(a)

係數[a]

模型		非標準化係數 B	非標準化係數 標準錯誤	標準化係數 Beta	T	顯著性
1	（常數）	-.215	.245		-.877	.381
	INFL	.697	.062	.552	11.233	.000
	PROD	-.058	.040	-.076	-1.445	.149
	UNEMPL	.104	.097	.056	1.078	.282
	COMMPRI	-.006	.003	-.051	-1.858	.064
	PCE	.343	.069	.268	4.949	.000
	PERSINC	.246	.061	.134	4.071	.000
	HOUST	-.019	.005	-.122	-4.157	.000
2	（常數）	-.286	.236		-1.211	.226
	INFL	.694	.062	.550	11.198	.000
	PROD	-.025	.026	-.033	-.963	.336
	COMMPRI	-.007	.003	-.060	-2.316	.021
	PCE	.367	.065	.287	5.611	.000
	PERSINC	.251	.060	.136	4.161	.000
	HOUST	-.021	.004	-.132	-4.760	.000
3	（常數）	-.236	.230		-1.026	.305
	INFL	.718	.057	.568	12.598	.000
	COMMPRI	-.007	.003	-.069	-2.842	.005
	PCE	.340	.059	.266	5.761	.000
	PERSINC	.240	.059	.130	4.052	.000
	HOUST	-.021	.004	-.129	-4.682	.000

a. 應變數\: INTRATE

變異數分析[a]

模型		平方和	df	平均值平方	F	顯著性
1	迴歸	5512.715	7	787.531	164.584	.000[b]
	殘差	3119.796	652	4.785		
	總計	8632.512	659			
2	迴歸	5507.159	6	917.860	191.774	.000[c]
	殘差	3125.353	653	4.786		
	總計	8632.512	659			
3	迴歸	5502.716	5	1100.543	229.969	.000[d]
	殘差	3129.795	654	4.786		
	總計	8632.512	659			

a. 應變數: INTRATE

b. 預測值：（常數），HOUST, UNEMPL, COMMPRI, INFL, PERSINC, PROD, PCE

c. 預測值：（常數），HOUST, COMMPRI, INFL, PERSINC, PROD, PCE

d. 預測值：（常數），HOUST, COMMPRI, INFL, PERSINC, PCE

Model1:the significance of UNEMPL is the largest,so eliminate this variable

Model2:the significance of PROD is the largest,so eliminate this variable

Model3:the significance of all the variables is smaller than 0.05.

The ultimate outcome is:

INTRATE=-0.236+0.718INFL-0.07COMMPRI+0.34PCE+0.24PERSINC-0.32HOUST

(b)

模型摘要

模型	R	R 平方	調整後 R 平方	標準偏斜度錯誤
1	.748[a]	.560	.559	2.40299
2	.783[b]	.613	.612	2.25585
3	.787[c]	.619	.618	2.23767
4	.796[d]	.633	.631	2.19939
5	.798[e]	.637	.635	2.18761

a. 預測值：（常數），INFL

b. 預測值：（常數），INFL, PERSINC

c. 預測值：（常數），INFL, PERSINC, PCE

d. 預測值：（常數），INFL, PERSINC, PCE, HOUST

e. 預測值：（常數），INFL, PERSINC, PCE, HOUST, COMMPRI

係數[a]

模型		非標準化係數		標準化係數	T	顯著性
		B	標準錯誤	Beta		
1	（常數）	1.644	.159		10.370	.000
	INFL	.945	.033	.748	28.930	.000
2	（常數）	.451	.195		2.311	.021
	INFL	1.012	.031	.801	32.156	.000
	PERSINC	.435	.046	.236	9.468	.000
3	（常數）	.023	.230		.102	.919
	INFL	.875	.051	.693	17.230	.000
	PERSINC	.305	.060	.165	5.118	.000
	PCE	.182	.053	.142	3.423	.001
4	（常數）	-.210	.231		-.910	.363
	INFL	.745	.056	.590	13.185	.000
	PERSINC	.257	.059	.139	4.329	.000
	PCE	.311	.058	.243	5.318	.000
	HOUST	-.022	.004	-.136	-4.902	.000
5	（常數）	-.236	.230		-1.026	.305
	INFL	.718	.057	.568	12.598	.000
	PERSINC	.240	.059	.130	4.052	.000
	PCE	.340	.059	.266	5.761	.000
	HOUST	-.021	.004	-.129	-4.682	.000
	COMMPRI	-.007	.003	-.069	-2.842	.005

a. 應變數: INTRATE

Model1:add INFL

Model2:add PERSINC

Model3:add PCE

Model4:add HOUST

Model5:add COMMPRI

The ultimate outcome is:

INTRATE=-0.236+0.718INFL+0.24PERSINC+0.34PCE-0.21HOUST-0.07COMMPRI

The model of (b) is different from the model of (a)

(c)the regression of Taylor's rule of equation(1) is:

模型摘要

模型	R	R 平方	調整後 R 平方	標準偏斜度錯誤
1	.758[a]	.575	.574	2.36357

a. 預測值：（常數），PROD, INFL

變異數分析[a]

模型		平方和	df	平均值平方	F	顯著性
1	迴歸	4962.205	2	2481.103	444.128	.000[b]
	殘差	3670.306	657	5.586		
	總計	8632.512	659			

a. 應變數: INTRATE

b. 預測值：（常數），PROD, INFL

係數[a]

模型		非標準化係數		標準化係數	T	顯著性
		B	標準錯誤	Beta		
1	（常數）	1.251	.176		7.103	.000
	INFL	.974	.033	.772	29.792	.000
	PROD	.095	.020	.125	4.810	.000

a. 應變數: INTRATE

The outcome is:

INTRATE=1.251+0.974INFL+0.095PROD(the significance of each variables is zero)

R^2 =0.575

AIC=LOG(3670.306)+2*2/660=8.21

BIC=LOG(3670.306)+2*LOG(660)/660=8.23

When it comes to model from (a):

R^2 =0.637

AIC=LOG(3129.795)+2*5/660=8.06

BIC=LOG(3129.795)+2*LOG(660)/660=8.07

So apparently model from (a) is preferable.

(d)

The result of the RESET test of model from equation(1) is:

	Value	df	Probability
F-statistic	16.84956	(2, 656)	0.0000
Likelihood ratio	33.06246	2	0.0000

F-test summary:

	Sum of Sq.	df	Mean Squares
Test SSR	193.0955	2	96.54773
Restricted SSR	3951.967	658	6.006029
Unrestricted SSR	3758.871	656	5.729987

P-value is 0,so that the test don't reject the null hypothesis.

Therefore E(σ)=0.

The result of Chow break test is:

Chow Breakpoint Test: 1980M01
Null Hypothesis: No breaks at specified breakpoints
Varying regressors: All equation variables
Equation Sample: 1960M01 2014M12

F-statistic	53.46034	Prob. F(2,656)	0.0000
Log likelihood ratio	99.65557	Prob. Chi-Square(2)	0.0000
Wald Statistic	106.9207	Prob. Chi-Square(2)	0.0000

The result of Chow forecast test is:

Chow Forecast Test
Equation: UNTITLED
Specification: INTRATE INFL PROD
Test predictions for observations from 1980M01 to 2014M12

	Value	df	Probability
F-statistic	4.599507	(420, 238)	0.0000
Likelihood ratio	1458.677	420	0.0000

F-test summary:

	Sum of Sq.	df	Mean Squares
Test SSR	3518.484	420	8.377343
Restricted SSR	3951.967	658	6.006029
Unrestricted SSR	433.4829	238	1.821357

Both test have P-value of 0,and thus each of the null hypotheses is not rejected.The original leaner model do not need to split into two model that each regresses on two samples.

The result of J-B test on INTRATE,INFL and PROD is:

	INFL	INTRATE	PROD
Mean	3.920303	5.347636	2.924573
Median	3.200000	5.220000	3.354120
Maximum	14.60000	19.10000	13.38207
Minimum	-2.000000	0.070000	-15.06102
Std. Dev.	2.866628	3.619311	4.756464
Skewness	1.533384	0.899518	-0.959466
Kurtosis	5.322616	4.387538	4.592587
Jarque-Bera	406.9892	141.9493	171.0124
Probability	0.000000	0.000000	0.000000
Sum	2587.400	3529.440	1930.218
Sum Sq. Dev.	5415.368	8632.512	14909.18
Observations	660	660	660

The P-value of this three variables is 0,and thus they are all normal distributed.