

Land Tax Holiday and House Prices: Evidence from the UK

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ESCoE Conference on Economic Measurement

Motivation

- Did Stamp Duty Land Tax Holiday boost the housing market?



Figure: Source: ftadviser.com *Stamp duty receipt uptick prompts calls for another holiday.*

Motivation

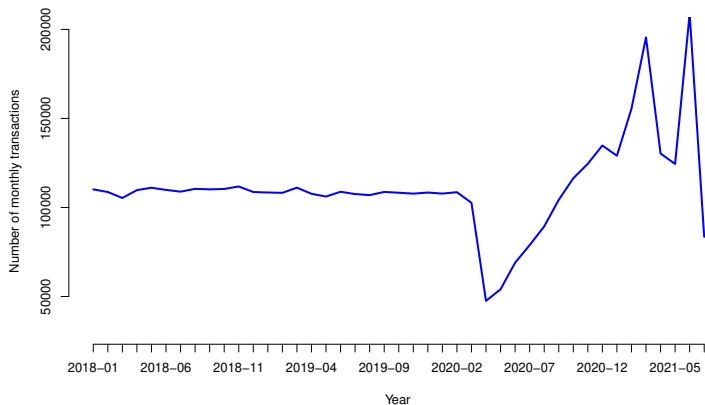


Figure: Residential and Non residential transaction in the UK. Source: HMRC

- The treasury introduced stamp duty land tax (SDLT) holiday in July 2020 for England and Northern Ireland for properties under £500,000.
- Scotland and Wales introduced similar land transaction tax exemptions for properties under £250,000.
- From July 2021, the exempt amount will drop from £500,000 to £250,000.
- ONS report shows that average house prices increased by 13.2% in the 12 months to June 2021.
- The results of this paper will shed light on the areas that benefited the most and the least from the SDLT holiday.

- ① Literature on COVID-19, work displacement and house prices:
 - Bloom and Ramani (2021), Liu and Su (2021) and Garcia, Rosenthal, and Strange (2021) show that working from home caused people to move away from major cities, driving prices up.
- ② Literature on property taxes and house prices:
 - Hilber and Lyytikäinen (2017) show that property taxes discourage residential moves.
 - Best and Kleven (2018) show that property taxes cuts cause timings and extensive margin effects.
 - Scanlon, Whitehead, and Blanc (2021) show that the money saved from SDLT holiday can stimulate the economy by £2.2 billion.
 - Besley, Meads, and Surico (2014) show that the 2008-2009 SDLT holiday increased housing transactions by 8%.

In this paper I perform counterfactual analysis to investigate the impact of SDLT holiday on house prices.

Synthetic control method

- Abadie, Diamond, and Hainmueller (2010) showed that a combination (weighted average) of units do better in reproducing the characteristics of the treated unit than a single comparison unit alone.
- SCM produces the counterfactual of a treated unit by finding the combination of untreated units that best resembles the treated unit before the intervention.
- The impact of the treatment is the difference between the treated unit and its counterfactual.

Synthetic control method Abadie, Diamond, and Hainmueller (2010)

- Suppose that we have $J + 1$ units of country pairs in periods $t = 1, 2, \dots, T$. where unit $j = 1$ is UK and units $j = 2, \dots, J + 1$ are the untreated units used in the control group.
- Country $j = 1$ is exposed to the intervention of at periods $T_0 + 1, \dots, T$, while countries $j = 2, \dots, J + 1$ are untreated and used in the control group.
- Y_{it}^N is the outcome of country i in the absence of intervention for countries $i = 1, \dots, J + 1$
- Y_{it}^I is the outcome of country i at time t if the unit is exposed to intervention in periods $T_0 + 1, \dots, T$.
- The intervention has no impact on the pre intervention periods.
 $Y_{it}^N = Y_{it}^I$ for $t = 1, \dots, T_0$
- Y_{it}^N can not be observed in the post intervention period.

- Synthetic Control Method uses data driven approach to calculate weights assigned to countries in the control group.
- The vector $\mathbf{W}^* = (w_2^*, \dots, w_{j+1}^*)'$ is chosen to minimize $\|\mathbf{X}_1 - \mathbf{X}_0 \mathbf{W}\|$, subject to the weight constraints.
- The impact of the SDLT holiday can be measured as the difference between the UK and its counterfactual.

$$Y_{1t} - \sum_{j=2}^{J+1} w_j^* Y_{jt}$$

- Control group is not affected from the intervention or any contemporaneous events.

- The treated units include the UK and its NUTS 1 regions.
- The control group include OECD countries and their regions.
- I use the OECD House Price Index (HPI) for the UK and its regions and the control group.

Region	Volume	Mean value	Percentile			
			25th	50th	75th	95th
Scotland	112,205	193,634	154,922	176,486	209,538	284,710
Wales	25,718	209,662	125,000	175,000	254,950	440,000
South East	122,999	405,094	260,000	355,000	505,000	965,000
South West	77,294	354,752	214,000	290,000	410,000	760,000
Greater London	94,896	636,956	375,000	499,995	705,000	1,500,000
East of England	81,148	354,986	220,000	300,000	415,000	725,000
West Midlands	74,655	268,112	155,000	215,000	315,000	595,000
East Midlands	60,173	255,553	155,000	213,750	300,000	540,000
Yorkshire	74,570	231,445	125,000	180,000	275,000	530,000
North West	102,313	235,425	125,000	181,995	277,500	540,000
North East	32,850	185,713	95,000	145,000	222,000	430,000

Table: Descriptive statistics for the UK housing market.

Results: Aggregate UK

Country	Country weights	Country	Country weights
Austria	0	Belgium	0
Canada	7.3%	Czech Republic	0
Denmark	3.9%	Finland	27.6%
France	0	Germany	0
Greece	0	Hungary	0
Ireland	20.7%	Italy	0
Korea	33.6%	Luxembourg	0
Netherlands	0	Norway	6.9%
Poland	0	Portugal	0
Spain	0	Switzerland	0
US	0		

Table: Country weights to construct synthetic UK house price index year on year growth rate. The weights illustrate the importance of country j in the donor pool to approximate the UK.

Results: Aggregate UK

- The UK aggregate house price increased by 2.3% in 2020 Q4 and 3.1% in 2021 Q1.

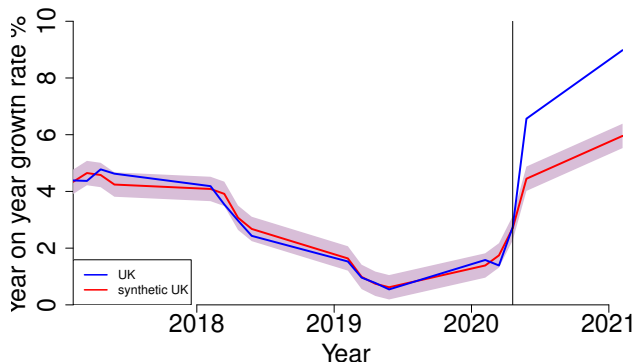


Figure: UK against Synthetic UK house price index percentage change from the same time as the year before.

Results: British Nations

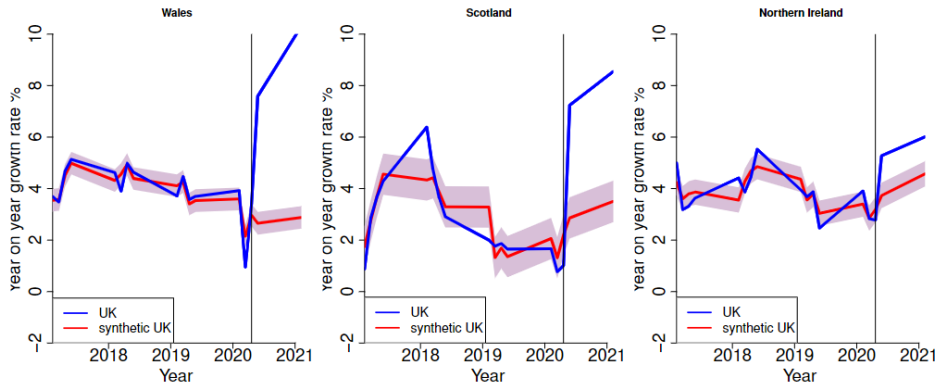


Figure: Impact of Stamp duty tax holiday on the three British nations. Wales, Scotland and Northern Ireland against their Synthetic counterparts house price index (year on year growth rate).

Results: NUTS 1 regions

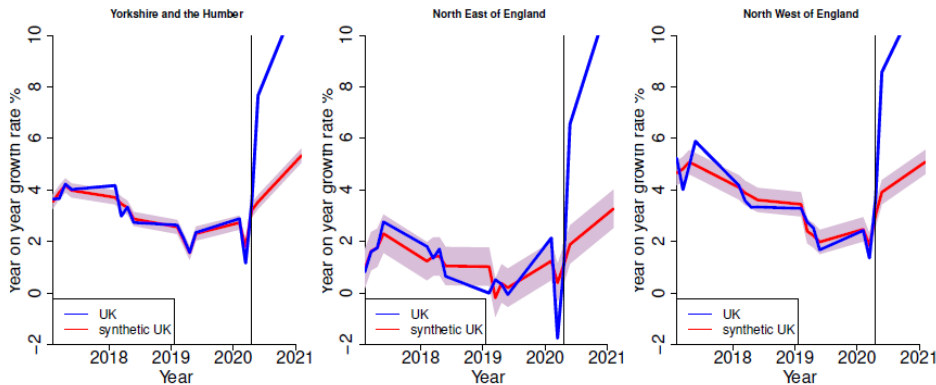


Figure: Impact of Stamp duty tax holiday on the NUTS 1 regions against their Synthetic counterparts house price index (year on year growth rate).

Results: NUTS 1 regions

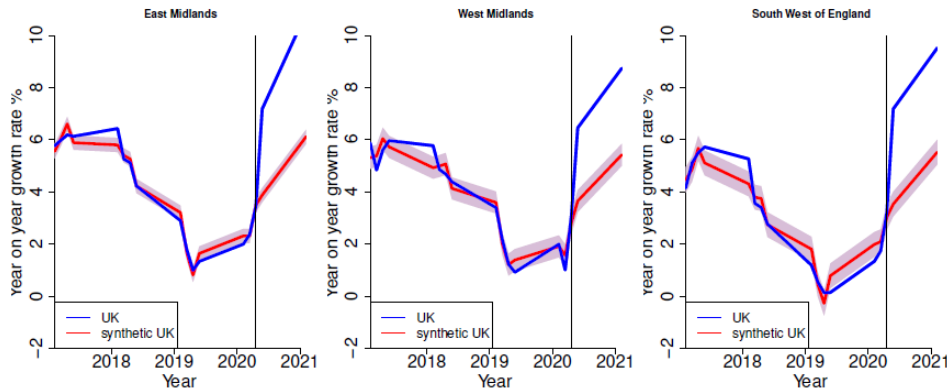


Figure: Impact of Stamp duty tax holiday on the NUTS 1 regions against their Synthetic counterparts house price index (year on year growth rate).

Results: NUTS 1 regions

What about East of England?

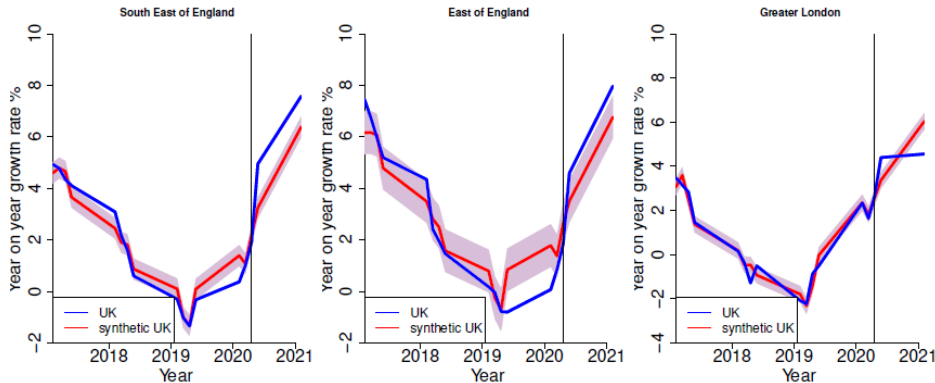


Figure: Impact of Stamp duty tax holiday on the NUTS 1 regions against their Synthetic counterparts house price index (year on year growth rate).

Results: Regional Housing Market

- All the NUTS 1 regions benefited from SDLT holiday.
- The impact is heterogenous across the regions.

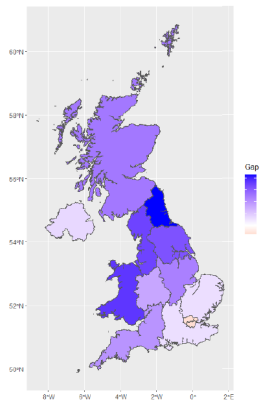
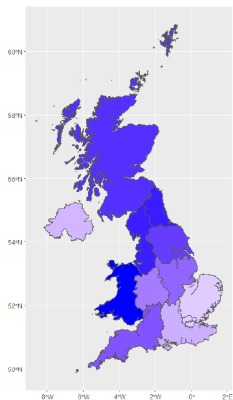


Figure: Impact of SDLT holiday on Regional HPI.

I perform series of placebo tests to evaluate the results.

- ① Time placebo test: I reassign SDLT holiday to a different quarter 2019 Q4.
- ② Country placebo test: I iteratively assign the SDLT holiday to a different country in the control group.
- ③ Leave on control unit out: I remove one unit out of the control group.

Time placebo test

- Assigning the SDLT holiday to 2019 Q4.

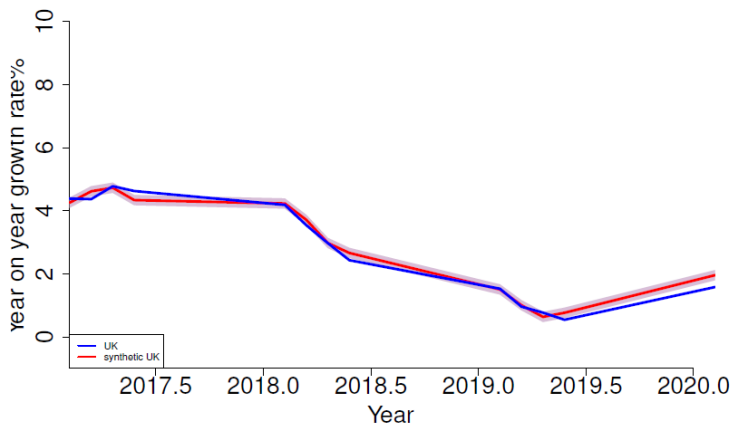


Figure: Time placebo test: 2019 Q4 SDLT holiday.

Country placebo test

- I iteratively assign the SDLT holiday to a different country in the control group.

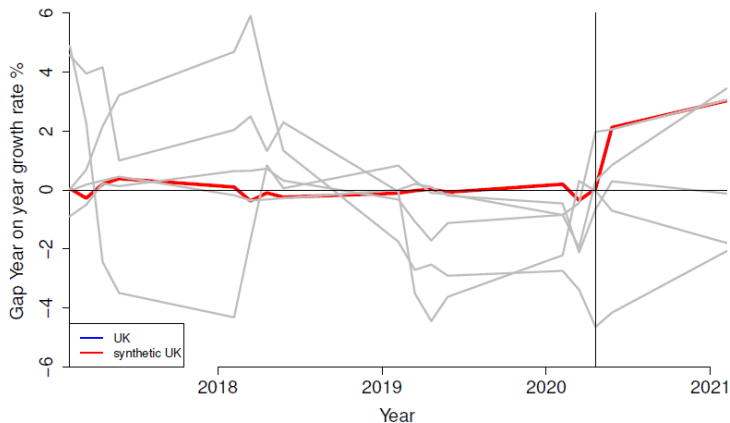


Figure: Time placebo test: 2019 Q4 SDLT holiday.

Leave one control unit out

- Which combination is best for the synthetic UK HPI?

Synthetic control combination	Countries and W-Weights				
Five units control group	Korea 37%	Finland 27%	Ireland 22%	Canada 7%	Norway 7%
Four units control group	Korea 36%	Finland 32%	Ireland 22%	Norway 10%	
Three units control group	Korea 59%	Ireland 24%	Norway 16%		
Two units control group	Korea 72%	Ireland 28%			
One unit control group	Korea 100%				

Table: Leave one control out exercise. The baseline is model is re-estimated iteratively to show the countries that contribute the most to the sparse version of the synthetic UK.

Leave one control unit out

- In each iteration one of the control units is omitted.

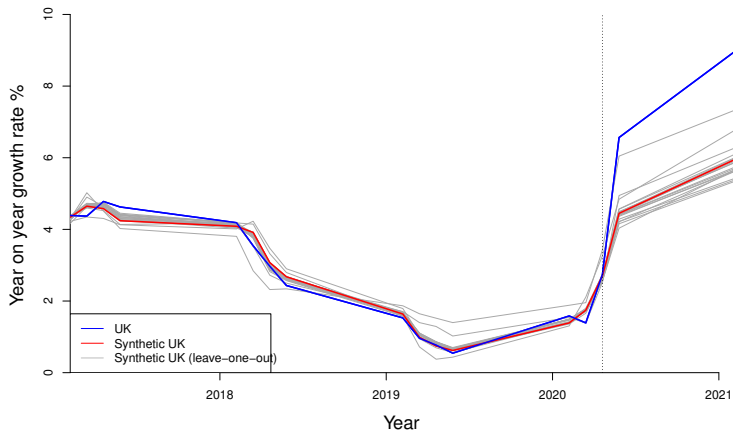










Figure: Time placebo test: 2019 Q4 SDLT holiday.

- This paper investigates the impact of SDLT holiday on house prices.
- SDLT holiday caused the aggregate HPI to increase by 2.3% and 3.1% in 2020 Q4 and 2021 Q1.
- On regional level, all regions except Greater London exhibited an increase in HPI.
- Wales, North West of England and North East of England had the greatest increase in their house prices.

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