An Evaluation of the 2008-2009 Stamp Duty Holiday in Wales

A TARC Policy Analysis Report

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Executive Summary

Following the global financial crisis of 2007 and the adverse impact it had on house transactions, the UK government in 2008 introduced a stamp duty holiday eliminating the tax on all house purchases between £125,000 and £175,000. The objective of the policy was not only to reverse the negative impact of the crisis on the housing market, but also to stimulate household consumption through expenditure on items related to property maintenance. This policy report evaluates the economic impact of the policy on the Welsh housing market. The key findings are:

- The stamp duty holiday generated little additional activity in the Welsh economy;
- The increase in transactions is most notable towards the end of the tax break in December 2009;
- Following the withdrawal of the policy, there was a substantial downturn in housing transactions throughout 2010. Approximately 90% of the additional activity in the market is due to buyers adjusting the timing of their planned property purchase to take advantage of the tax holiday;
- The implicit stimulus associated with moving-related spending is equally small. For every pound lost in tax revenue, additional household expenditure is, approximately, £0.50.

1. Introduction

Following the global financial crisis in the previous year, house transactions in the UK were reduced significantly in 2008.[1] To stimulate the housing market, the government in 2008 introduced a stamp duty holiday, eliminating the transaction tax on house purchases between £125,000 and £175,000. The policy was not only intended to encourage additional activity in the property market, but also stimulate demand through moving related spending.[2] Previous work has provided empirical evidence for the whole of the UK market. This report assesses the economic impact of the programme on the Welsh property market and answers the question: Did the 2008-2009 stamp duty holiday have a significant stimulus effect on the Welsh economy?

Best and Kleven (2018) assess the impact of the stamp duty land tax in the UK wide context. They find that the policy stimulates the UK housing market and produces a significant increase in property transactions. However, the impact of the policy on the Welsh housing market is likely to differ substantially from the whole of the UK. In Wales, a high percentage of housing transactions falls into the policy relevant price bracket. Moreover, the effect of a change in the transaction tax is stronger for liquidity constrained households, as the stamp duty liability is payable within weeks of the property transaction. Thus, for highly leveraged buyers small differences in the land tax can result in big changes to their budget constraint. To assess the behavioural response to the stamp duty holiday on property transactions in Wales, we use the methodology proposed by Best and Kleven (2018).

The Policy Framework: An important feature of the British stamp duty holiday is that it was unexpected. It was announced by the Chancellor of the Exchequer just one day before it was launched on 3rd September 2008. Initially, the policy was intended to remain in place for one year only, but it was subsequently extended until the end of 2009. Prior to the holiday, stamp duty was payable on all transactions above £125,000, with a proportional tax rate being applicable within each property price band. The stamp duty holiday raised the tax threshold to £175,000. Purchases above that amount would result in a stamp duty liability equal to one percent of the transaction value. The stamp duty liability is with the buyer, who has to file a stamp duty return with HMRC.

2. Bunching

The structure of the stamp duty tax regime before April 2013 features discrete increases in the tax liability at specified price notches.[3] As the transaction value crosses the threshold, a higher rate of stamp duty is payable on the whole amount. This incentivizes buyers to negotiate a transaction price below the nearest notch. The implication is that purchases, which would usually occur just above the tax threshold, now take place at the notch instead. This creates an excess of housing transactions at prices just below the notch, which in turn produces a missing mass of transactions above the threshold. This phenomenon is referred to in the empirical literature as 'bunching'.

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[1] From more than 1.6 million property transactions in 2007, the number fell to 900,000 in the following year.

[2] And therefore have a multiplier effect through its impact on housing-related business.

[3] A 'notch' is a threshold, which produces a discontinuity in the tax liability. When a transaction value crosses the threshold, a higher rate of stamp duty is payable on the whole amount.

The method employed to gauge the extent of bunching behaviour takes advantage of the structure of the administrative data.[4] In particular, our estimation utilizes transactions, which are not directly affected by the policy. Based on these observations, we construct a counterfactual distribution, which models market activity in the absence of the tax threshold.[5] By comparing the empirical evidence from the dataset against the estimated counterfactual distribution, we measure excess bunching at the notch (indicated by the parameter b in the relevant figures) and the missing mass above the notch (captured by the parameter m).[6]

In the two years leading up to the tax holiday, all house transactions below £125,000 were exempt from stamp duty. By contrast, purchases above that threshold were subject to a 1% stamp duty payment. Thus, the increase in the tax liability at the notch was £1,250. Figure 1 illustrates the empirical and counterfactual distribution of transactions around the threshold for the period from March 2006 to September 2008[7]. Bunching at the threshold is minimal, as the b parameter equals 0.84. This implies that the empirical distribution is only marginally different from the counterfactual. Importantly, there is no discernible hole in the distribution above the threshold, which is evident from the negative estimate for m. This indicates that for Wales bunching is virtually non-existent at the £125,000 threshold in the two years leading up to the tax break.

The stamp duty holiday temporarily changed the land tax regime, as all housing transactions below £175,000 became exempt from stamp duty payment. By contrast, transactions above the threshold incurred a tax liability at 1% of the transaction value. Thus, the increase in the transaction tax at the lowest notch was £1,750 for the duration of the tax break. Figure 2 captures the distribution of house purchases around the tax threshold from September 2008 to December 2009. Bunching behaviour is evident with a noticeable excess of transactions just below £175,000 (b=0.99).[8] Also, there is a significant hole in the distribution above the threshold. In particular, the most responsive agents in the market adjust their purchases by up to £15,000, so as to take advantage of the tax break. The average price response is £5,000, which is approximately 2.9 times the increase in the tax bill. This pattern in the data is interesting and can be explained by the discrete jump in the transaction tax being higher during the stamp duty holiday.

Following the withdrawal of the stimulus programme, the stamp duty threshold returns to its original position at £125,000. This implies that the discrete increase in stamp duty at the relevant notch is again £1,250. Figure 3 depicts the distribution of housing transactions from January 2010 to December 2012.[9] There is some evidence of bunching around the threshold following the end of the tax holiday. Although the estimate for b remains numerically small at 0.67, there is now the indication of a hole in the distribution above the notch, which stretches to £150,000. This suggests that some very responsive buyers adjust their housing transactions across a range of £25,000. The average price response to the threshold is £5,000, which is significantly greater than the jump in the stamp duty liability. The average transaction response is approximately 4 times the value of the tax increase.

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[4] A detailed description of the data used in this report is provided in Appendix A.

[5] We fit a polynomial to the empirical distribution of the data in a range around the notch.

[6] See Best and Kleven (2018) for details.

[7] Transactions before March 2006 were only exempt from stamp duty up to £120,000.

[8] The data shows over 1200 transactions at £175,000, whereas the counterfactual distribution predicts approximately 700 property sales at this price.

[9] Our dataset covers housing transactions until the end of 2012.

3. The Impact of the Stamp Duty Holiday

To analyse the implications of the stamp duty holiday on the property market as a whole, we compare sales activity and monthly transactions in the treated[10] price range to those in adjacent price brackets.

Figure 4 plots the normalised[11] log number of transactions in the treated price range from January 2007 through October 2012 against a control price range (£175,000 to £225,000). The control price range was left unaffected by the stimulus programme. Transaction numbers in the two price brackets are virtually identical in the two years leading up to the tax holiday. However, at the start of the programme in September 2008 the two time series suddenly diverge. This is due to a spike in sales within the policy relevant bracket. However, the initial boost swiftly decays in subsequent months and the two time series processes begin to converge. There is a further significant increase in sales for the treated price range in December 2009, as prospective buyers rush to complete their transactions before the tax holiday ends. From January 2010 there is a significant downturn in the policy relevant price bracket. This trend is evident throughout the whole year with transaction volumes only recovering in early 2011. This finding suggests that much of the additional sales activity generated by the stamp duty holiday is due to buyers simply bringing forward their property purchase. As these transactions would have materialised even without the tax holiday, they do not provide a tangible stimulus to the property market.

The evidence in Figure 4 needs to be treated with caution. This is because the tax holiday provides an incentive for prospective buyers and sellers to move into the treated price range from both sides. To accurately estimate the stimulus associated with the policy, it is therefore necessary to account for the endogeneity of transactions occurring in the policy relevant price range. We address this issue by widening the treated price bracket. This controls for any potential movement of transactions into the policy relevant price range, as these movements now occur within the treated bracket.

Figure 5 plots monthly transaction volumes in the new treated range (£115,000 to £195,000) against a control price range from £195,000 to £235,000. The graph again captures the time period from January 2007 to October 2012. The overall timing response, which is due to prospective buyers bringing forward their planned house purchase, has to be quantified in order to estimate the lasting stimulus effect of the stamp duty holiday. The downturn in the market, which follows the reversal of the programme, is therefore divided by the additional sales volume generated while the policy is ongoing. The stamp duty holiday spanned from September 2008 to December 2009 (16 months). Also, the data shows that the subsequent reversal period for Wales was 12 months in duration. To estimate the magnitude of these effects, we run a difference-in-differences (DID) regression using the data on monthly transaction volumes. Leaving a detailed description of the econometric estimation for the technical Appendix B, it suffices to say that the magnitude of the timing response is given by:

$$Timing\ Response = -\frac{12\beta_R}{16\beta_H}$$

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[10] This is the price range from £125,000 to £175,000, which is affected by the policy.
[11] This is obtained by subtracting the log number of transactions for each month from the average log number of monthly transactions from September 2006 to August 2008.

The estimated parameter values for β_H and β_R (Appendix B) indicate that the timing effect accounts for as much as 90% of the additional sales activity generated. Hence, the lasting effect of the policy is merely 10% of the overall stimulus.

Figure 6 illustrates the cumulative effect of the policy over time. In particular, the green time series shows the cumulative sum of differences between the treated price range and the control bracket. It is apparent from the graph that much of the additional sales activity takes place in late 2009 towards the end of the tax holiday. Most of this stimulus effect is subsequently lost during the 12 month period following the withdrawal of the programme.

We choose the end date of the reversal period based on the empirical evidence in the data. However, the concern is that the estimation of the timing response may be sensitive to the end date we select for the policy reversal period. Figure 7 therefore plots estimated values for the timing response given different end dates for the reversal period. The estimated timing response remains consistently around 90% for any chosen end date after December 2010. As a result, the low stimulus effect of the policy does not depend on the duration of the reversal period.

The empirical evidence suggests that the stamp duty holiday did not result in a significant stimulus to the Welsh property market. This is because many buyers adjust the timing of their house purchase to benefit from the tax break.

4. The Multiplier Effect of the Stimulus

The policy was designed primarily to stimulate aggregate demand through additional housing transactions. However, any increase in the sales volume will also boost household consumption. This is due to moving related spending and other expenditure associated with home refurbishment and repair works. This section focuses on the implicit effect of the stamp duty holiday on the Welsh economy at an aggregate level.

To gauge the relationship between the housing stimulus and moving related spending, this report draws on information from the Living Cost and Food Survey for the years from 2005 to 2012, the same time period covered in the main dataset. The analysis, which follows, is based on a total of 1,451 observations from Welsh households only.

As a descriptive exercise, Panel A in Table 1 reports moving related spending by Welsh households. The categories included are repairs and improvements, removals and storage, furnishings, appliances and other durables. The first three columns capture moving related spending in the year of the move (Year 0), the year after the relocation (Year 1), and in subsequent years (Years 2+), respectively. Columns four and five measure *additional* spending in Year 0 and Year 1, compared to Year 2+. These estimates are obtained by subtracting the spending figures in column three from those in columns one and two, respectively. Column six sums up movers' *additional* spending within the first-two years of relocating.

Panel B displays moving related spending as a percentage of the house value. The house value used is the average price for all transactions in the main dataset from 2005 to 2012. The underlying price for Wales is £167,378. Estate agent fees are uniform across the UK at 1.98 percent of the house price including VAT. For other expenses (primarily commissions) we use

the estimate from Best and Kleven (2018), which is £1,880 on average. This amount is scaled by the average value of those transactions, which are traded in the price range affected by the stamp duty holiday. For Wales, the average property in the relevant bracket is sold at £148,213.

As expected the data shows that households incur most of the costs associated with relocation within one year of moving. The additional spending is estimated to be £2,373 (4.67% of the house price) for the year of the move. Interestingly, additional spending for the subsequent year is very low at just £244 (0.15% of the transaction value). Thus, additional household spending caused by a relocation is approximately 4.8% of the purchase price within the first two years. This estimate is significantly below the UK average at roughly 6% (Best and Kleven, 2018). Panel A of Table 1 indicates that Welsh household spending on home improvements, appliances and other durables is smoothed out over time. Even those, who moved more than two years ago, spend significant amounts on furnishings and repair works. Hence, the additional spending associated with moving is substantially lower compared with the rest of the UK.

A possible issue associated with the evidence in Table 1 is that moving in itself may be endogenous. For example, the decision to purchase a house and relocate is likely to be linked with factors including household income, promotions at work or children in the household. The demographic information included in the survey data can be used to control for some of these factors. This is done by running an event-study analysis,[12] which accounts for regular spending patterns and therefore measures spikes in household expenditure around the time of the move. A detailed discussion of this method is provided in Appendix C.

Has the policy been good value for money? To answer this question, we need to estimate additional household spending for each pound of foregone tax revenue. The expenditure per pound of tax cut is calculated using information from the main dataset and the LCFS. Specifically, the overall estimate for moving related spending, which is adjusted by the average house price and includes all administrative fees, is multiplied by β_H and divided by the pre-stimulus tax rate of one percent. As noted previously, β_H captures the additional transaction volume generated in the housing market as a result of the stimulus programme. In the context of this spending multiplier calculation, β_H serves as an approximation for the marginal propensity to spend. The final tax multiplier estimates show that per pound of tax revenue foregone, additional household spending is approximately £0.50. As spending on moving related items is very low in the second year after a move, there is little difference between the multiplier estimates based on one year or two years, respectively.

The analysis indicates that for Wales the stamp duty holiday did little to stimulate the housing market and failed to provide an overall boost to the economy. This is due to many prospective buyers changing the timing of their planned house purchase to take advantage of the tax holiday. Also, there is compelling evidence from the LCFS that Welsh households spread out spending on home improvements and repair works over time. This trend is not evident for households in other parts of the UK. Thus, the additional expenditure associated with relocation is significantly below the nationwide average.

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[12] Following Best and Kleven (2018).

5. Concluding Remarks

This report assesses the impact of the unexpected stamp duty land tax holiday, which covered the period from September 2008 to December 2009. It abolished transaction taxes on all property sales between £125,000 and £175,000. The main purpose of the policy was to encourage additional housing transactions in the aftermath of the global financial crisis of 2007. Also, the tax break was meant to boost economic activity through the channel of moving related spending. The analysis shows that the stamp duty holiday did little to stimulate sales in the Welsh property market.[13] Specifically, transaction levels in the relevant price range increase by merely 10% whilst the policy is ongoing. This increase in sales activity is predominantly driven by a sharp spike in transactions towards the end of the programme, as buyers seek to benefit from the temporary tax cut. Following the programme's withdrawal, there is a substantial downturn in market activity, which lasts for about a one year period. This pattern is consistent with many additional transactions during the tax break simply being brought forward in time. The empirical analysis confirms that transaction levels in the treated price bracket are approximately 12% lower throughout 2010 following the end of the tax holiday. This implies that 90% of the temporary increase in house sales can be attributed to a timing response by Welsh buyers.

The survey data on household consumption indicates that for Welsh households the vast majority of moving related spending occurs within 12 months of relocation. Importantly, it appears that spending on other items, such as repair works or home improvements, is evenly spread out over time. This trend is evident in the data as even households that moved more than two years ago spend significant amounts in these categories. It follows therefore that additional spending associated directly with moving is significantly lower in Wales. The combination of few additional property sales and lower than average spending means that for every pound of tax revenue not collected, household spending increases by a mere £0.50. The stamp duty land tax holiday was unsuccessful in Wales, as it did not boost property sales and failed to encourage additional household consumption.

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[13] This is in contrast to Best and Kleven (2018), who find that the policy was successful overall in stimulating the British housing market. Best and Kleven (2018) estimate that housing transactions increased by approximately 20 percent while the policy was ongoing. Following the end of the tax break, there was a downturn in the market, which was approximately one year in duration. During the reversal period sales were 12 percent lower than they would otherwise have been. These estimates suggest that for the UK only about 40 percent of the additional sales activity was due to a timing response by prospective buyers. The remaining 60 percent of the stimulus therefore had a lasting effect on the housing market. The analysis of moving related spending for the UK suggests that for every pound foregone in tax revenue, additional household spending was about £1.10. This report complements the analysis of Best and Kleven (2018) by providing a policy evaluation specifically tailored to Wales. That part of the UK is a devolved region with significant autonomy. The impact of the policy on Wales differs from the UK context, as house prices are lower on average and a large percentage of housing transactions occurs within the policy relevant price range. Also, Wales is a popular holiday destination and there is a substantial demand for second homes and holiday accommodation.

6. References and Bibliography

Besley, T. and Meads, N. and Surico, P. 2014. "The Incidence of Transaction Taxes: Evidence from a Stamp Duty Holiday", *Journal of Public Economics*, 119, pp. 61-70.

Best, M. and Kleven, H. 2018. "Housing Market Responses to Transaction Taxes: Evidence from Notches and Stimulus in the UK", *The Review of Economic Studies*, 85, pp. 157-193.

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7. Appendix A (The Description of the Data)

The primary analysis in this report is based on the Stamp Duty Land Tax dataset held by HMRC. Our dataset covers the years 2005 to 2012 and encompasses all housing transactions from across the Welsh counties. The official dataset contains detailed information on the total value of each transaction, the date of formal transfer, as well as the property type and a partial postcode.

The additional expenditure linked to relocation and home improvements is estimated using variables from the Living Cost and Food Survey (LCFS), which is freely available. Each individual dataset is based on a survey, which covers a random sample of households from across the UK. The survey questions are designed to gather detailed demographic data for each household, as well as extensive information on all kinds of household consumption. The survey asks participants to provide details on their monthly income and how long the household has resided at its current address. Thus, it is possible to identify those, who have relocated recently and estimate additional spending on moving related items including furniture, appliances and other durables. This report uses the LCFS datasets for the years from 2005 to 2012, which covers the same time frame as the main dataset on housing transactions. Welsh households can easily be identified in the survey, as one of the included variables indicates the approximate location of each household. However, for Welsh households it is not possible to pinpoint their exact location within Wales.

8. Appendix B (The Difference-in-Differences Regression)

The numerical values for β_H and β_R are obtained using a linear difference-in-differences regression model, whereby all sales transactions are assigned to bins, which are £5,000 in width. Also, each transaction is allocated to one of four time periods: Pre-Stimulus, Tax Holiday, Reversal and Post-Stimulus. The Pre-Stimulus period covers the time from January 2007 to August 2008, whereas the Tax Holiday indicator captures the exact duration of the tax break. The duration of the Reversal is estimated directly from the data (Figure 5) and spans from January 2010 to December 2010. The Post-Stimulus period ranges from January 2011 to October 2012. The complete model is specified as follows:

$$\eta_{it} = \alpha_0 Pre_t + \alpha_H Hol_t + \alpha_R Rev_t + \alpha_P Post_t + \alpha_T Treated_i + \beta_H Hol_t \times Treated_i + \beta_R Rev_t \times Treated_i + \beta_P Post_t \times Treated_i + v_{it}$$

The dependent variable is the number of properties in price bin i, which are sold during time period t. This variable is denoted by η_{it}. The coefficient β_H corresponds to the interaction term for those properties in the treated price range, which are sold during the stamp duty holiday. By contrast, β_R captures transactions within the treated price range that occur during the reversal period in 2010.

The variable β_H measures the monthly excess activity in the treated range for the duration of the stamp duty holiday. The estimated coefficient of 0.10 indicates that whilst the policy is ongoing, monthly sales are 10% higher than they would be without the stimulus effect of the policy. By contrast, the variable β_R provides an estimate for the downturn within the treated range following the reversal of the programme. The coefficient of -0.12 conveys that monthly sales are 12% lower than they would otherwise be. Evaluating the combination of the

estimated parameters using the expression for the timing response shows that approximately 90% of the stimulus is lost in the 12 month period following the policy reversal.

9. Appendix C (The Event Study Analysis)

In the event-study analysis, we estimate the following regression model:

$$log\ c_{is} = \sum_{s=0}^{21} \alpha_s Move_{is} + X_{is}\beta + \mu_q + v_{is}$$

The dependent variable c_{is} is the amount spent on moving related items by household i that moved s years ago. $Move_{is}$ represents a column vector consisting of indicator variables, which capture how long ago the household relocated. The vector X_{is} contains control variables capturing demographic information, i.e. an indicator for a baby in the household, the age of the household head, marital status and log income. Finally, μ_q is a vector containing fixed effects to control for the year and quarter of the survey.

The estimate for first year moving related spending is based on the α_0 coefficient from the event-study regression model, whereas the two-year estimate is based on both α_0 and α_1.

10. Appendix D (Tables and Figures)

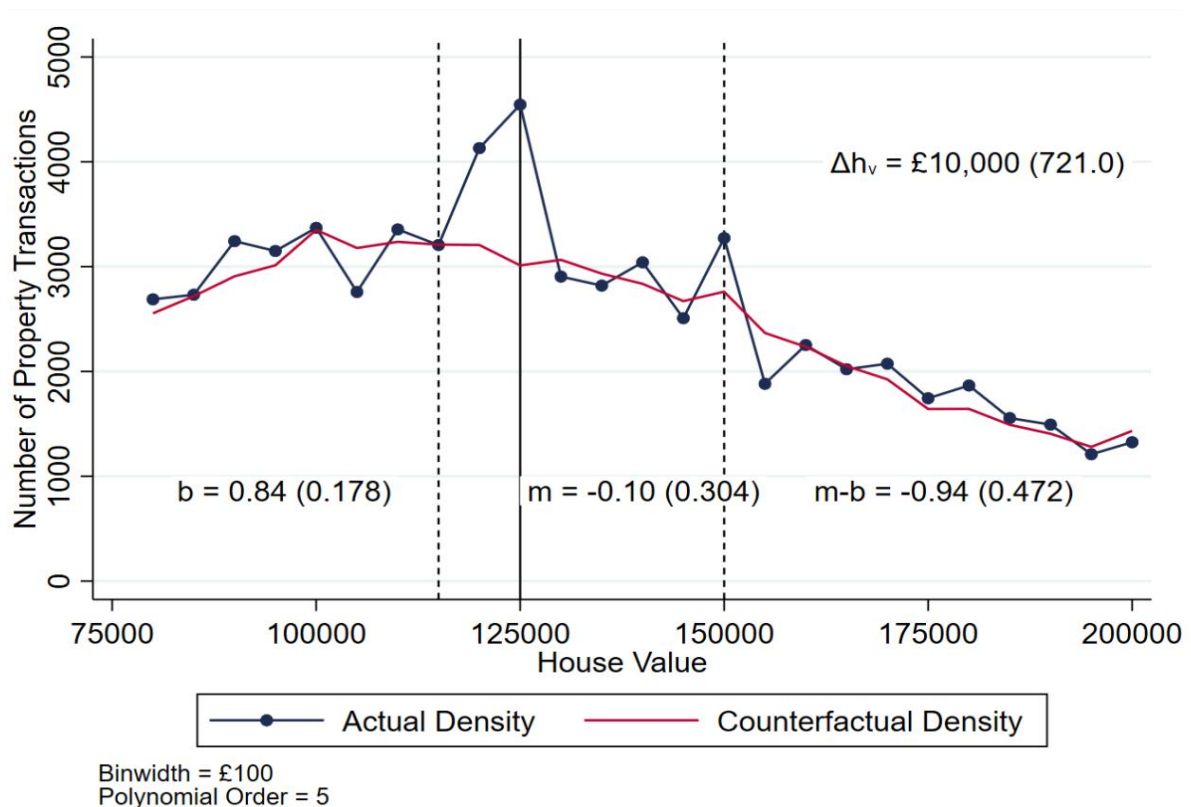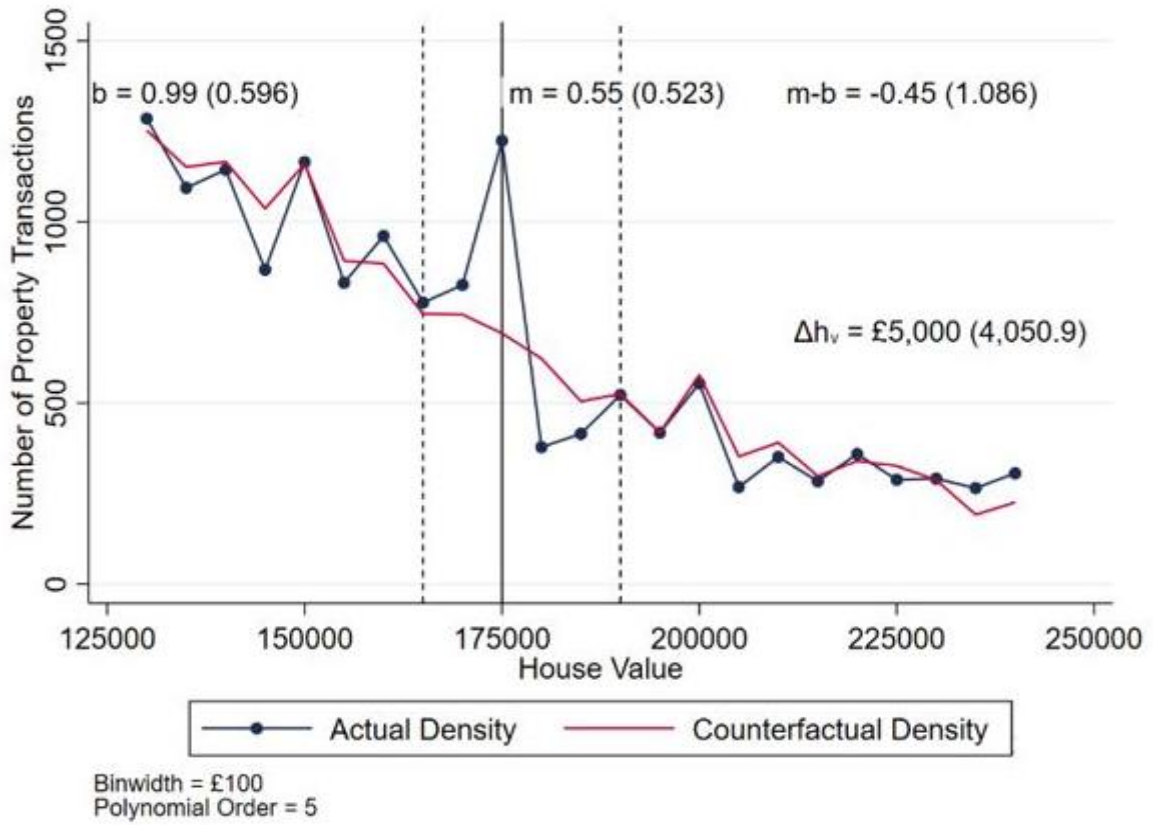Figure 1: Bunching at the £125,000 Threshold Pre Tax Holiday

Binwidth = £100
Polynomial Order = 5

Figure 2: Bunching at the £175,000 Threshold

b = 0.99 (0.596)   m = 0.55 (0.523)   m-b = -0.45 (1.086)

Δh$_v$ = £5,000 (4,050.9)

Binwidth = £100
Polynomial Order = 5

Figure 3: Bunching at the £125,000 Threshold Post Tax Holiday

b = 0.67 (0.199)   m = -0.01 (0.360)   m-b = -0.68 (0.540)

Δh$_v$ = £5,000 (833.5)

Binwidth = £100
Polynomial Order = 5
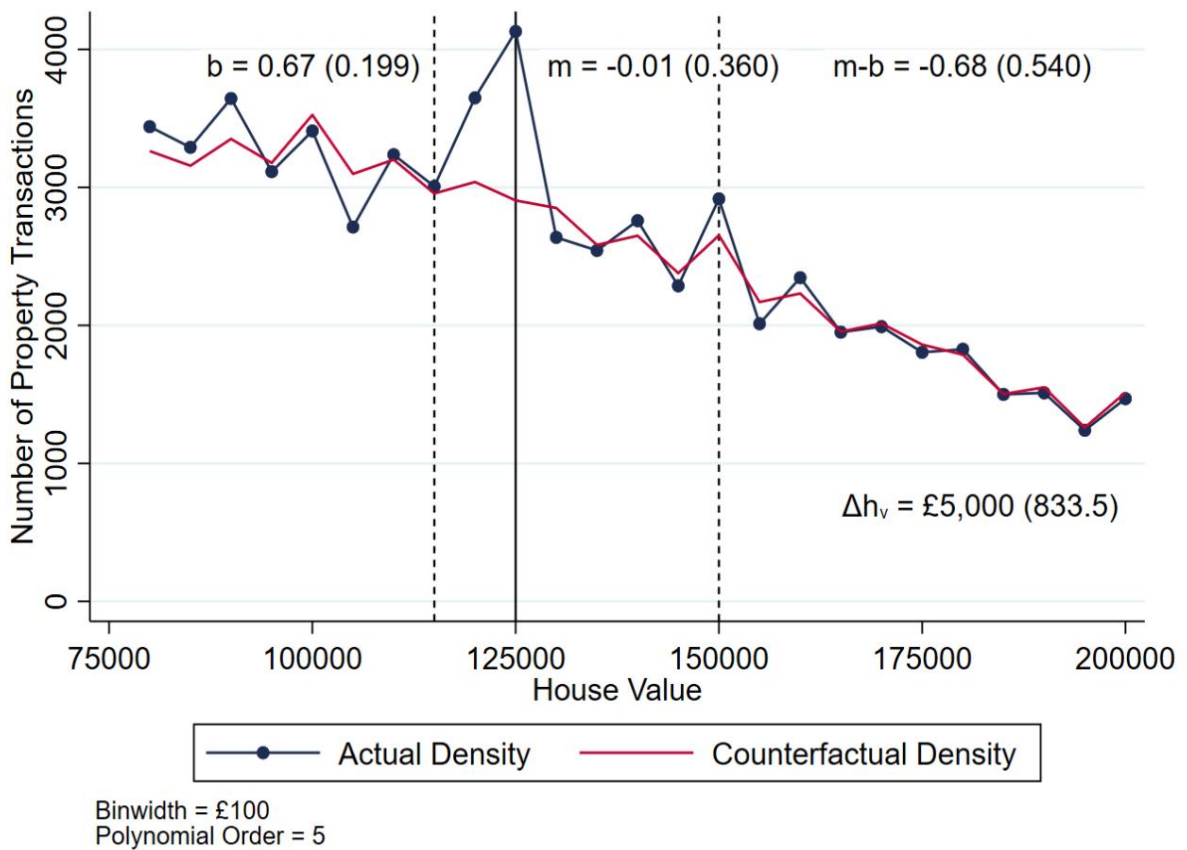
Figure 4: Effect of the Tax Holiday Stimulus

Legend: £125K - £175K; £175K - £225K
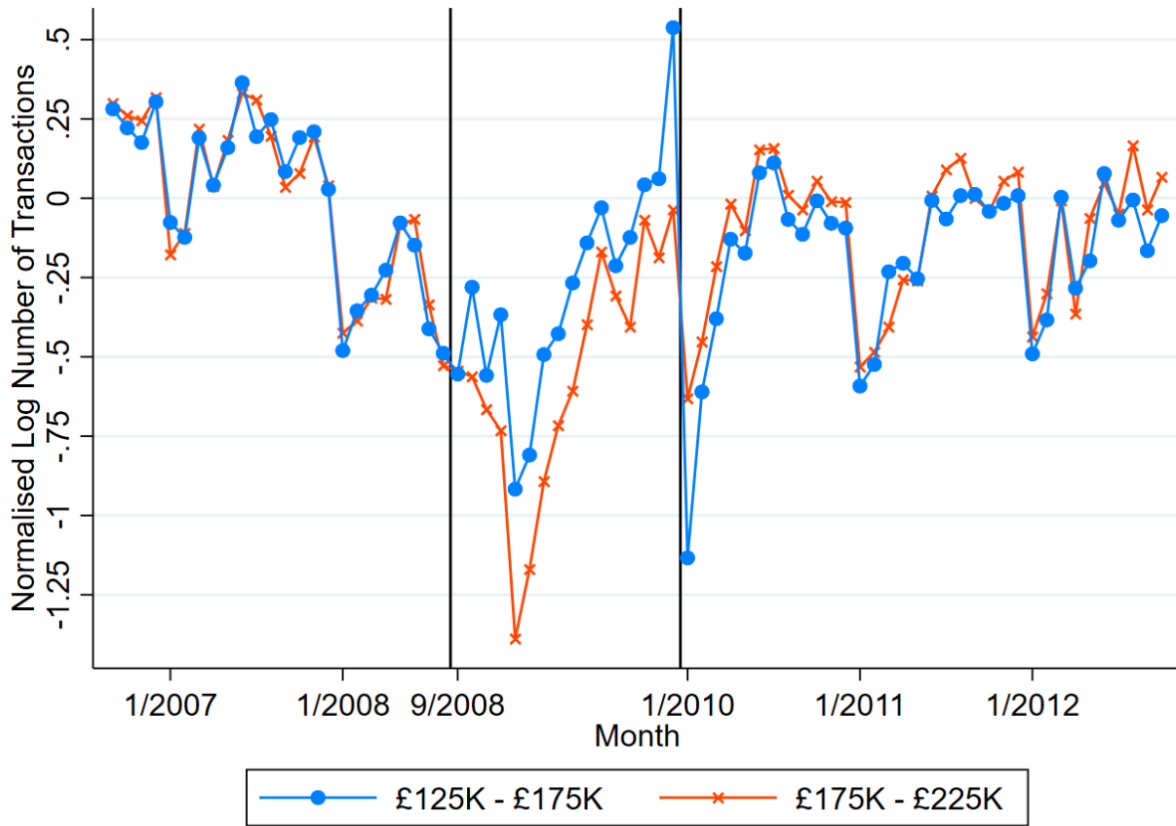
Figure 5: Effect of the Tax Holiday Stimulus: Wider Treatment Range

$\beta_H = 0.10$ (0.074) $\beta_R = -0.12$ (0.033) $\beta_P = -0.01$ (0.029)

Pre Holiday Reversal Post
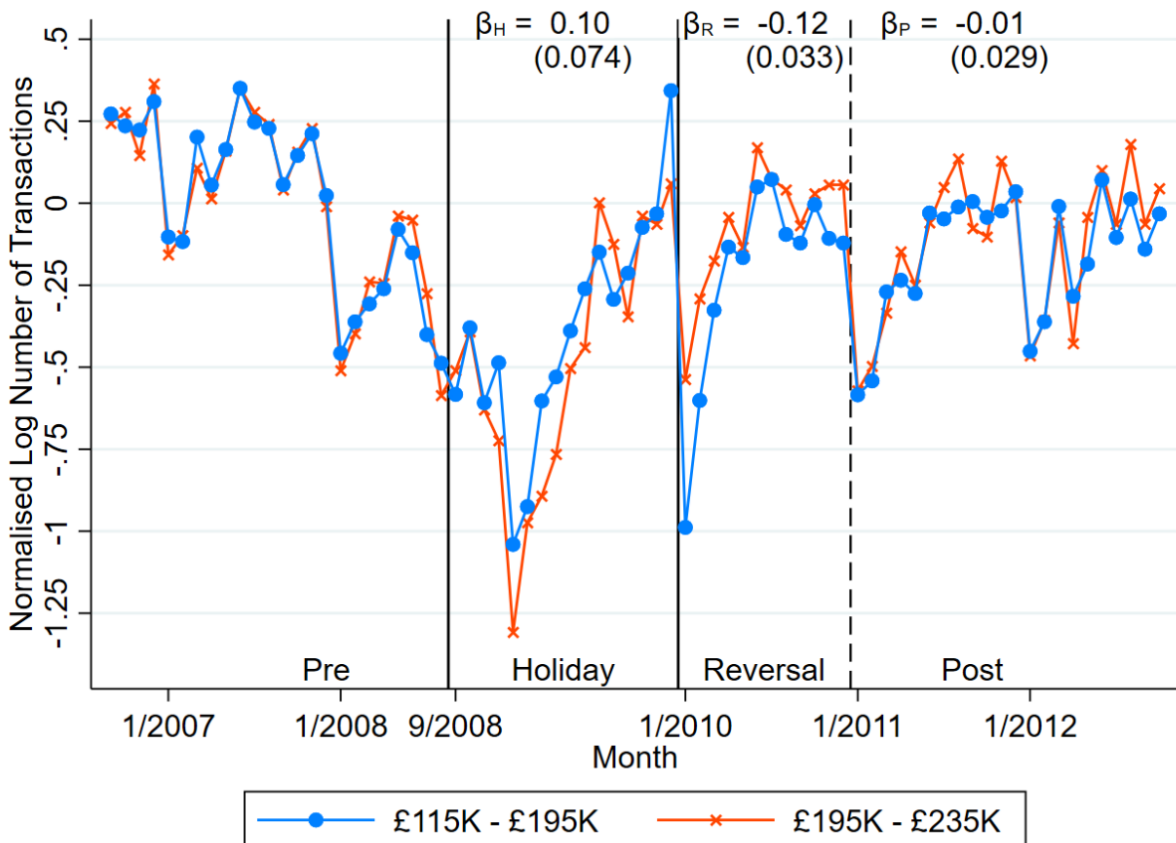
Legend: £115K - £195K; £195K - £235K

Figure 6: Effect of the Tax Holiday Stimulus: Wider Treatment Range, Cumulative Effect
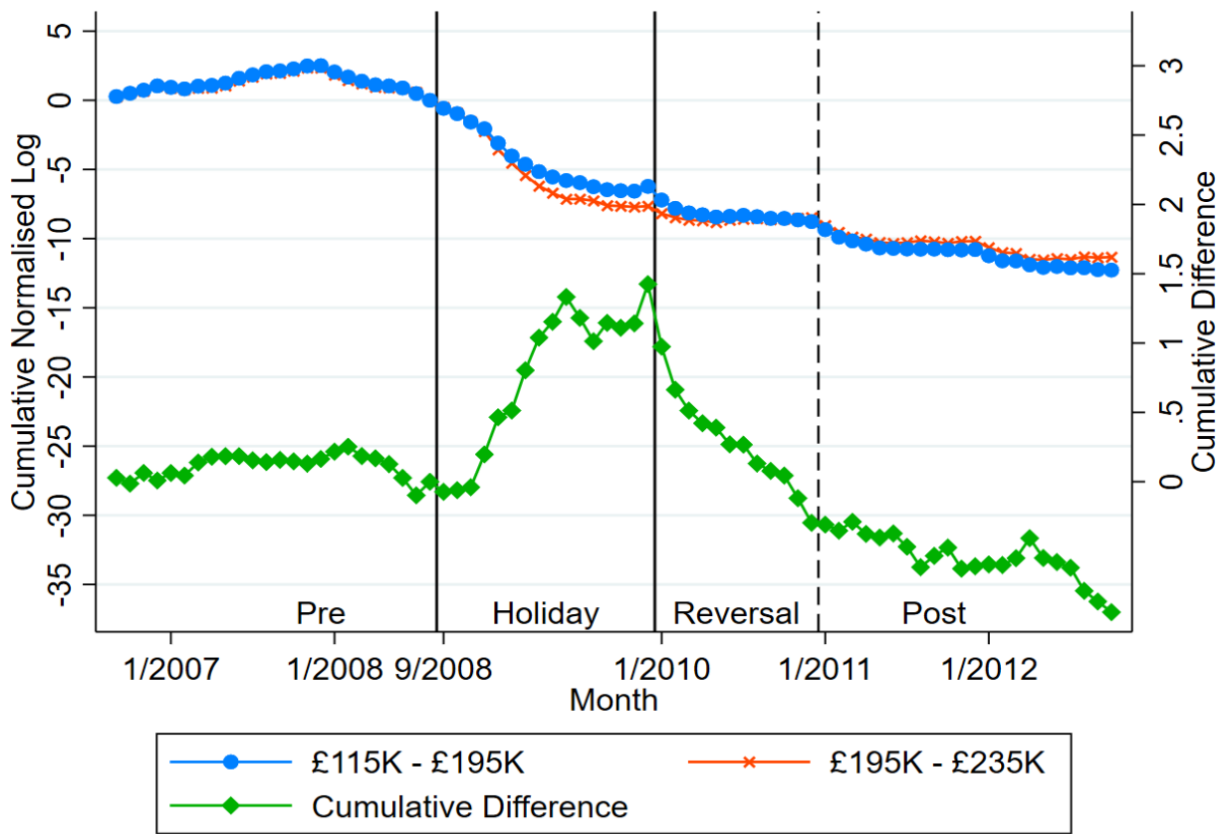
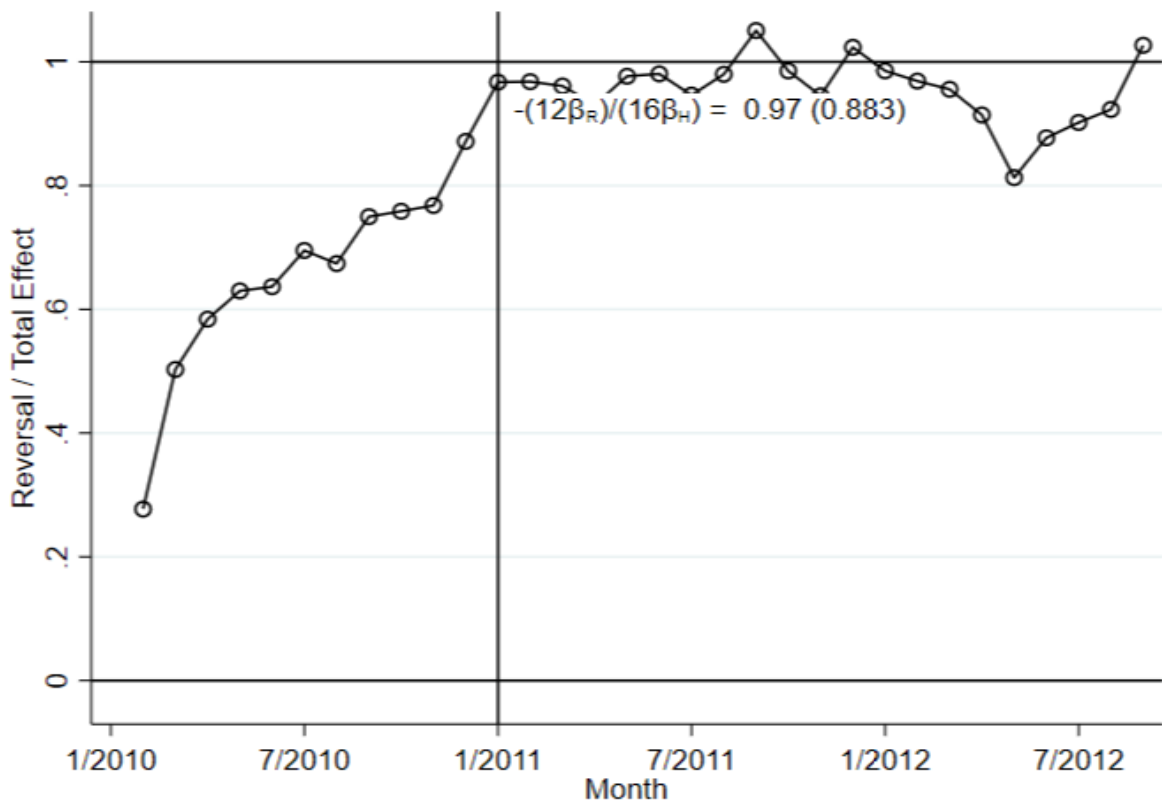Figure 7: Effect of the Tax Holiday Stimulus: Flexible End of Reversal Period

$$-(12\beta_R)/(16\beta_H) = 0.97 \ (0.883)$$

Table 1: Moving Related Expenditure

	Spending Levels			Movers' Additional Spending		
	Year 0 (1)	Year 1 (2)	Year 2+ (3)	Year 0 (4)	Year 1 (5)	Year 0 + 1 (6)
Panel A: Spending Categories (Pound Sterling)						
Repairs & Improvements	2,133	1,536	1,366	767	170	937
Removals & Storage	141	0	0	141	0	141
Furnishings	2,011	673	666	1,345	7	1,352
Appliances	83	31	126	0	0	0
Other Durables	513	460	393	120	67	187
Total Spending	4,881	2,700	2,551	2,373	244	2,617
Panel B: Total Moving-Related Spending (% of house value)						
Total Spending				1.42	0.15	1.57
Estate Agent Commissions				1.98	0	1.98
Other Commissions				1.27	0	1.27
Impact of Move on Spending				4.67	0.15	4.82