SVAR Report

2021/1/23

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以下內容包含兩類 SVAR Model，分別為四變數（沒有放 Sentiment）及五變數（有放 Sentiment）在不同認定條件下的結果，共有六組。每組均包含 IRF, Variance Decomposition, Historical Decomposition，落後期數皆為 2 期。

Result

1. 4-Variable SVAR

認定條件

$$\begin{bmatrix} \varepsilon_t^i \\ \varepsilon_t^{permit} \\ \varepsilon_t^{loan} \\ \varepsilon_t^{hp} \end{bmatrix} = \begin{bmatrix} a_{11} & 0 & 0 & 0 \\ a_{21} & a_{22} & 0 & 0 \\ a_{31} & 0 & a_{33} & a_{34} \\ a_{41} & a_{42} & a_{43} & a_{44} \end{bmatrix} \begin{bmatrix} e_t^{mp} \\ e_t^{hs} \\ e_t^{hd} \\ e_t^{sp} \end{bmatrix}$$

IRF

Variance Decomposition

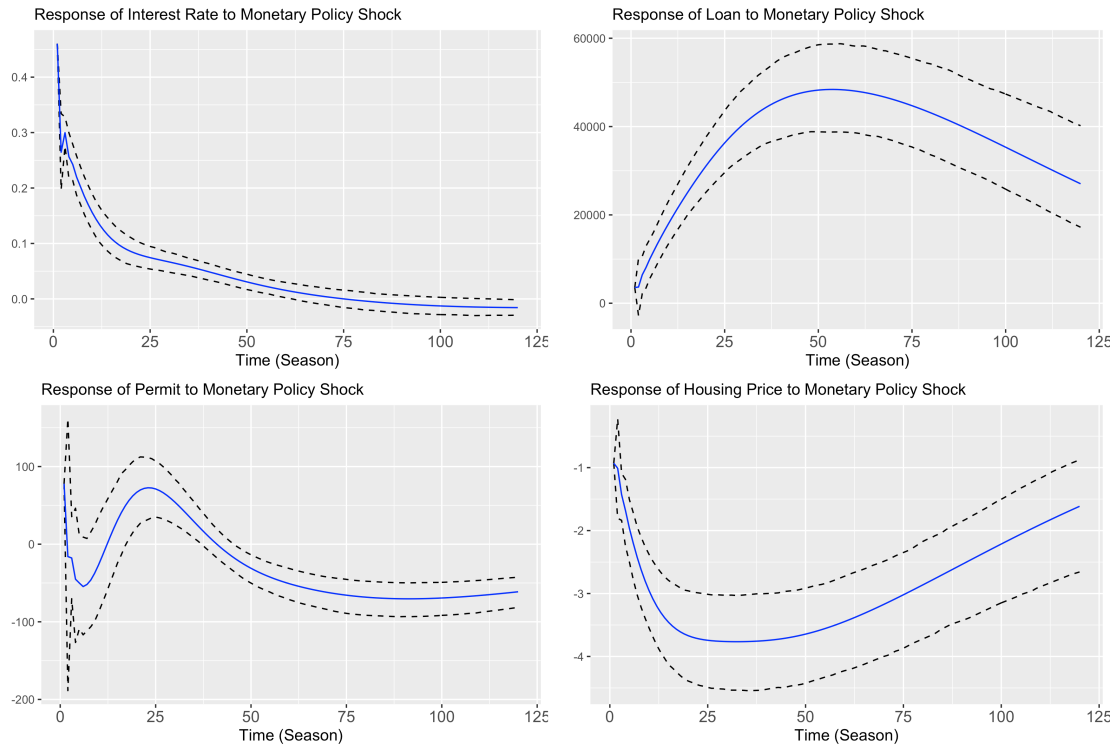| period	mp	hs	hd	sp
1	0.83	0.18	25.06	73.93
2	1.07	0.20	24.68	74.05
4	1.61	0.13	23.99	74.27
8	2.81	0.07	22.67	74.46
12	4.17	0.04	21.44	74.35
20	6.85	0.05	19.56	73.54
40	11.08	0.26	18.23	70.42
60	13.20	0.43	18.51	67.86
80	14.50	0.54	18.73	66.23
120	15.61	0.64	18.95	64.80

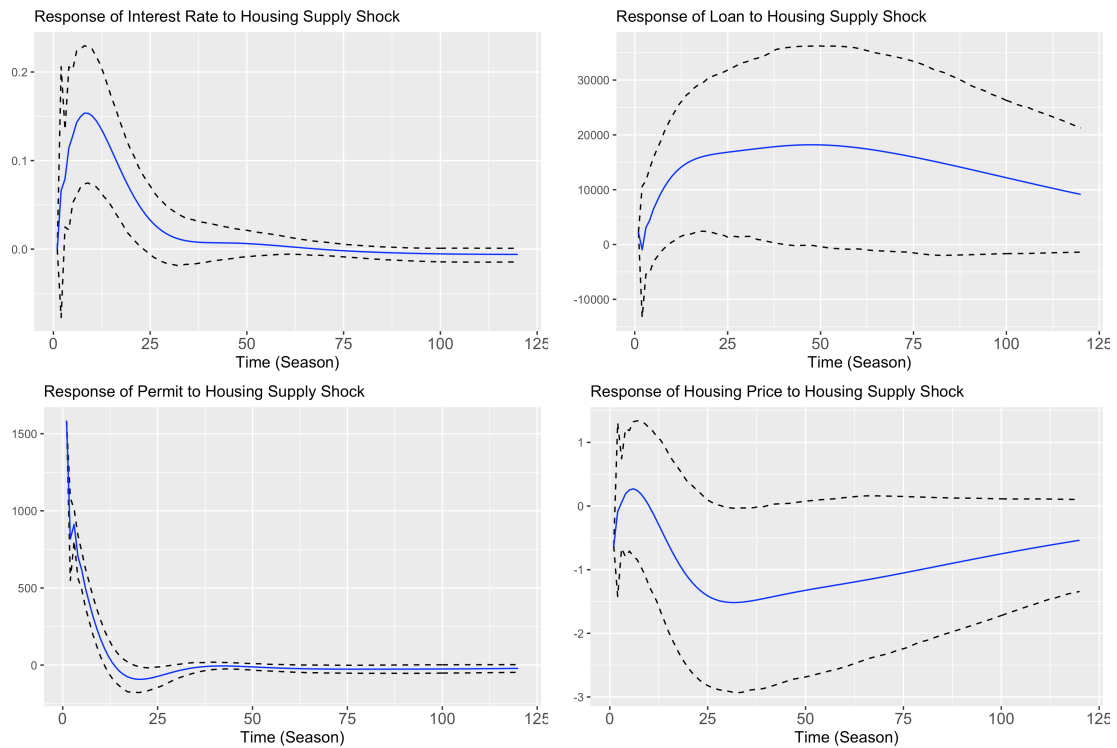Figure 1: Monetary Policy Shock

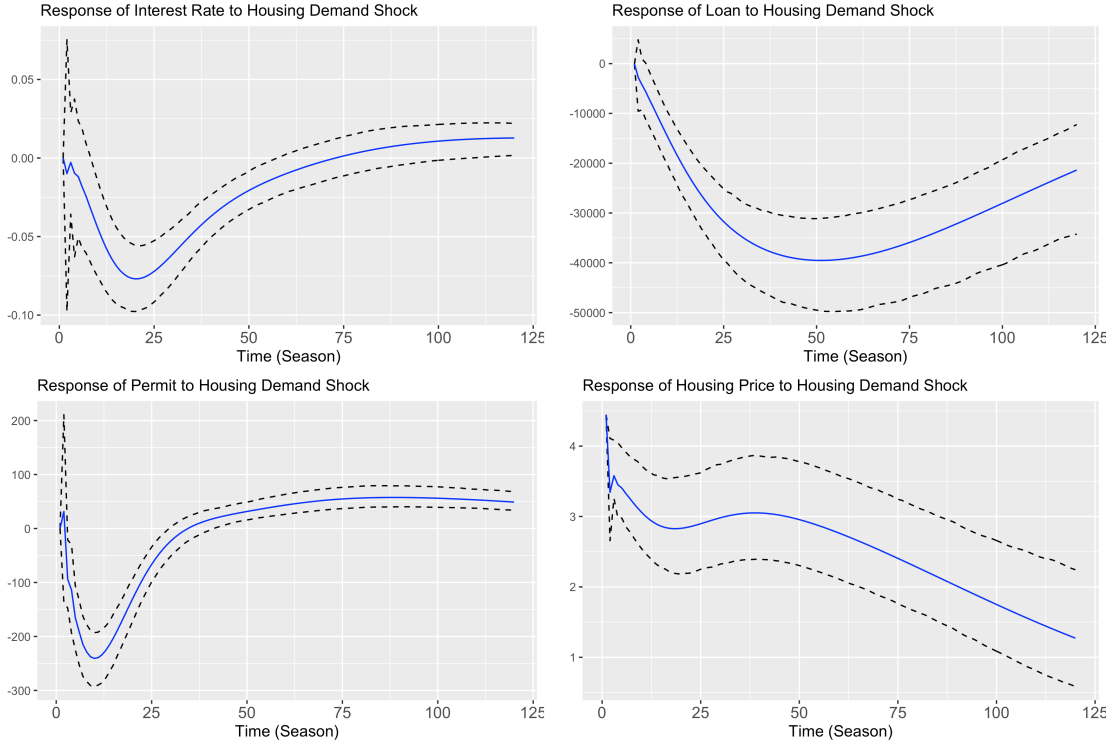Figure 2: Housing Supply Shock
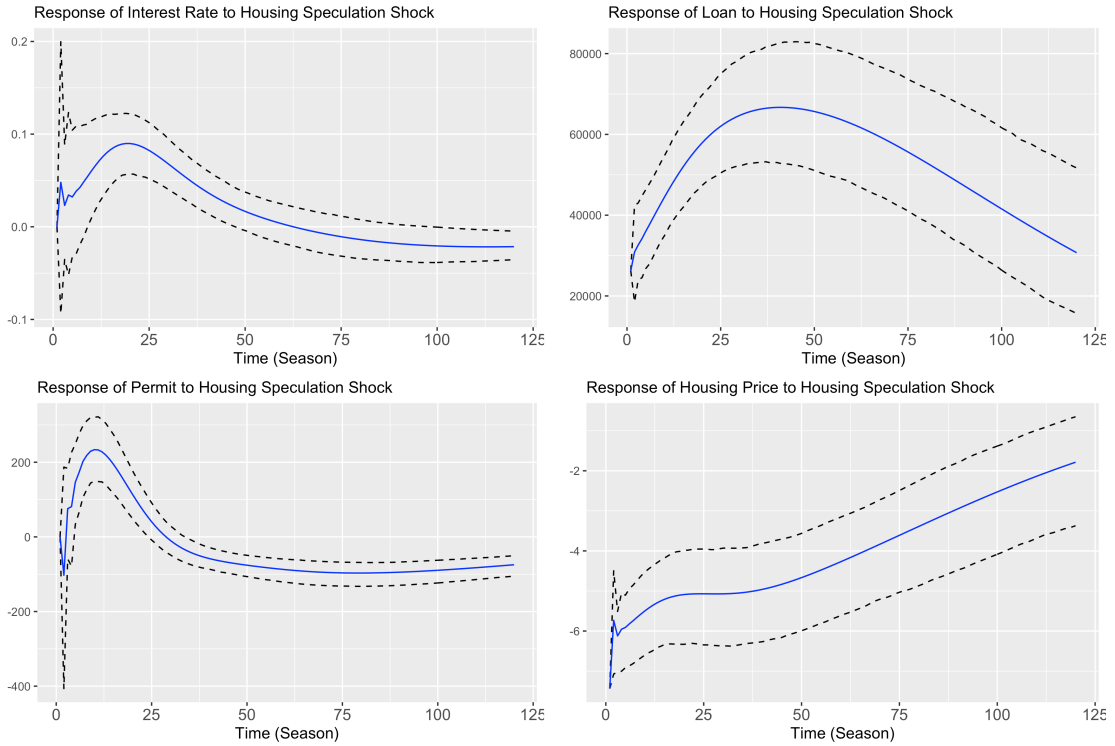
Figure 3: Housing Demand Shock

Figure 4: Housing Speculation Shock

Historical Decomposition

將歷史分解的中位數標示於下表。而從房價指標的走勢，將樣本期間分為：房價指數持平期（1991Q1-2002Q4）及房價指數上升期（2003Q1-2020Q3）。

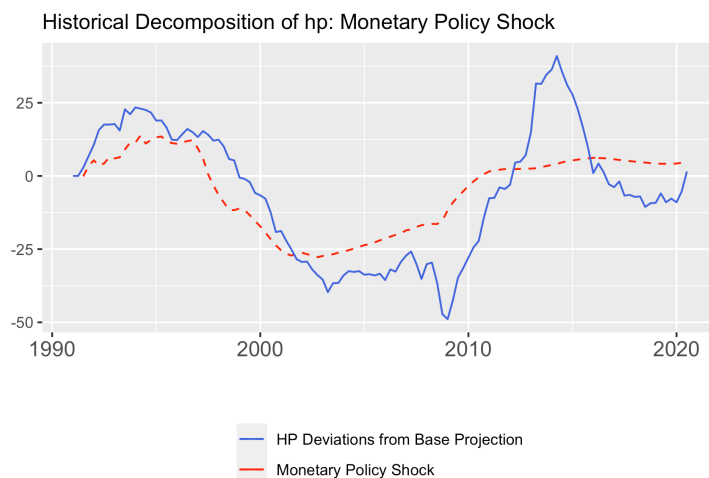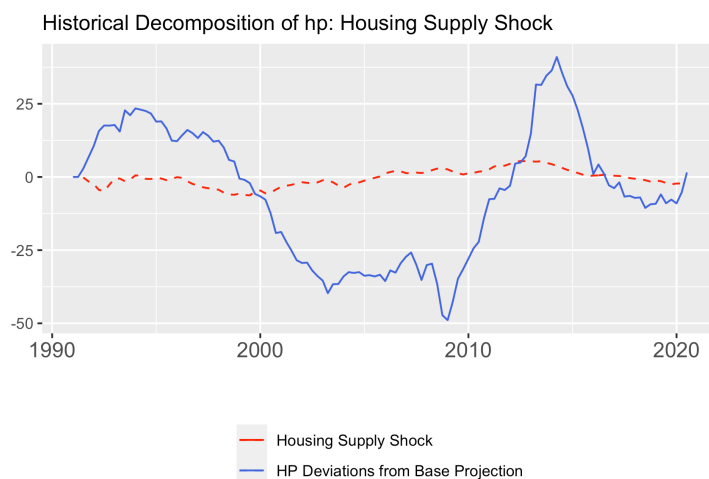| 樣本期間	Montary Policy Shock	Supply Shock	Demand Shock	Speculation Shock
全樣本（1991Q1-2020Q3）	49.15	-0.51	50.36	31.52
房價持平期（1991Q1-2002Q4）	71.00	-2.99	-28.18	67.12
房價上升期（2003Q1-2020Q3）	21.36	3.20	100.27	16.22

Figure 5: Historical Decomposition of hp: monetary policy shock

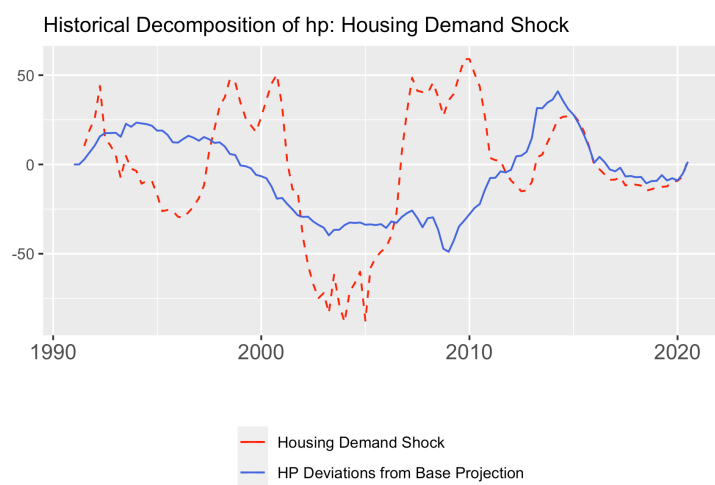Figure 6: Historical Decomposition of hp: supply shock

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Historical Decomposition of hp: Housing Demand Shock

Housing Demand Shock
HP Deviations from Base Projection

Figure 7: Historical Decomposition of hp: demand shock

Historical Decomposition of hp: Housing Speculation Shock

Housing Speculation Shock
HP Deviations from Base Projection
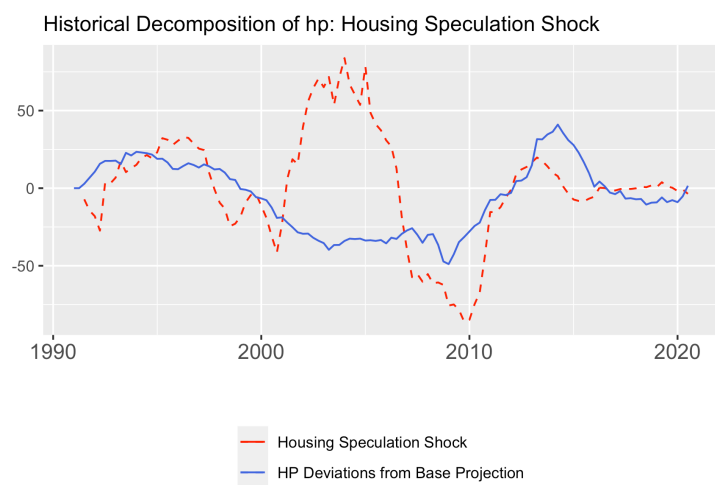
Figure 8: Historical Decomposition of hp: speculation shock

2. 4-Variable SVAR Wold Ordering

$$
\begin{bmatrix} \varepsilon_t^i \\ \varepsilon_t^{permit} \\ \varepsilon_t^{loan} \\ \varepsilon_t^{hp} \end{bmatrix} = \begin{bmatrix} a_{11} & 0 & 0 & 0 \\ a_{21} & a_{22} & 0 & 0 \\ a_{31} & a_{32} & a_{33} & 0 \\ a_{41} & a_{42} & a_{43} & a_{44} \end{bmatrix} \begin{bmatrix} e_t^{mp} \\ e_t^{hs} \\ e_t^{hd} \\ e_t^{sp} \end{bmatrix}
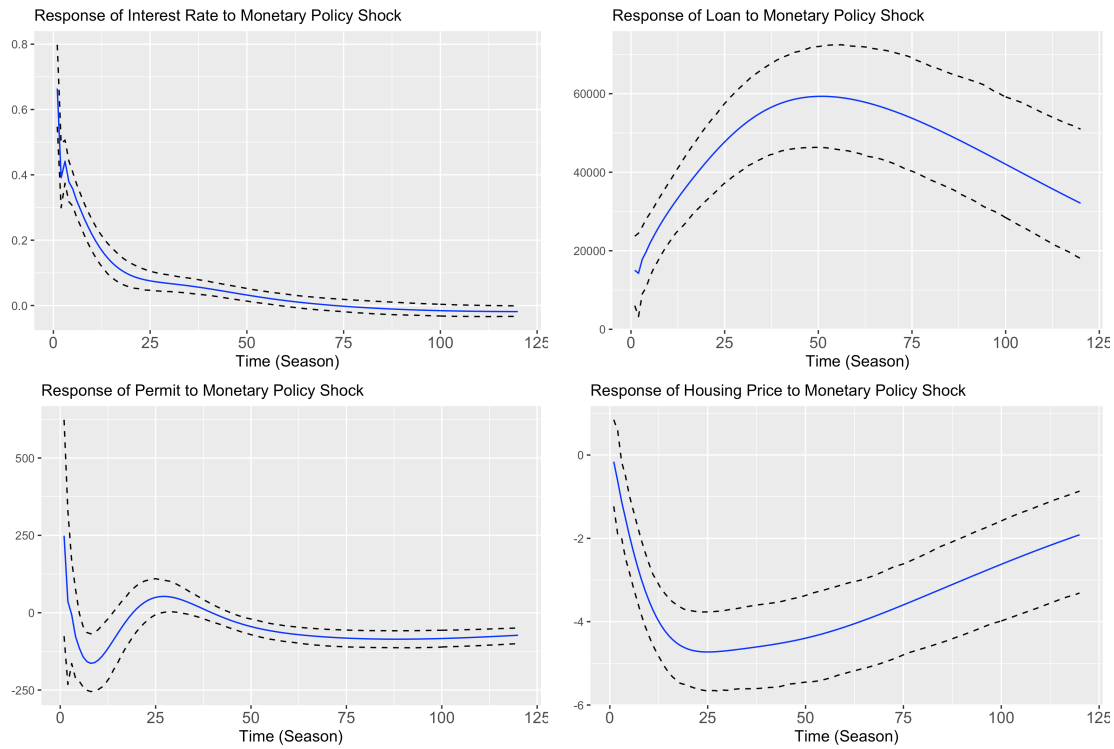$$

IRF

Figure 9: Monetary Policy Shock

Variance Decomposition

period	mp	hs	hd	sp
1	0.02	9.74	0.24	90.00
2	0.41	9.20	0.55	89.84
4	2.22	10.65	1.44	85.70
8	8.29	12.13	4.01	75.56
12	15.90	11.64	7.01	65.45
20	29.50	8.71	11.33	50.47
40	45.85	4.68	10.19	39.28
60	51.79	3.41	7.46	37.35
80	54.72	2.86	6.30	36.12
120	56.65	2.52	5.83	35.00

Historical Decomposition

將歷史分解的中位數標示於下表。而從房價指標的走勢,將樣本期間分為:房價指數持平期(1991Q1-2002Q4)及房價指數上升期(2003Q1-2020Q3)。
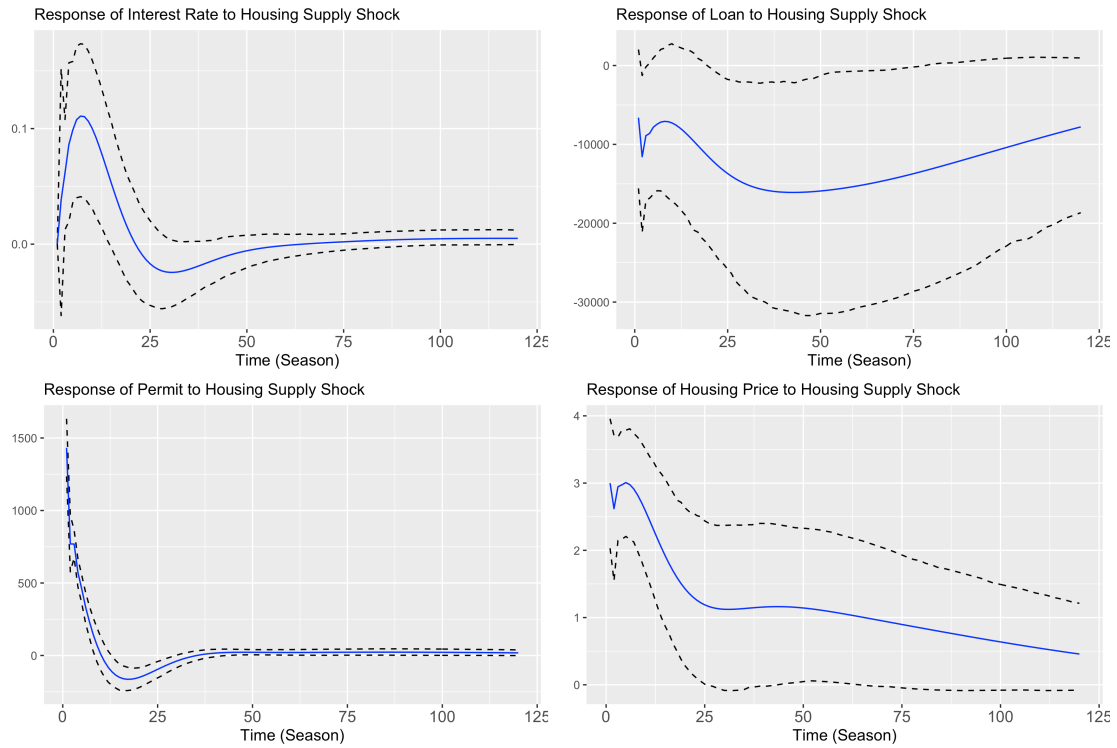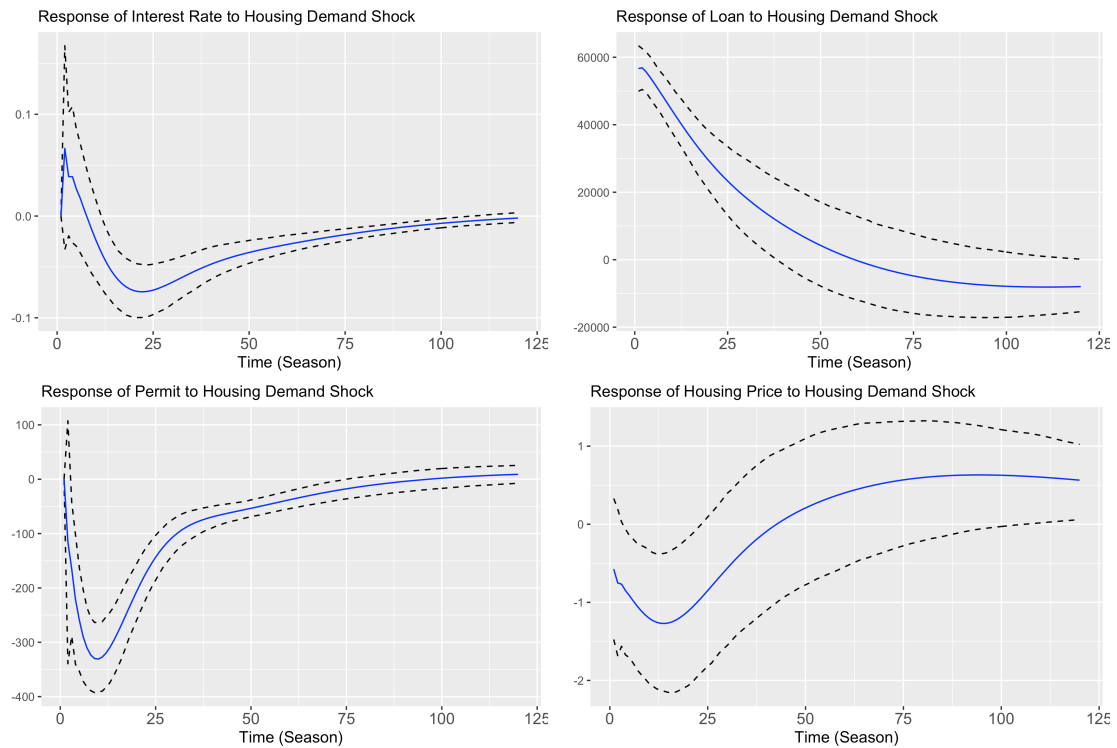
Figure 10: Housing Supply Shock
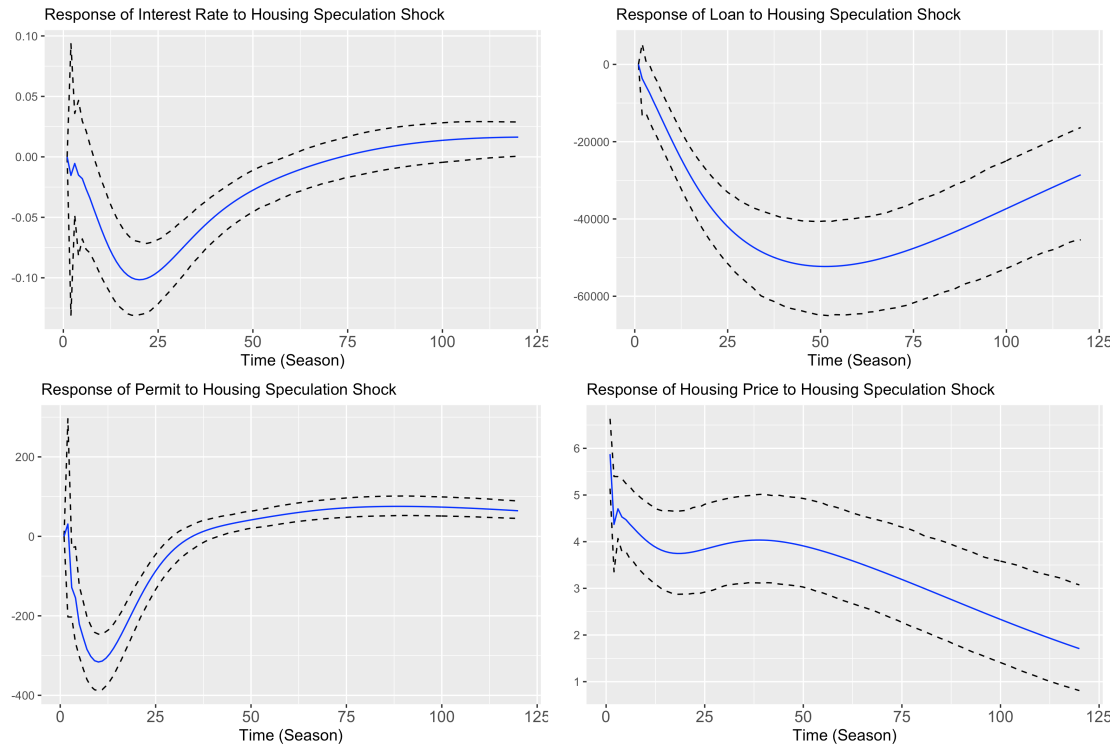

Figure 11: Housing Demand Shock

Figure 12: Housing Speculation Shock

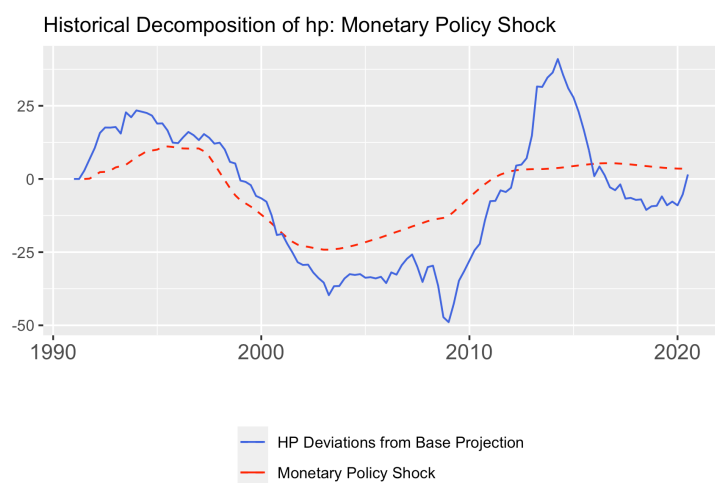| 樣本期間	Montary Policy Shock	Supply Shock	Demand Shock	Speculation Shock
全樣本 (1991Q1-2020Q3)	42.15	19.62	-2.94	27.75
房價持平期 (1991Q1-2002Q4)	63.18	20.04	3.98	6.61
房價上升期 (2003Q1-2020Q3)	25.84	19.62	-16.20	45.08

Figure 13: Historical Decomposition of hp: monetary policy shock

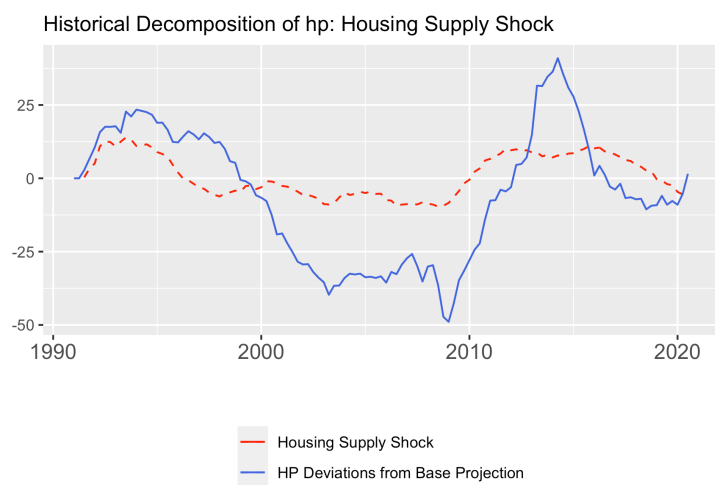
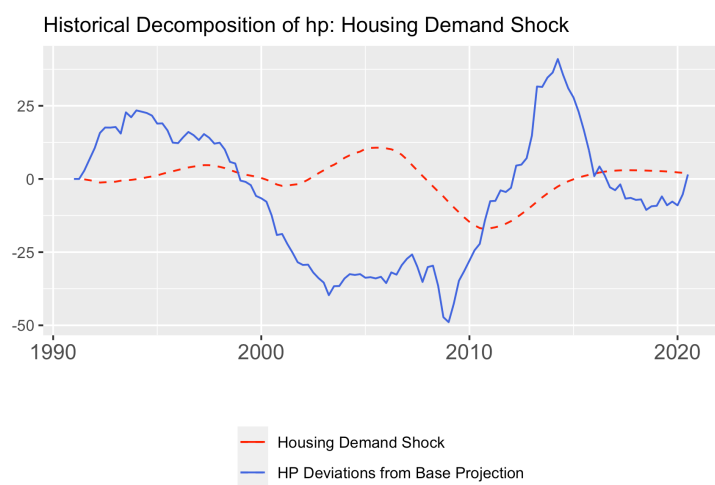Figure 14: Historical Decomposition of hp: supply shock

Historical Decomposition of hp: Housing Demand Shock

Figure 15: Historical Decomposition of hp: demand shock
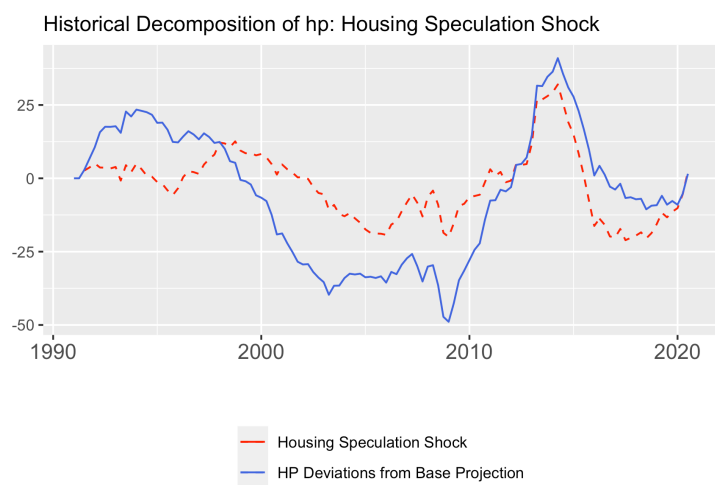
Historical Decomposition of hp: Housing Speculation Shock

Figure 16: Historical Decomposition of hp: speculation shock