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
1.00	0.83	0.18	25.06	73.93
2.00	1.07	0.20	24.68	74.05
4.00	1.61	0.13	23.99	74.27
8.00	2.81	0.07	22.67	74.46
12.00	4.17	0.04	21.44	74.35
20.00	6.85	0.05	19.56	73.54
40.00	11.08	0.26	18.23	70.42
60.00	13.20	0.43	18.51	67.86
80.00	14.50	0.54	18.73	66.23
120.00	15.61	0.64	18.95	64.80
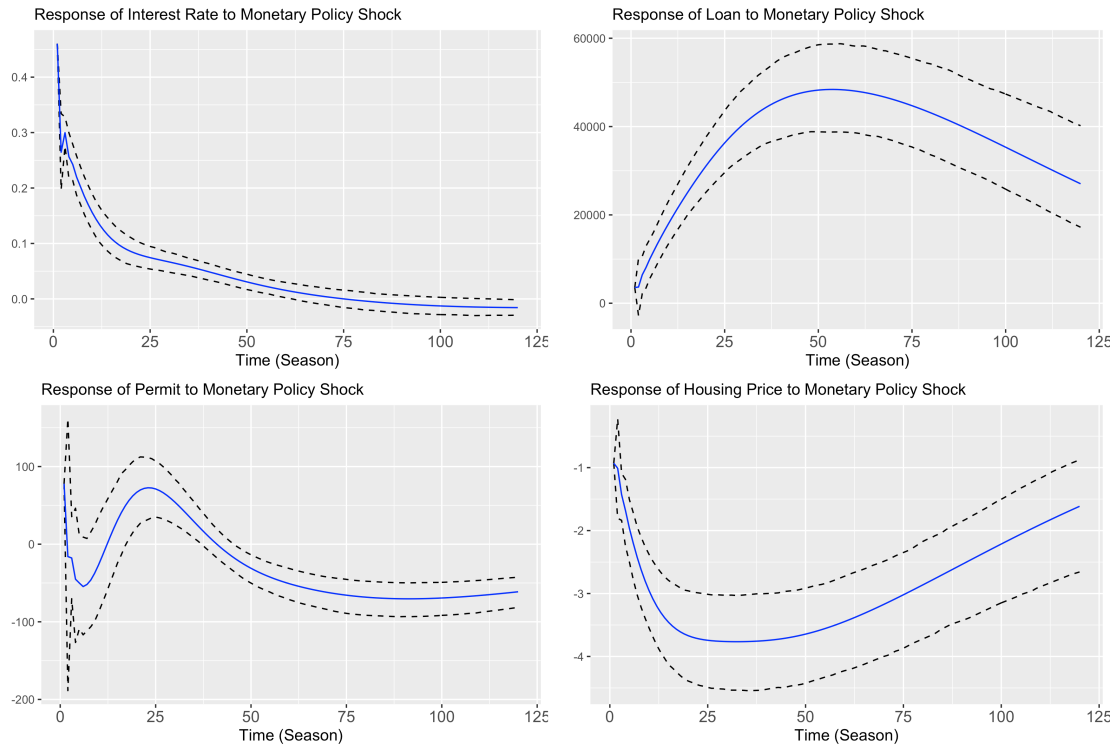
Figure 1: Monetary Policy Shock
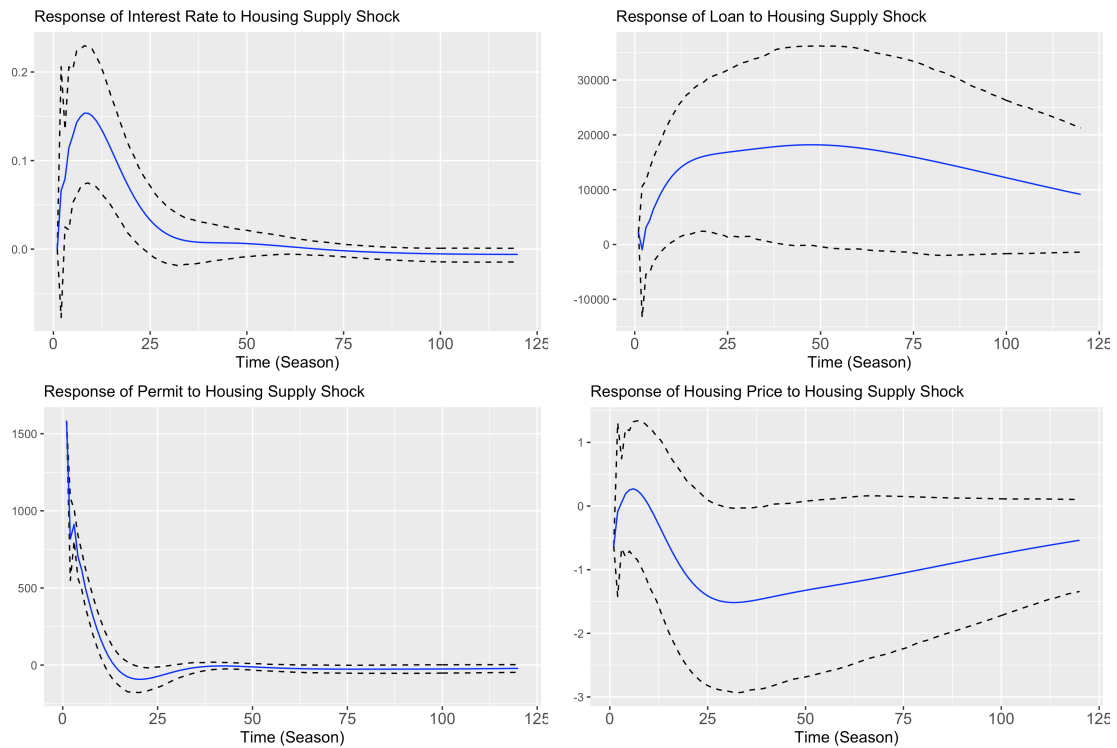
Figure 2: Housing Supply Shock

Response of Interest Rate to Housing Demand Shock

Response of Loan to Housing Demand Shock

Response of Permit to Housing Demand Shock

Response of Housing Price to Housing Demand Shock
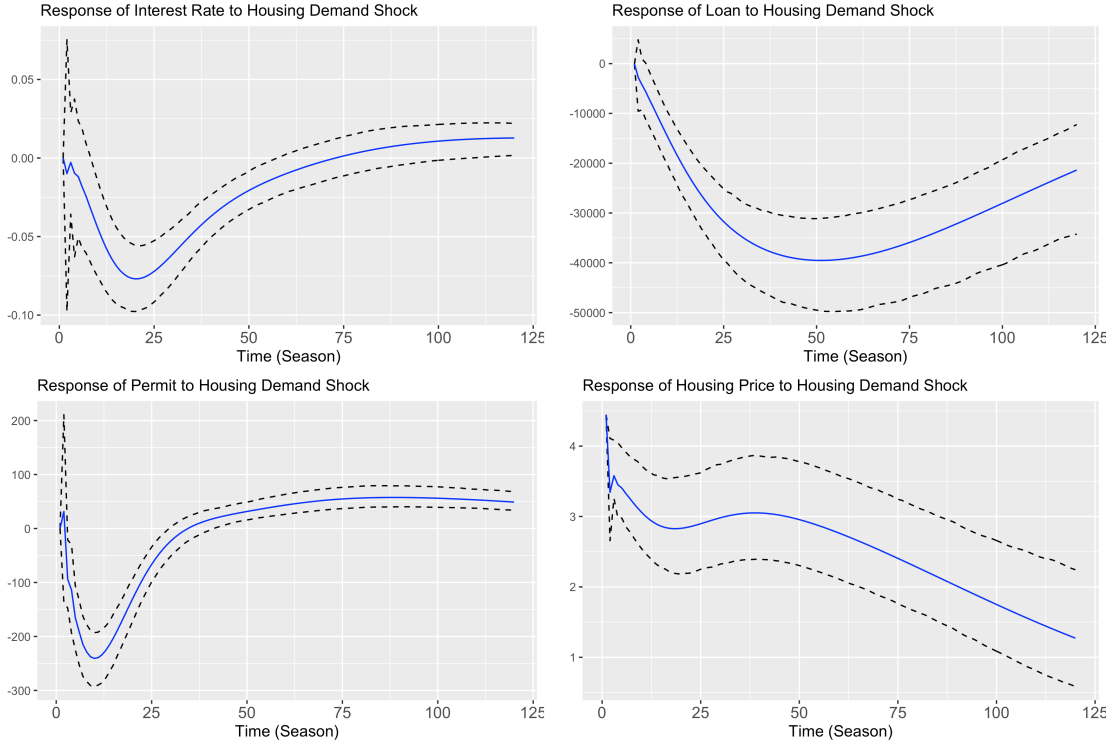
Figure 3: Housing Demand Shock

Response of Interest Rate to Housing Speculation Shock

Response of Loan to Housing Speculation Shock

Response of Permit to Housing Speculation Shock

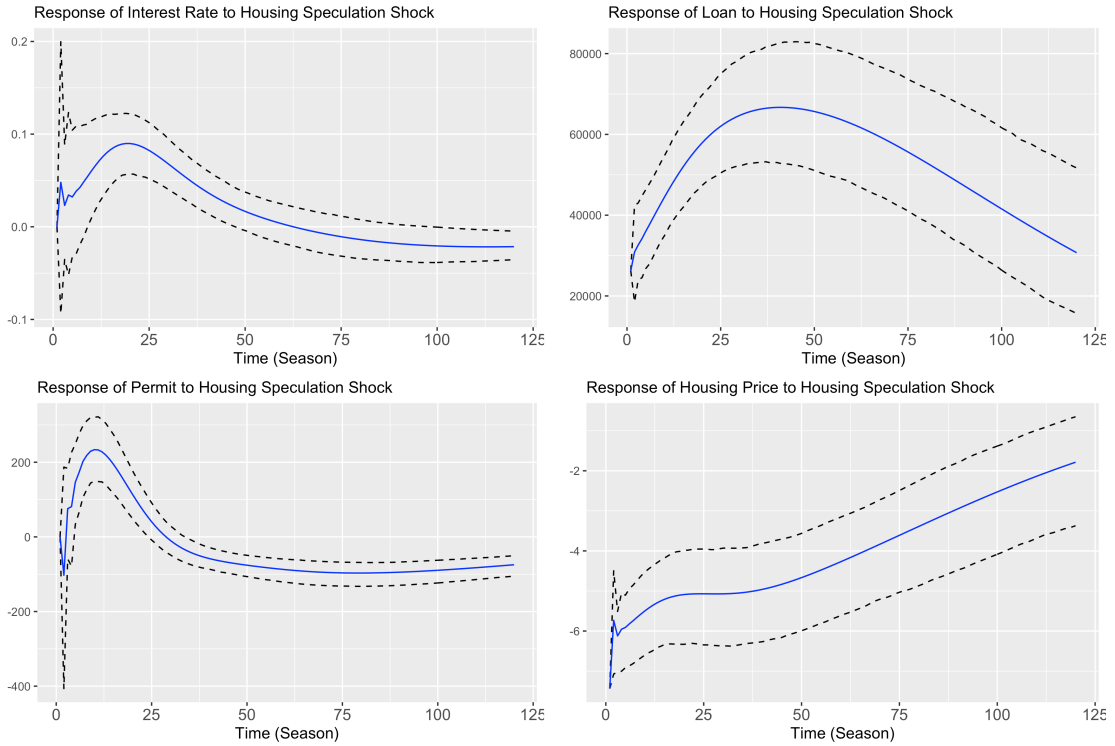Response of Housing Price to Housing Speculation Shock

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
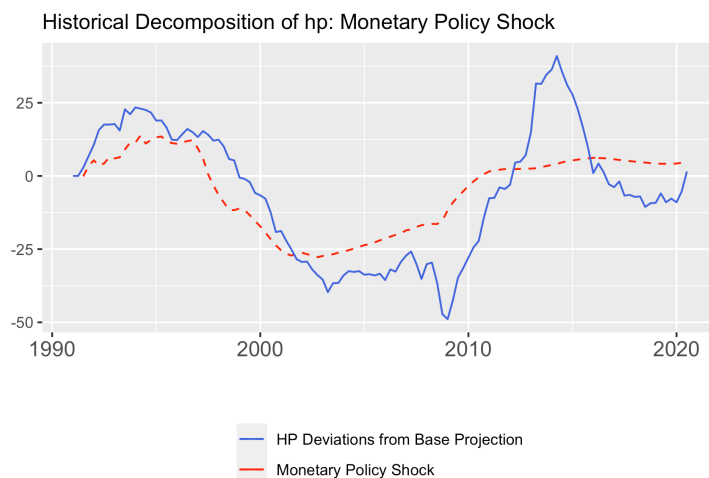
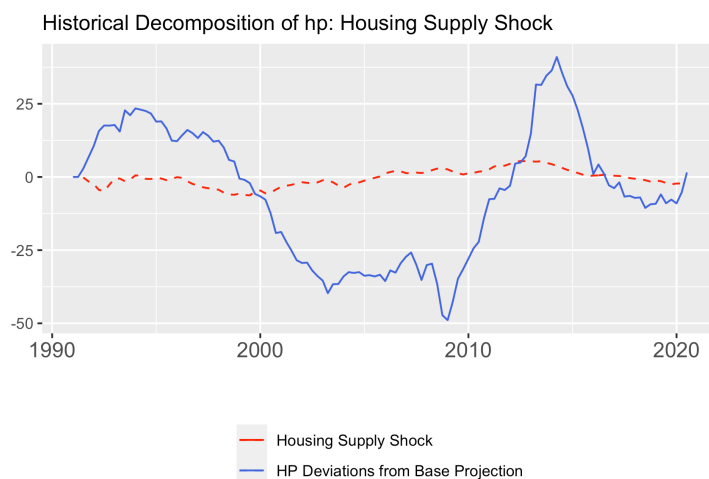Figure 5: Historical Decomposition of hp: monetary policy shock

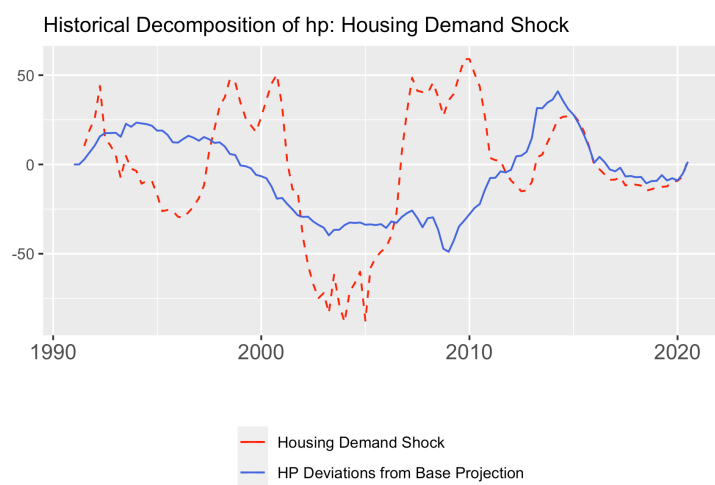Figure 6: Historical Decomposition of hp: supply shock

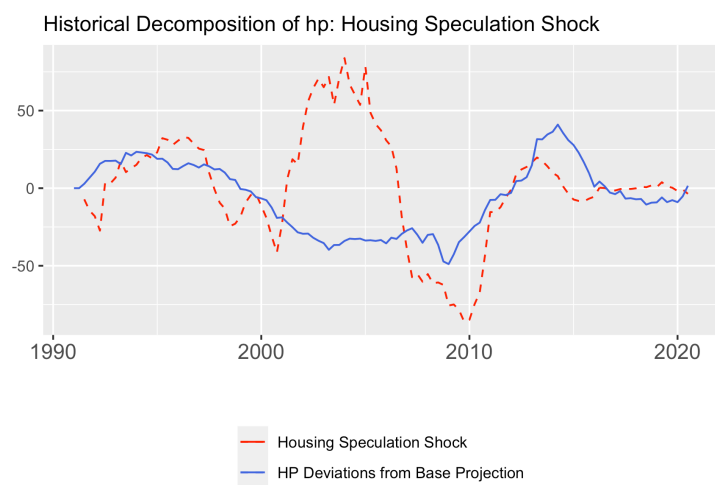Figure 7: Historical Decomposition of hp: demand shock

Figure 8: Historical Decomposition of hp: speculation shock

2. 4-Variable SVAR Wold Ordering

$$\left[\begin{array}{c} \varepsilon_t^i \\ \varepsilon_t^{permit} \\ \varepsilon_t^{loan} \\ \varepsilon_t^{hp} \end{array}\right] = \left[\begin{array}{cccc} a_{11} & 0 & 0 & 0 \\ a_{21} & a_{22} & 0 & 0 \\ a_{31} & a_{32} & a_{33} & 0 \\ a_{41} & a_{42} & a_{43} & a_{44} \end{array}\right] \left[\begin{array}{c} e_t^{mp} \\ e_t^{hs} \\ e_t^{hd} \\ e_t^{sp} \end{array}\right]$$
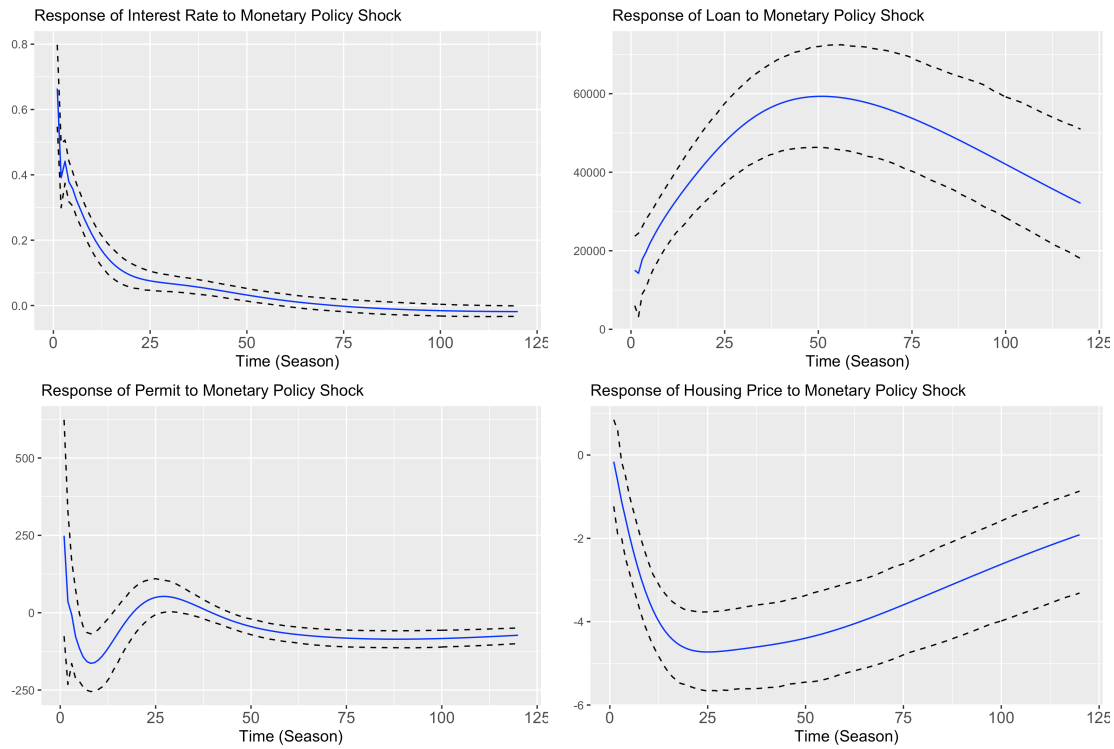
IRF

Figure 9: Monetary Policy Shock

Variance Decomposition

period	mp	hs	hd	sp
1.00	0.02	9.74	0.24	90.00
2.00	0.41	9.20	0.55	89.84
4.00	2.22	10.65	1.44	85.70
8.00	8.29	12.13	4.01	75.56
12.00	15.90	11.64	7.01	65.45
20.00	29.50	8.71	11.33	50.47
40.00	45.85	4.68	10.19	39.28
60.00	51.79	3.41	7.46	37.35
80.00	54.72	2.86	6.30	36.12
120.00	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)。
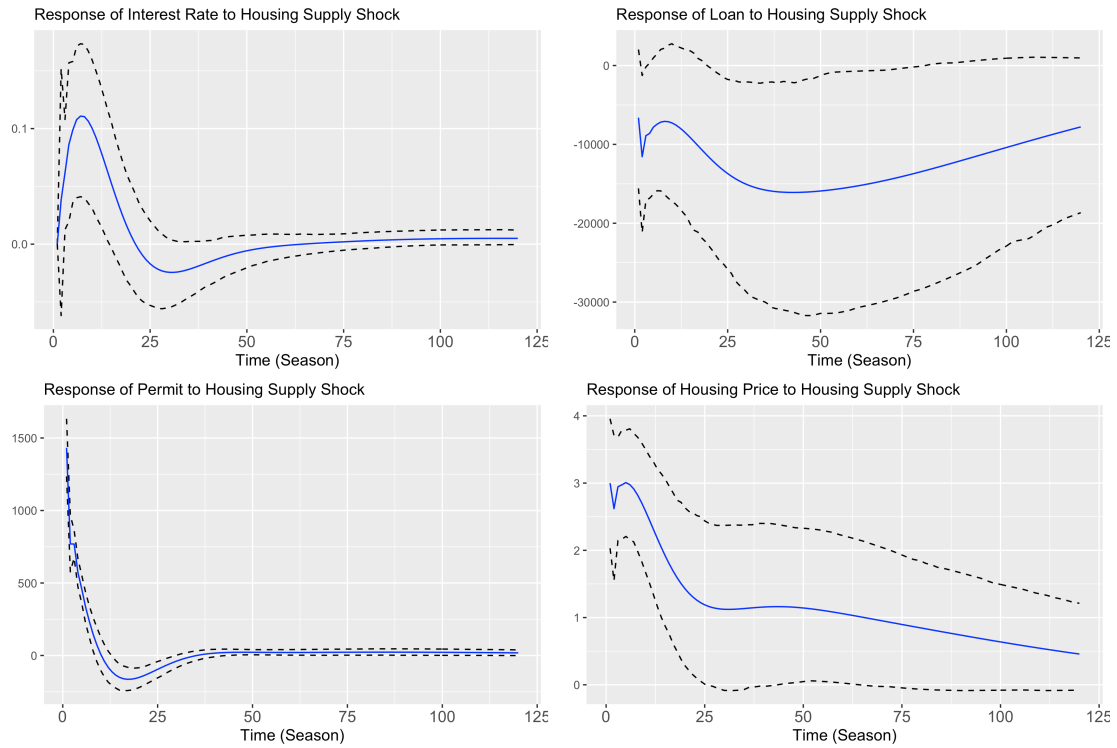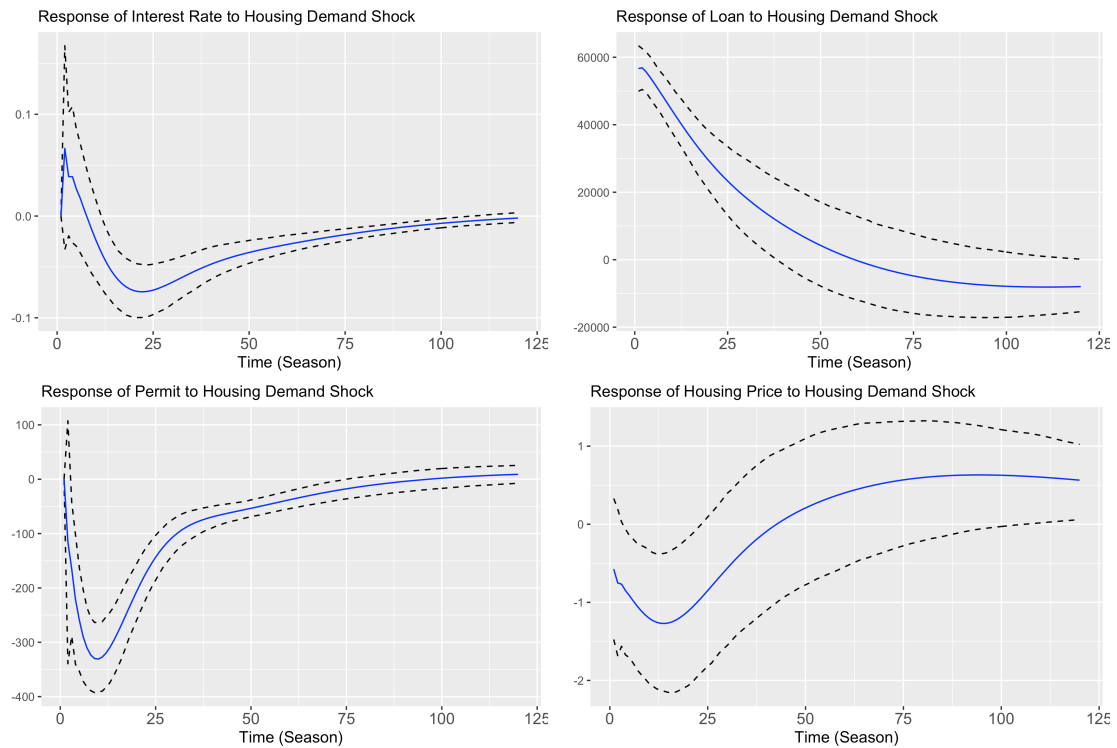
Figure 10: Housing Supply Shock
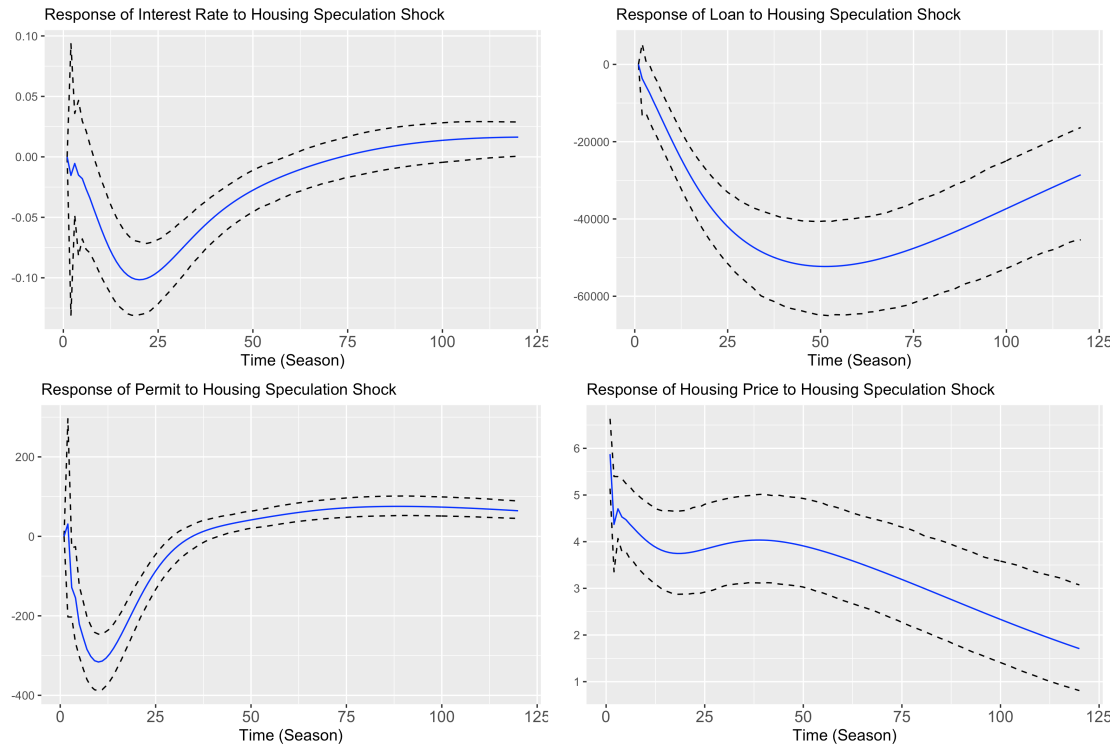

Figure 11: Housing Demand Shock

Figure 12: Housing Speculation Shock

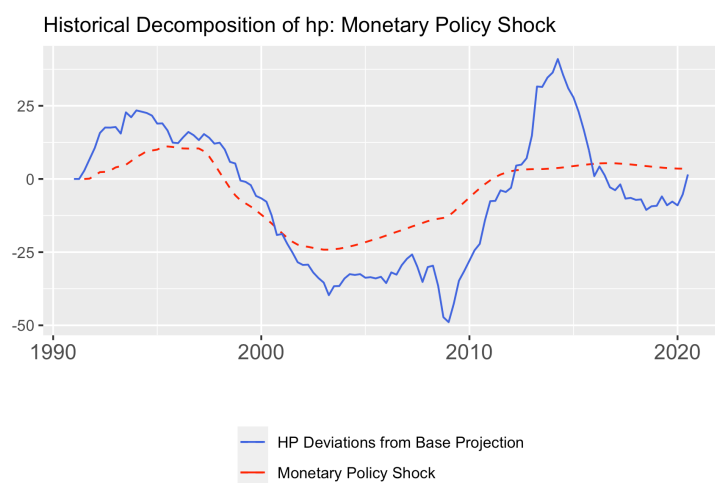| 樣本期間	Montary Policy Shock	Supply Shock	Demand Shock	Speculation Shock
全樣本 (1991Q1-2020Q3)	42.15	19.62	-2.94	27.75
房價持平期 (1991Q1-2002Q4)	63.18	20.04	3.98	6.61
房價上升期 (2003Q1-2020Q3)	25.84	19.62	-16.20	45.08

Figure 13: Historical Decomposition of hp: monetary policy shock
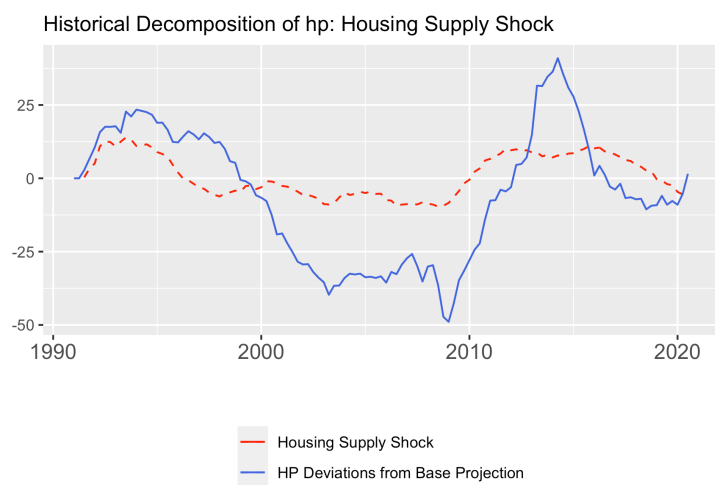

Figure 14: Historical Decomposition of hp: supply shock
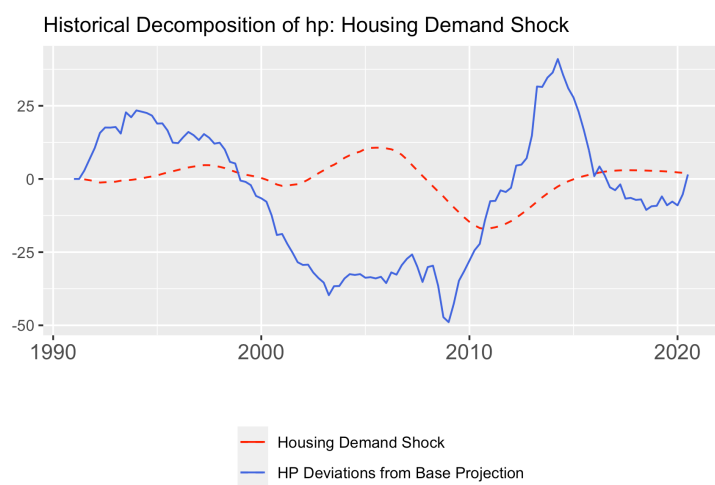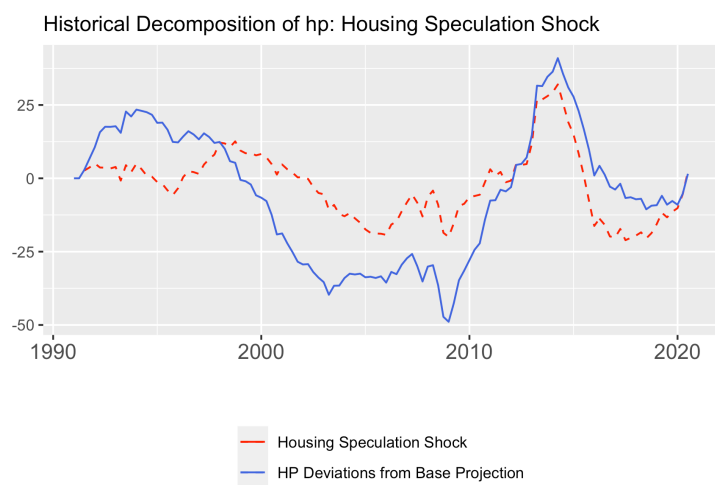
Figure 15: Historical Decomposition of hp: demand shock

Figure 16: Historical Decomposition of hp: speculation shock