL) properties before and after the implementation of a 3% additional transaction tax. The analysis takes into account various property characteristics and includes locational-time fixed effects to control for potential confounding factors.

Table 8: The effect of STLD on TOM for listing BTL sales and rents.

	TOM for listing sales			TOM for listing rents		
	(1)	(2)	(3)	(4)	(5)	(6)
Treat x Post	-0.003***	-0.005***	-0.006***	0.248***	0.250***	0.254***
	(0.004)	(0.004)	(0.005)	(0.010)	(0.010)	(0.014)
N	444,419	444,419	444,419	207,553	207,553	207,553
Month	Yes	Yes	Yes	Yes	Yes	Yes
Property type	Yes	Yes	Yes	Yes	Yes	Yes
Tenure	Yes	Yes	Yes	Yes	Yes	Yes
Old or New	Yes	Yes	Yes	Yes	Yes	Yes
Location	District	City	County	District	City	County
Bedrooms	Yes	Yes	Yes	Yes	Yes	Yes
Bathrooms	Yes	Yes	Yes	Yes	Yes	Yes
Energy rating	Yes	Yes __	Yes __	Yes	Yes __	Yes __
Exclude	>Mar 2017	>Mar 2017	>Mar 2017	>Mar 2017	>Mar 2017	>Mar 2017

The initial three columns of Table 8 present the changes in TOM for listed sales of BTL properties compared to owner-occupied properties. The TOM for sales exhibits a marginal decrease, indicating a slight improvement in market liquidity following the tax changes, albeit the changes are not substantial. However, the TOM for listed rentals, as reported in Columns (4) to (6), displays a significant increase after the transaction tax change, amounting to a 25% rise. This increase suggests a decrease in market liquidity for rental properties. This finding is intriguing as it contrasts with the TOM for sales, which showed minimal change despite a significant decline in BTL transaction volume (as observed in Section 4) and a decrease in average BTL property prices.

Landlords, in response to these changes, appear to prolong negotiation times with potential tenants to enhance their bargaining power and secure higher rents, thereby shifting their losses onto tenants. This observation aligns with the results from Section 3, which indicate a 6% higher rent for BTL properties compared to non-BTL rental properties. The lengthier negotiation periods observed post-implementation of the higher transaction tax on BTL properties imply an investor behavior of holding onto assets to increase their value.

VI.   Conclusion

In summary, this paper provides valuable insights into the impact of the additional 3% SDLT on the buy-to-let housing market. By examining the price and rent trajectories before and after the policy announcement, the study uncovers evidence of speculative behavior among investors and a subsequent rapid decline in prices after the policy implementation. The research also highlights the increase in rent for newly transacted rental housing compared to existing rental housing.

The findings of this study have important implications for housing policy. It raises concerns about the effectiveness of using transaction taxes to cool down housing prices, as it may lead to unintended consequences such as speculative investment behavior. Moreover, the burden of

increased taxes on rental housing transactions is transferred to tenants through higher rents, which negatively affects their ability to save for homeownership.

The paper suggests that policymakers should carefully consider the impact of rental housing regulations and focus on addressing the underlying issues of housing affordability. Rather than solely prioritizing homeownership, recognizing the importance of rental housing in supporting potential first-time buyers and providing affordable living options is crucial. Regulating the rental housing market should be approached cautiously to avoid exacerbating the burden on tenants and to ensure a healthy and balanced housing market in the long term.

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