

CHAPTER 8

INTERVENTION ANALYSIS

8.1 Impulse Response Function

A shock to the i -th variable not only directly affects the i -th variable itself but the shock is also transmitted to all of the other endogenous variables through the dynamic (lag) structure of the VAR. An Impulse Response Function traces the effect of a onetime shock to one of the innovations on current and future values of the endogenous variables. In other words, Impulse Response Function traces the response of a variable through time to an unanticipated change in itself or other interrelated variables. Therefore, the Impulse Response Function maybe used in VAR system to describe the dynamic behaviors of the whole system with respect to shocks in the residual of the time series.

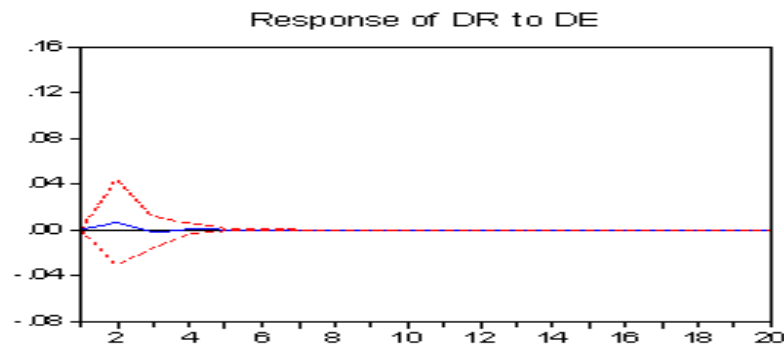
Section 8:2-A

8.2 Impulse Response Function for Indonesia

The impulse response function for Indonesia is presented in the following diagram using lag order 1, 2 and 3.

Impulse Response Function of Revenue for lag order1 (Indonesia)

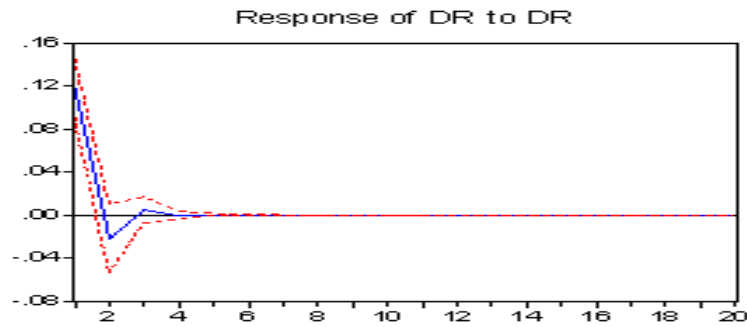
Figure 8.1



8.2.1 Findings

It is observed from the figure 8.1 that the shocks transmitted through expenditure channel, revenue responded immediately by rising above the base line at $t=1$ and reached peak at $t=2$ and then it fell and touched the long run equilibrium base line at $t=3$. It collapsed to the long run equilibrium base since $4 \leq t \leq 20$. The expenditures shocks played very insignificant impact on the revenue.

Figure 8.2(Indonesia)

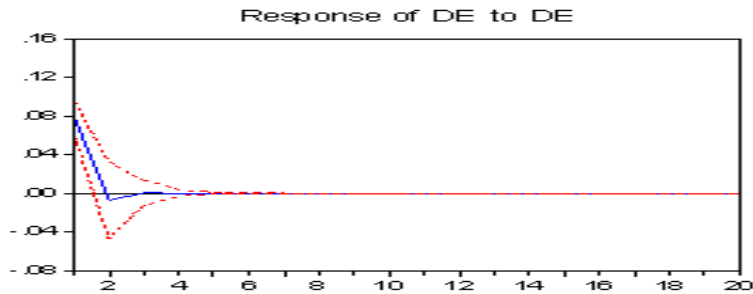


8.2.2 Findings

Fig 8.2 shows that following shocks transmitted through revenue channel, revenue responded quickly by increasing above the zero line at t=1 and at t=2 it fell sharply and reached below the base line. At t=3 revenue increased slightly above the base line and since t>3 revenue asymptotically died out to the long run equilibrium base line.

Impulse Response Function of Expenditure for lag order1 (Indonesia)

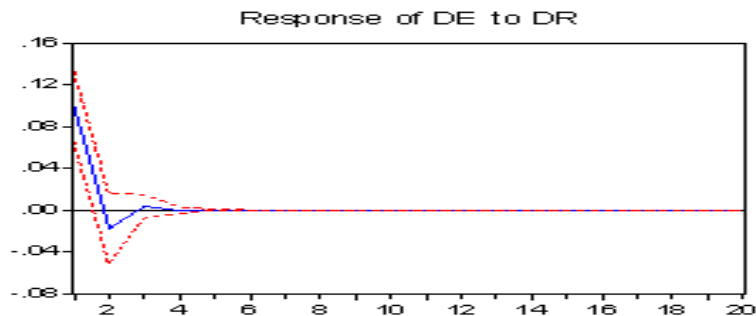
Figure-8.3



8.2.3 Findings

Fig 8.3 presents that following the shocks transmitted through expenditure channel expenditure responded quickly by increasing above the zero line at t=1 and at t=2 it fell sharply and reached below the base line. At t=3 revenue increased slightly above the base line and since t>3 it asymptotically died out to the long run equilibrium base line.

Figure 8.4(Indonesia)



8.2.4 Findings

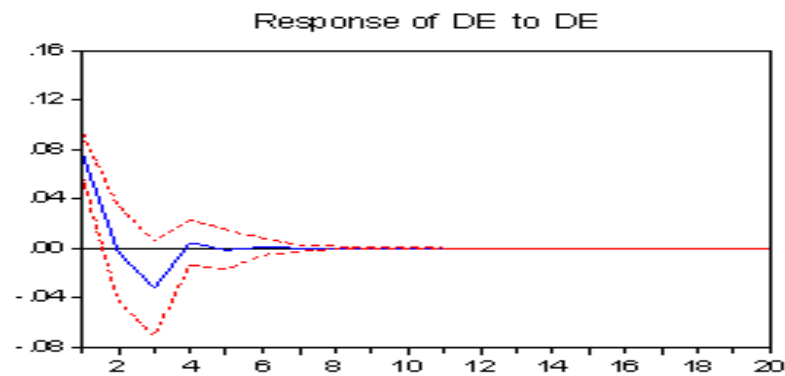
It is observed from the figure 8.4 that following the shocks transmitted through the revenue channel, expenditure did respond immediately at $t=1$ and $t=2$ it fell below the zero line. At $t=3$ it slightly increased above the base line and since $t > 4$, expenditures were found to asymptotically do out to the long run base line.

8.2.5 Overall findings in sub-section 8.2.1- 8.2.4

Short run variations in expenditures were mainly accounted for by the expenditure shocks and short run variations in revenues were mainly due to the revenue shocks. Revenue shocks failed to change the long run equilibrium base of expenditure profile and expenditure shocks also failed to change the long run base of revenues.

Impulse Response Function of Expenditure for lag order 2 (Indonesia)

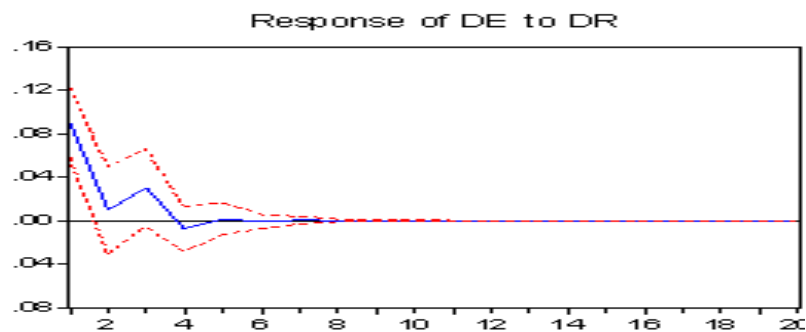
Figure-8.5



8.2.6 Findings

It is observed from fig 8.5 that, following the shocks transmitted through expenditure channel, expenditure responded immediately by rising the above the base line at $t=1$ and $t=2$ the revenue fell and it continued at $t=3$. At $t=4$ the revenue rised above the long run base of expenditure profile and it collapsed to the long run equilibrium base since $5 \leq t \leq 20$.

Figure-8.6 (Indonesia)

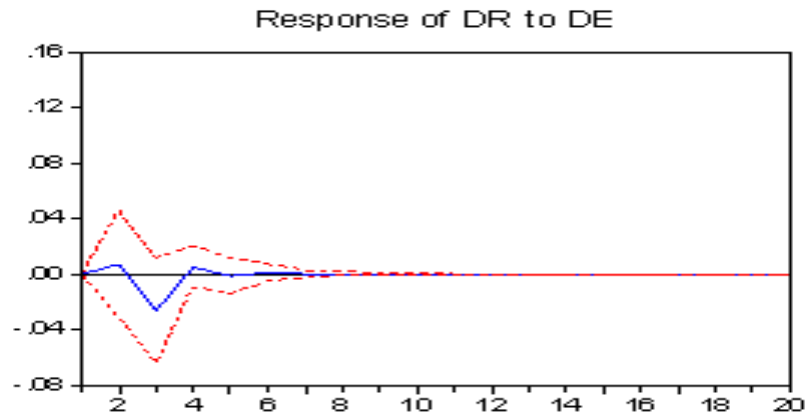


8.2.7 Findings

Fig 8.6 reports that, following the shocks transmitted through the revenue channel expenditure responded immediately by rising above the base line at $t=1$. Expenditure exhibited ups and down between $2 \leq t \leq 5$ around the base line. Since $t > 5$ expenditure collapsed to the long run equilibrium base. The revenue shocks were found to have a positive impact on expenditure profile for $1 \leq t \leq 3$.

Impulse Response Function of Revenue for lag order 2 (Indonesia)

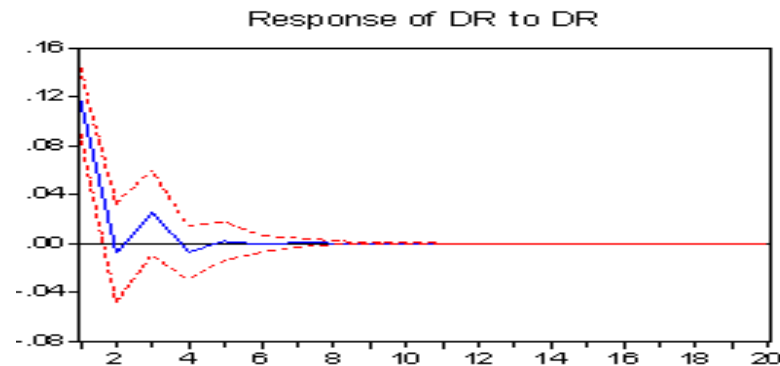
Figure-8.7



8.2.8 Findings

Figure 8.7 presents that, following the shocks transmitted through expenditure channel, revenue exhibited delayed response and rising above the base line at $t=1$. It dropped below the long run equilibrium base at $t=2$ and remained below the base line at $t=3$. For $5 < t \leq 20$ expenditure shocks did collapse to the long run equilibrium base of revenue.

Figure-8.8 (Indonesia)



8.2.9 Findings

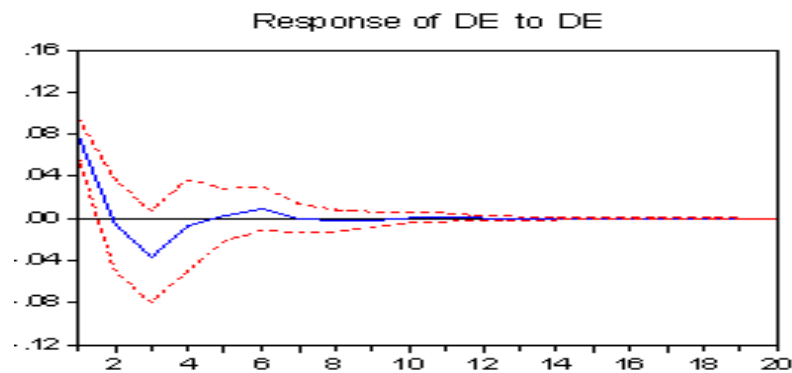
Figure 8.8 shows that, following the shocks transmitted through revenue channel, revenue responded immediately by rising above the base line at $t=1$ and it declined to the base line at $t=2$. For $3 \leq t \leq 5$ revenue exhibited damped oscillations around the base line. Since $t > 5$ revenues were found to die out to the long run equilibrium base line.

8.2.10 Overall findings in sub-section 8.2.6-8.2.9

Short run variations in expenditures were mainly due to revenue shocks. Revenue shocks were found to have a positive effect on expenditure profile at $t=1,2,3$, and 4. Revenue displayed immediate response to both types of shock. Expenditure shocks were found to cause a decline in revenue and expenditure which was very short lived.

Impulse Response Function of Expenditure for lag order 3 (Indonesia)

Figure-8.9

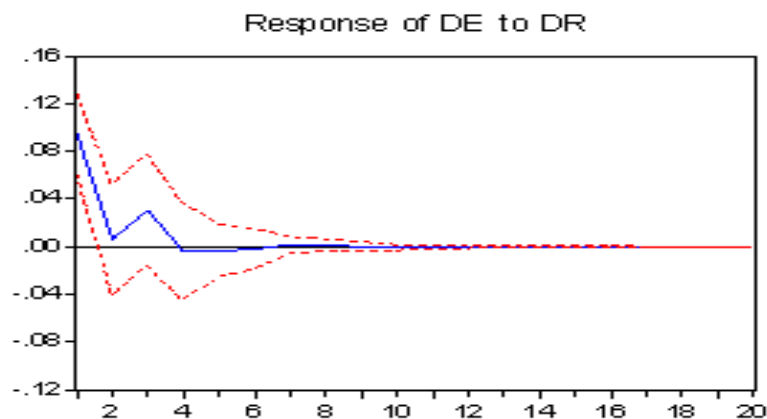


8.2.11 Findings

It is observed from the figure 8.9 that given the shocks transmitted through expenditure channel, expenditure responded immediately by rising above the long run base at $t=1$ and it fell below the base line at $t=2$ and maintained declined rate for $2 \leq t \leq 4$. At $t=5$ expenditure registered a rise and declined at $t=6$ but remained above the base line. Since $t > 7$ expenditure collapsed to the long run equilibrium base line.

Impulse Response Function of Expenditure for lag order 3(Indonesia)

Figure- 8.10

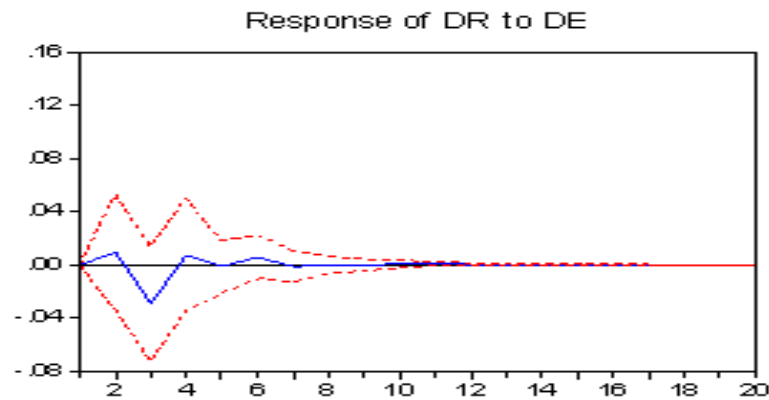


8.2.12 Findings

Figure 8.10 reports that, given the shocks transmitted through revenue channel, expenditure responded immediately by rising above the base line at $t=1$ and it declined at $t=2$ and then registered a rise up to $t=3$ and $t=4$ then it fell and touched the long run base line. Since $t > 5$ expenditure collapsed to the zero line. Revenue shocks were found to positively impact the long run base of expenditure profiles $1 < t < 4$.

Impulse Response Function of Revenue for lag order 3(Indonesia)

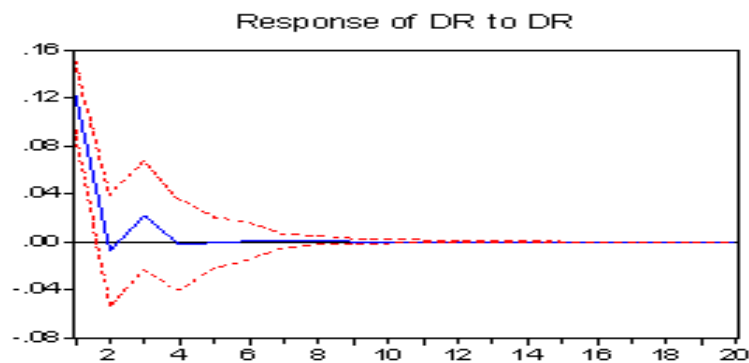
Figure-8.11



8.2.13 Findings

Figure 8.11 shows that as the shocks transmitted through the expenditure channel, revenue responded immediately by rising above the base line at $t=1$ and then it exhibited ups and down around the base line $1 < t \leq 6$. Since $7 \leq t \leq 20$ revenue collapsed to the zero line. Responses of revenue received positive and negative effect as shocks transmitted through expenditure channel but these were short lived.

Figure 8.12 (Indonesia)



8.2.14 Findings

Figure 8.12 presents that following the shocks transmitted through the revenue channel, revenue responded immediately by rising above the base line at $t=1$. At $t=2$ it fell below the base line and revenue exhibited a rise at $t=3$. At $t=4$ it fell and touched the base line and remained so for $t \geq 5$.

8.2.15 Overall Findings from in sub-section 8.2.11-8.2.14

Short run variations in expenditures were mainly due to revenue shocks. Expenditure shocks produced a mixed of positive and negative effect on revenue in the short run. Expenditure shocks were failed to change the long run base of revenue profile and Revenue shocks also failed to change the long run base of expenditure profile.

8.2.16 Summary of the above overall findings

It is observed from the above analysis that the revenue shocks were predominant factor behind the short run variations in expenditures. Revenue shocks accounted for a large part of the short run variations in expenditures. Hence the revenue considerations took the leading role in constituting the variations in expenditure profile.

Section 8.3-B

8.3 Variance Decomposition

Impulse Response Functions trace the effects of a shock to one endogenous variable on to the other variables in the VAR, while *Variance Decomposition* separates the variations in an endogenous variable into some component shocks. Thus *Variance Decomposition* provides information about the relative importance of each random innovation in the matter of affecting the variables in the VAR.

8.3.1 Variance Decomposition for Indonesia is presented in the following tables using lag order 1, 2 and 3.

Table- 8.1 (Indonesia)

Variance Decomposition of Revenue at lag order 1			
Period	S.E	DR	DE
1	0.118142	100.0000	0.000000
2	0.120429	99.69409	0.305913
3	0.120530	99.65564	0.344361
4	0.120535	99.65282	0.347179
5	0.120535	99.65266	0.347345
6	0.120535	99.65265	0.347354
7	0.120535	99.65265	0.347354
8	0.120535	99.65265	0.347354
9	0.120535	99.65265	0.347354
10	0.120535	99.65265	0.347354
11	0.120535	99.65265	0.347354
12	0.120535	99.65265	0.347354
13	0.120535	99.65265	0.347354
14	0.120535	99.65265	0.347354
15	0.120535	99.65265	0.347354
16	0.120535	99.65265	0.347354
17	0.120535	99.65265	0.347354
18	0.120535	99.65265	0.347354
19	0.120535	99.65265	0.347354
20	0.120535	99.65265	0.347354
Cholesky ordering DR DE			

8.3.2 Findings

It is observed from the Table 8.1 that variations in revenue were mainly due to revenue shocks since $t > 1$ and contribution of expenditure shocks to total variations in revenue was very insignificant since $t > 1$. Revenue shocks contributed 100% variation in revenue profile in the first year while for remaining periods revenue shocks accounted for 99.65% variations in revenue. Expenditure shocks constituted only 0.34% variations in revenue.

Table-8.2 (Indonesia)

Variance Decomposition of Expenditure at lag order 1			
Period	S.E	DR	DE
1	0.125947	62.10248	37.89752
2	0.127415	62.63334	37.36666
3	0.127458	62.65787	37.34213
4	0.127459	62.65867	37.34133
5	0.127459	62.65869	37.34131
6	0.127459	62.65869	37.34131
7	0.127459	62.65869	37.34131
8	0.127459	62.65869	37.34131
9	0.127459	62.65869	37.34131
10	0.127459	62.65869	37.34131
11	0.127459	62.65869	37.34131
12	0.127459	62.65869	37.34131
13	0.127459	62.65869	37.34131
14	0.127459	62.65869	37.34131
15	0.127459	62.65869	37.34131
16	0.127459	62.65869	37.34131
17	0.127459	62.65869	37.34131
18	0.127459	62.65869	37.34131
19	0.127459	62.65869	37.34131
20	0.127459	62.65869	37.34131
Cholesky ordering DR DE			

8.3.3 Findings

Table 8.2 reports that the variations in expenditures were mainly due to revenue shocks. Revenue shocks accounted for around 63% variations in expenditure while that of expenditure shocks was about 37% since $t > 1$. Revenue shocks became the dominant factor behind the variations in expenditures.

Table 8.3 (Indonesia)

Variance Decomposition of Revenue at lag order 2			
Period	S.E	DR	DE
1	0.117308	100.0000	0.000000
2	0.117808	99.61890	0.381097
3	0.123342	95.00177	4.998228
4	0.123671	94.85778	5.142218
5	0.123690	94.84562	5.154376
6	0.123696	94.84080	5.159200
7	0.123697	94.84049	5.159510
8	0.123697	94.84046	5.159542
9	0.123697	94.84045	5.159549
10	0.123697	94.84045	5.159549
11	0.123697	94.84045	5.159549
12	0.123697	94.84045	5.159549

13	0.123697	94.84045	5.159549
14	0.123697	94.84045	5.159549
15	0.123697	94.84045	5.159549
16	0.123697	94.84045	5.159549
17	0.123697	94.84045	5.159549
18	0.123697	94.84045	5.159549
19	0.123697	94.84045	5.159549
20	0.123697	94.84045	5.159549
Cholesky ordering DR DE			

8.3.4 Findings

Table 8.3 presents that revenue shocks dominated over the expenditure shocks in generating the variations in revenue profile. Revenue shocks explained around 95% variations in revenue and only 5% variations in revenue were due to expenditure shocks. Revenue shocks contributed 100% variations in revenue in the first year and more than 99% in second year. Expenditure shocks played very insignificant variations in revenue profile.

Table 8.4 (Indonesia)

Variance Decomposition of expenditure at lag order 2			
Period	S.E	DR	DE
1	0.118169	58.57042	41.42958
2	0.118599	58.78178	41.21822
3	0.126722	57.21092	42.78908
4	0.127028	57.29463	42.70537
5	0.127043	57.29303	42.70697
6	0.127051	57.29205	42.70795
7	0.127052	57.29211	42.70789
8	0.127052	57.29211	42.70789
9	0.127052	57.29210	42.70790
10	0.127052	57.29210	42.70790
11	0.127052	57.29210	42.70790
12	0.127052	57.29210	42.70790
13	0.127052	57.29210	42.70790
14	0.127052	57.29210	42.70790
15	0.127052	57.29210	42.70790
16	0.127052	57.29210	42.70790
17	0.127052	57.29210	42.70790
18	0.127052	57.29210	42.70790
19	0.127052	57.29210	42.70790
20	0.127052	57.29210	42.70790
Cholesky ordering DR DE			

8.3.5 Findings

It is observed from the Table 8.4 that the variations in expenditures were mainly due to revenue shocks and these accounted for around 59% variations in expenditures in the first and second year and expenditures shocks contributed 41% variations in expenditure. Thus revenue shocks played the dominant role in generating the long run variations in expenditures. Since $t > 2$ the contribution of

revenue shocks to total variations in expenditure was about 57% while that of expenditure was around 43%.

Table 8.5 (Indonesia)

Variance Decomposition of Revenue at lag order 3			
Period	S.E	DR	DE
1	0.122676	100.0000	0.000000
2	0.123250	99.45437	0.545627
3	0.128568	94.25437	5.745627
4	0.128803	93.95667	6.043327
5	0.128823	93.93881	6.061193
6	0.128938	93.77395	6.226049
7	0.128949	93.75873	6.241265
8	0.128953	93.75662	6.243376
9	0.128955	93.75438	6.245622
10	0.128956	93.75365	6.246345
11	0.128956	93.75322	6.246779
12	0.128956	93.75322	6.246778
13	0.128956	93.75316	6.246838
14	0.128956	93.75314	6.246859
15	0.128956	93.75314	6.246861
16	0.128956	93.75313	6.246866
17	0.128956	93.75313	6.246866
18	0.128956	93.75313	6.246867
19	0.128956	93.75313	6.246867
20	0.128956	93.75313	6.246867
Cholesky ordering DR DE			

8.3.6 Findings

Table 8.5 shows that the variations in revenue were mainly due to revenue shocks and these accounted for around 100% of variations in revenue in the first period and around 99% of variations in the second period. Expenditure shocks played insignificant variations in revenue in the first two periods. Revenue shocks played a dominant role in constituting the variations in revenues. Revenue shocks accounted for about 94% of variations in generating the variations in revenue profile for $t > 2$ while expenditure shocks accounted for around 6% variations in revenue since $t > 2$.

Table 8.6 (Indonesia)

Variance Decomposition of Expenditure at lag order 3			
Period	S.E	DR	DE
1	0.122917	59.94507	40.05493
2	0.123211	59.92482	40.07518
3	0.132129	57.46866	42.53134
4	0.132366	57.35352	42.64648
5	0.132453	57.35490	42.64510
6	0.132787	57.08181	42.91819

7	0.132794	57.08638	42.91362
8	0.132822	57.07737	42.92263
9	0.132832	57.06805	42.93195
10	0.132834	57.06794	42.93206
11	0.132836	57.06644	42.93356
12	0.132836	57.06632	42.93368
13	0.132837	57.06623	42.93377
14	0.132837	57.06613	42.93387
15	0.132837	57.06613	42.93387
16	0.132837	57.06612	42.93388
17	0.132837	57.06612	42.93388
18	0.132837	57.06612	42.93388
19	0.132837	57.06612	42.93388
20	0.132837	57.06612	42.93388
Cholesky ordering DR DE			

8.3.7 Finding

It is observed from the table 8.6 that the revenue shocks constituted around 60% of variations in expenditures in the first and second periods while expenditures shocks contributed around 40% of variations in expenditures in the first and second periods. Since $t > 2$ revenue shocks accounted for 57% of variations in expenditure profile while that of expenditure was 43% Hence revenue shocks took the dominant role over the expenditures shocks in generating the long run variations in expenditure.

8.3.8 Summary of sub-sections 8.3.2 -8.3.7

It is observed from the above analysis of variance decomposition of revenue and expenditure using lag order 1, 2 and 3 that revenue shocks played the dominant role in generating the variations in expenditures. It, therefore, appears that revenue shocks were the pre-dominant factor behind the variations in expenditures. Thus revenue considerations were the main guiding factor behind the constitution of expenditure Profiles in Indonesia during the period of study.

This finding also validates VAR Granger causality test which establishes a causality running from revenue to expenditure in Indonesia during the period of study.

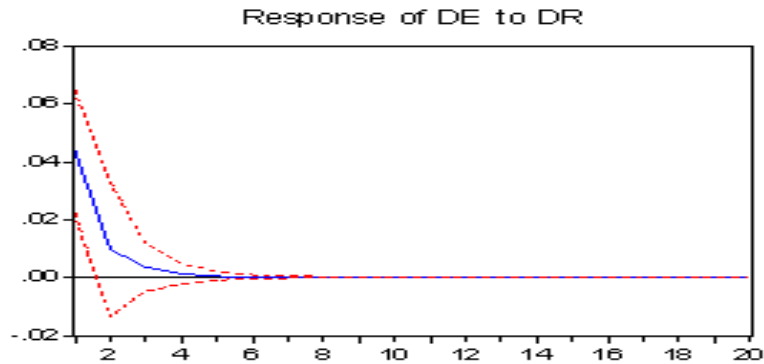
Section 8.4-A

8.4.1 Impulse Response Function of Malaysia

The impulse response function for Malaysia is presented in the following diagram using lag orders 1, 2 and 3

Impulse Response Function of Expenditure for lag order1 (Malaysia)

Figure 8.13

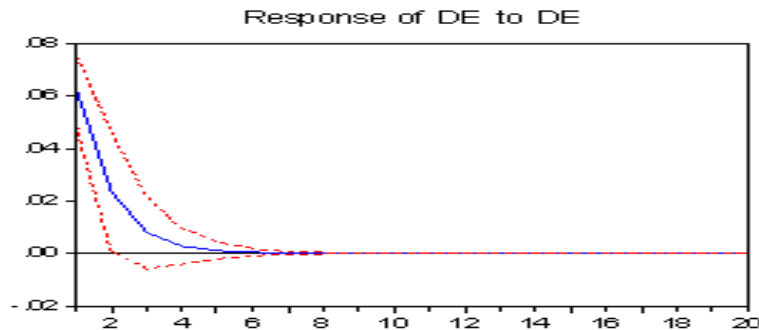


8.4.2 Findings

It is observed from the Figure 8.13 that following shocks transmitted through the revenue channel, expenditure responded immediately by rising above the base line at $t=1$ and then it fell for $2 \leq t \leq 5$. Since $t > 5$ expenditures were found to asymptotically die out to the base line.

Impulse Response Function of Expenditure for lag order1 (Malaysia)

Figure 8.14



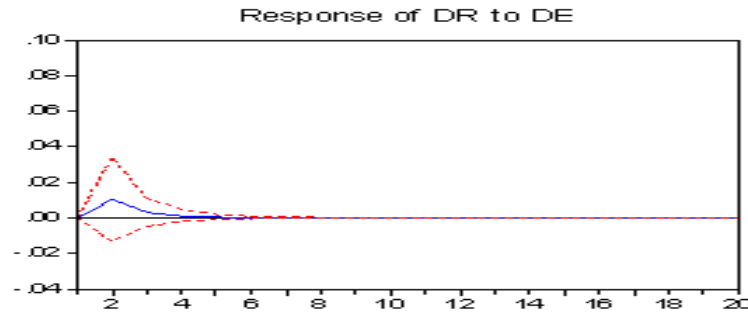
8.4.3 Findings

Figure 8.14 reports that, the in the event of shocks transmitted through expenditure channel, expenditure responded immediately by rising above the base line at $t=1$. For $2 \leq t \leq 5$ expenditure

registered declined rate and since $t \geq 6$ the expenditure did collapse to the long run equilibrium base line.

Impulse Response Function of Revenue for lag order1 (Malaysia)

Figure 8.15

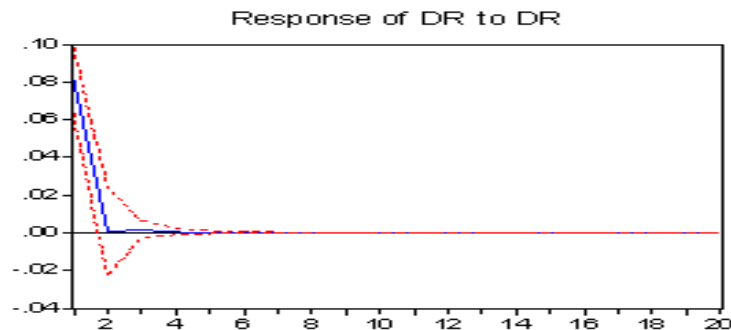


8.4.4 Findings

It is observed from the Figure 8.15 that given shocks transmitted through expenditure channel revenue increased immediately at $t=1$. At $t=2$ and 3 revenue fell around the base line. Since $t \geq 5$ revenues were found to asymptotically die out to zero line.

Impulse Response Function of Revenue for lag order1 (Malaysia)

Figure 8.16



8.4.5 Findings

Figure 8.16 presents that the as shocks transmitted through revenue channel, revenue responded quickly by increasing above the base line at $t=1$. At $t=2$ it sharply fell touched the base line. Since $3 \leq t \leq 20$ the revenues were found to asymptotically die out to zero line.

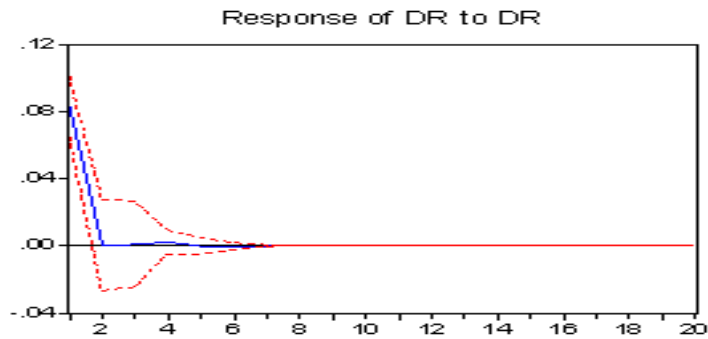
8.4.6 Findings in sub-sections 8.4.2-8.4.5

Shocks in revenue failed to change the long run base of expenditure profile. Again shocks in expenditure failed to change the long run equilibrium base line of revenue profile. Revenue shocks

were the predominant cause behind the variations in revenue and expenditure shocks generated significant variations in expenditures.

Impulse Response Function of Revenue for lag order 2 (Malaysia)

Figure 8.17

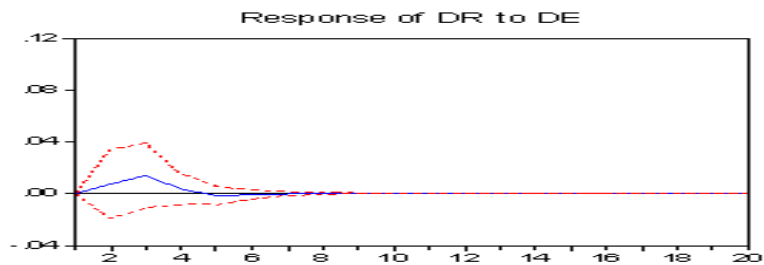


8.4.7 Findings

It is observed from the Figure 8.17 that following shocks transmitted through the revenue channel, revenue exhibited immediate rise by increasing above the base line at t=1. At t=2 revenue sharply fell. For $3 \leq t \leq 20$ revenue responses did collapse to the base line.

Impulse Response Function of Revenue for lag order2 (Malaysia)

Figure 8.18

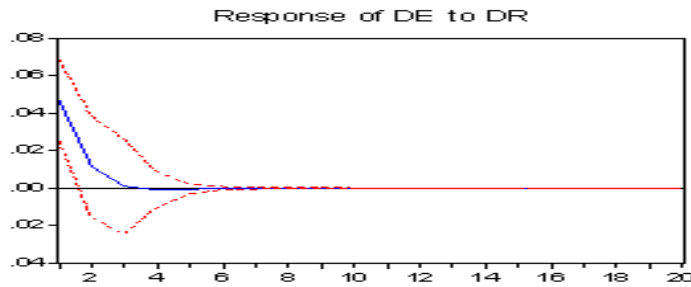


8.4.8 Findings

Figure 8.18 presents that as shocks transmitted through expenditure channel, revenue exhibited a rise at t=1 and maintained a increased trend at t=2. At t=3 it fell slightly below the base line and remained so till t=4. For $5 \leq t \leq 20$ revenue collapsed to the long run base.

Impulse Response Function of Expenditure for lag order 2(Malaysia)

Figure 8.19

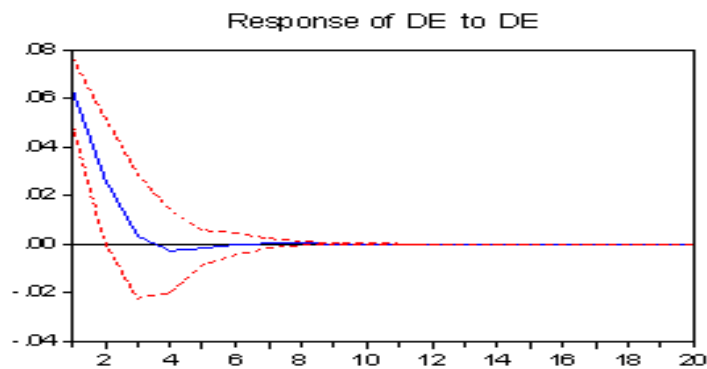


8.4.9 Findings

Figure 8.19 shows that in the face of the shocks transmitted through revenue channel, expenditure responded immediately by rising above the base line at $t=1$. At $t=2$ and 3 expenditure fell. For $4 \leq t \leq 20$ expenditure collapsed on the long run base.

Impulse Response Function of Expenditure for lag order 2(Malaysia)

Figure 8.20



8.4.10 Findings

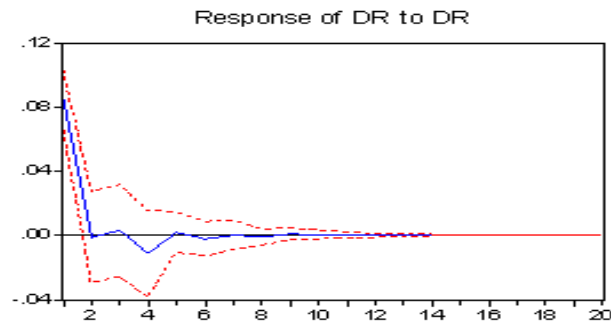
Figure 8.20 presents that following shocks transmitted through expenditure channel, expenditure responded immediately by rising above the base line at $t=$. At $t=2$ and 3 expenditure fell sharply. At $t=4$ and 5 expenditure fell below the base line. For $6 \leq t \leq 20$ expenditures were found to die out on zero line.

8.4.11 Findings in sub-sections 8.4.7-8.4.10

Shocks in revenue failed to change the long run base of expenditure profile. Again Shocks in expenditure failed to change the long run equilibrium base line of revenue profile. Revenue shocks were the predominant cause behind the variations in revenue and expenditure shocks played significant role in generating variations in expenditures. All shocks were short lived.

Impulse Response Function of Revenue for lag order 3 (Malaysia)

Figure 8.21

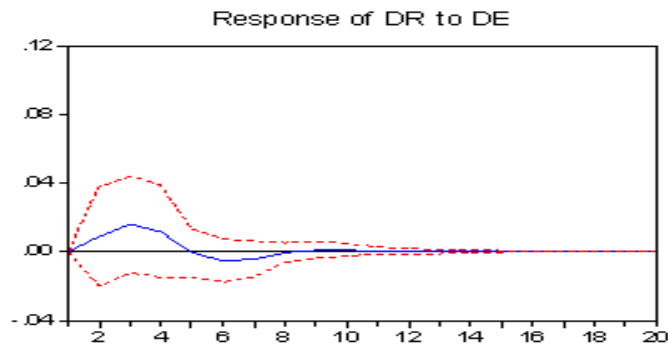


8.4.12 Findings

It is observed from the Figure 8.21 that as shocks transmitted through revenue channel revenue responded immediately by rising above the base line at $t=1$. At $2 \leq t \leq 7$ expenditures exhibited damped oscillations around the long run base. For $8 \leq t \leq 20$ expenditures collapsed to the base line.

Impulse Response Function of Revenue for lag order 3 (Malaysia)

Figure 8.22



8.4.13 Findings

Figure 8.22 presents that, following the shocks transmitted through expenditure channel revenue exhibited immediate increase above the base line at $t=1$. At $t=2$ it increased and at $t=3,4$ revenue fell. For $5 \leq t \leq 7$ revenue fell below the long run base line. Since $t > 8$ revenues were found to die out to zero line.

Impulse Response Function of Expenditure for lag order 3 (Malaysia)

Figure 8.23

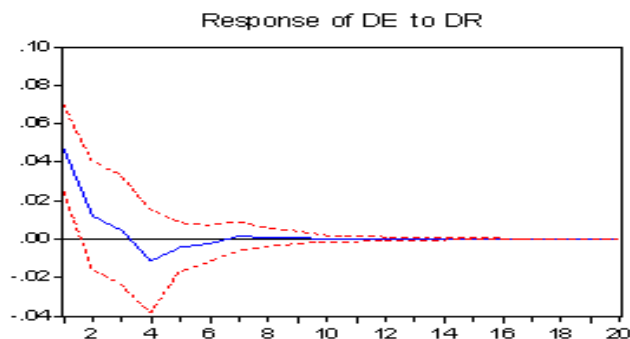
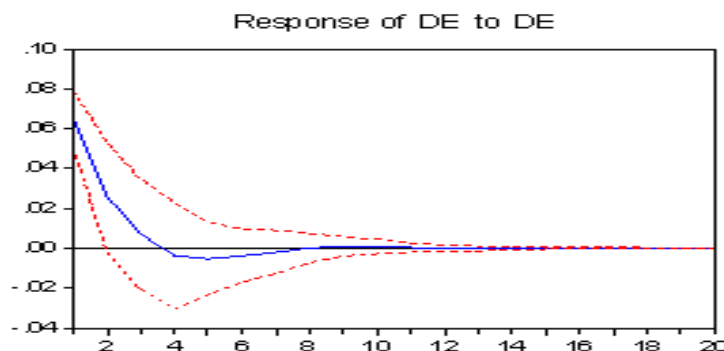


Figure 8.4.14

Figure 8.23 shows that in the event of the shocks transmitted through revenue channel, expenditure exhibited immediate response by rising above the base line at $t=1$. At $t=2,3$ it fell sharply and at $t=4,5$ expenditure fell below the base line. For $6 \leq t \leq 20$ expenditures collapsed on the base line.

Impulse Response Function of Expenditure for lag order 3 (Malaysia)

Figure 8.24



8.4.15 Findings

Figure 8.24 reports that following shocks transmitted through expenditure channel, expenditure responded immediate rise by rising above the base line at $t=1$. For $2 \leq t \leq 4$ expenditure sharply fell. For $5 \leq t \leq 7$ it fell below the base line. Since $t \geq 8$ expenditures were found to die out to zero line.

8.4.16 Findings in sub-sections 8.4.12-8.4.15

Shocks in revenue failed to change the long run base of expenditure profile. Again shocks in expenditure failed to change the long run equilibrium base line of revenue profile. Revenue shocks were the predominant cause behind the variations in revenue while expenditure shocks led to significant variations in expenditures. All shocks were short lived.

8.4.17 Overall summary of the above analysis

Short-run variations in revenue and expenditure were mainly due to impulse transmitted through revenue and expenditure shocks respectively. Both revenue and expenditures shocks were short lived since these failed to change the long run equilibrium base of revenue and expenditures.

Section 8.4-B

Variance Decomposition (Malaysia)

8.4.18 Variance Decomposition

Variance Decomposition for forecast errors for Malaysia is presented in the following table using lag orders 1, 2 and 3.

Table 8.7 (Malaysia)

Variance Decomposition of Revenue at lag order1			
Period	S.E	DR	DE
1	0.080831	100.0000	0.000000
2	0.081507	98.35397	1.646029
3	0.081581	98.21304	1.786961
4	0.081590	98.19554	1.804460
5	0.081591	98.19348	1.806523
6	0.081591	98.19323	1.806768
7	0.081591	98.19320	1.806797
8	0.081591	98.19320	1.806801
9	0.081591	98.19320	1.806801
10	0.081591	98.19320	1.806801
11	0.081591	98.19320	1.806801
12	0.081591	98.19320	1.806801
13	0.081591	98.19320	1.806801
14	0.081591	98.19320	1.806801
15	0.081591	98.19320	1.806801
16	0.081591	98.19320	1.806801
17	0.081591	98.19320	1.806801
18	0.081591	98.19320	1.806801
19	0.081591	98.19320	1.806801
20	0.081591	98.19320	1.806801
Cholesky ordering DR DE			

8.4.19 Findings

Table 8.7 shows that the variations in revenue were mainly dominated by revenue shocks in the projection periods. Expenditure shocks contributed very insignificant variations in revenue. Revenue shocks accounted for 100% variations in revenue profile in the first period and since $t > 1$ revenue shocks contributed 98% variations in revenue while that of expenditure was around 2%.

Table 8.8 (Malaysia)

Variance Decomposition of Expenditure at lag order 1			
Period	S.E	DR	DE
1	0.076078	32.96985	67.03015
2	0.080220	31.10829	68.89171
3	0.080699	30.93878	69.06122
4	0.080755	30.91847	69.08153
5	0.080762	30.91607	69.08393
6	0.080763	30.91578	69.08422
7	0.080763	30.91575	69.08425
8	0.080763	30.91575	69.08425
9	0.080763	30.91575	69.08425
10	0.080763	30.91574	69.08426
11	0.080763	30.91574	69.08426
12	0.080763	30.91574	69.08426
13	0.080763	30.91574	69.08426
14	0.080763	30.91574	69.08426
15	0.080763	30.91574	69.08426
16	0.080763	30.91574	69.08426
17	0.080763	30.91574	69.08426
18	0.080763	30.91574	69.08426
19	0.080763	30.91574	69.08426
20	0.080763	30.91574	69.08426
Cholesky ordering DR DE			

8.4.20 Findings

Table 8.8 indicates that expenditure shocks took the dominant role in generating the variations in expenditure. Expenditure shocks constituted 67% of variations in expenditures in the first period. For $2 \leq t \leq 20$ expenditure shocks accounted for 69% of variations in expenditure profile. Revenue shocks contributed 31% variations in expenditures since $t > 2$.

8.4.21 Summary of findings in sub-sections 8.4.19-8.4.20

It has been observed from the above analysis that the shocks transmitted through revenue channel took the dominant role in constituting the variations in revenue while expenditure shocks dominated the revenue shocks in generating the variations in expenditures.

Table 8.9 (Malaysia)

Variance Decomposition of Revenue at lag order 2			
Period	S.E	DR	DE
1	0.083173	100.0000	0.000000
2	0.083517	99.17839	0.821612
3	0.084686	96.46973	3.530271
4	0.084780	96.31558	3.684416
5	0.084794	96.28528	3.714719
6	0.084801	96.27211	3.727889
7	0.084801	96.27199	3.728008
8	0.084801	96.27184	3.728159
9	0.084801	96.27181	3.728191
10	0.084801	96.27181	3.728191

11	0.084801	96.27181	3.728192
12	0.084801	96.27181	3.728192
13	0.084801	96.27181	3.728192
14	0.084801	96.27181	3.728192
15	0.084801	96.27181	3.728192
16	0.084801	96.27181	3.728192
17	0.084801	96.27181	3.728192
18	0.084801	96.27181	3.728192
19	0.084801	96.27181	3.728192
20	0.084801	96.27181	3.728192
Cholesky ordering DR DE			

8.4.22 Findings

Table 8.9 shows that variations in revenue were mainly dominated by revenue shocks in the entire period. Expenditure shocks contributed very insignificant variations in revenue. Total Revenue variation was mainly due to revenue shocks in the first period. Since $t > 1$ revenue shocks contributed 96% variations in revenue while that of expenditure was around 4%.

Table 8.10 (Malaysia)

Variance Decomposition of Expenditure at lag order 2			
Period	S.E	DR	DE
1	0.078614	35.71688	64.28312
2	0.083767	33.34002	66.65998
3	0.083835	33.29812	66.70188
4	0.083891	33.26724	66.73276
5	0.083912	33.25861	66.74139
6	0.083912	33.25864	66.74136
7	0.083912	33.25851	66.74149
8	0.083912	33.25849	66.74151
9	0.083912	33.25849	66.74151
10	0.083912	33.25849	66.74151
11	0.083912	33.25849	66.74151
12	0.083912	33.25849	66.74151
13	0.083912	33.25849	66.74151
14	0.083912	33.25849	66.74151
15	0.083912	33.25849	66.74151
16	0.083912	33.25849	66.74151
17	0.083912	33.25849	66.74151
18	0.083912	33.25849	66.74151
19	0.083912	33.25849	66.74151
20	0.083912	33.25849	66.74151
Cholesky ordering DR DE			

8.4.23 Findings

Table 8.10 indicates that expenditure shocks dominated revenue shocks in generating variations in expenditures. Expenditure shocks constituted 64% of variations in expenditures in the first period. For $2 \leq t \leq 20$ expenditure shocks accounted for 67% of variations in expenditure profile. Revenue shocks contributed 33% variations in expenditures since $t \geq 2$.

8.4.24 Summary of sub-sections 8.4.22-8.4.23

The foregoing analysis indicates that shocks transmitted through revenue channel took the dominant role in constituting variations in revenue while expenditure shocks dominated the revenue shocks in explaining the variations in expenditures.

Table 8.11 (Malaysia)

Variance Decomposition of Revenue at lag order 3			
Period	S.E	DR	DE
1	0.084520	100.0000	0.000000
2	0.084990	98.91565	1.084354
3	0.086518	95.59473	4.405273
4	0.088049	93.97982	6.020185
5	0.088069	93.97744	6.022562
6	0.088262	93.63057	6.369432
7	0.088363	93.41726	6.582737
8	0.088371	93.41358	6.586421
9	0.088378	93.40482	6.595182
10	0.088384	93.39583	6.604175
11	0.088385	93.39492	6.605085
12	0.088385	93.39493	6.605071
13	0.088385	93.39487	6.605126
14	0.088385	93.39483	6.605170
15	0.088385	93.39479	6.605205
16	0.088385	93.39479	6.605211
17	0.088385	93.39479	6.605211
18	0.088385	93.39479	6.605215
19	0.088385	93.39478	6.605216
20	0.088385	93.39478	6.605217
Cholesky ordering DR DE			

8.4.25 Findings

Table 8.11 presents that variations in revenue were mainly dominated by revenue shocks in the entire period. Expenditure shocks contributed very insignificant variations in revenue. Total Revenue variation was mainly due to revenue shocks in the first period. Since $t > 3$ revenue shocks contributed about 94% variations in revenue while that of expenditure was approximately 6%.

Table 8.12 (Malaysia)

Variance Decomposition of Expenditure at lag order 3			
Period	S.E	DR	DE
1	0.080478	34.89391	65.10609
2	0.085358	33.01707	66.98293
3	0.085768	32.96611	67.03389
4	0.086600	34.07267	65.92733
5	0.086863	34.12460	65.87540

6	0.086980	34.10271	65.89729
7	0.087014	34.10423	65.89577
8	0.087017	34.10879	65.89121
9	0.087025	34.10940	65.89060
10	0.087029	34.10597	65.89403
11	0.087030	34.10552	65.89448
12	0.087030	34.10566	65.89434
13	0.087030	34.10556	65.89444
14	0.087031	34.10553	65.89447
15	0.087031	34.10553	65.89447
16	0.087031	34.10553	65.89447
17	0.087031	34.10553	65.89447
18	0.087031	34.10553	65.89447
19	0.087031	34.10553	65.89447
20	0.087031	34.10553	65.89447
Cholesky ordering DR DE			

8.4.26 Findings

Table 8.13 presents that expenditure shocks took the dominated role in explaining variations in expenditures. Expenditure shocks constituted more than 65% variations in expenditure during the projection periods while revenue shocks accounted for around 34% variations in expenditure during the projection periods.

8.4.27 Overall summary of sub-sections 8.4.25-8.4.26

Revenue shocks contributed significantly to the constitution of revenue profile and expenditure shocks took the greater role than revenue shocks in constituting the expenditure profile. No Granger causality link between revenue and expenditure obtained in VECM and VAR has been confirmed through intervention analysis in case of the economy of Malaysia.

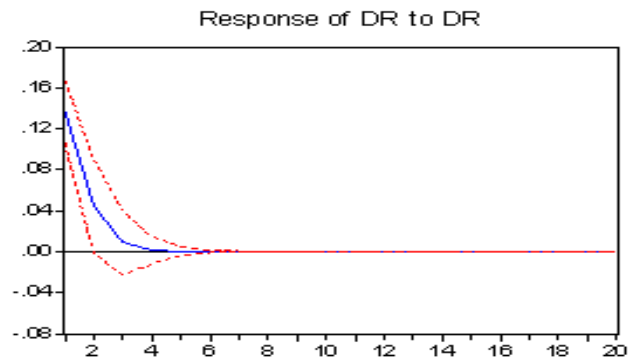
Section- 8.5-A

8.5.1 Impulse Response Function of Singapore

The impulse response function for Singapore is presented in the following diagram using lag orders 1, 2 and 3.

Impulse Response Function of Revenue for lag order 1(Singapore)

Figure 8.25

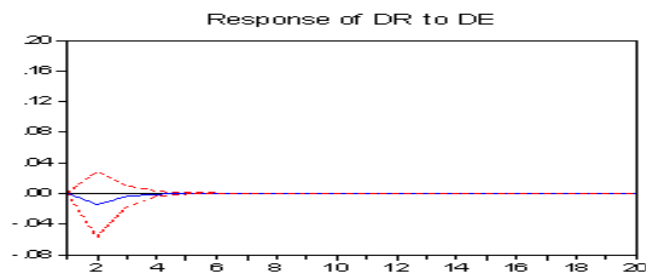


8.5.2 Findings

It is observed from the Figure 8.25 that as shocks transmitted through revenue channel revenue responded immediately by increasing above the base line at $t=1$. At $t=2, 3$ it fell sharply. For $4 \leq t \leq 20$ revenue totally collapsed to the base line.

Impulse Response Function of Revenue for lag order 1(Singapore)

Figure 8.26

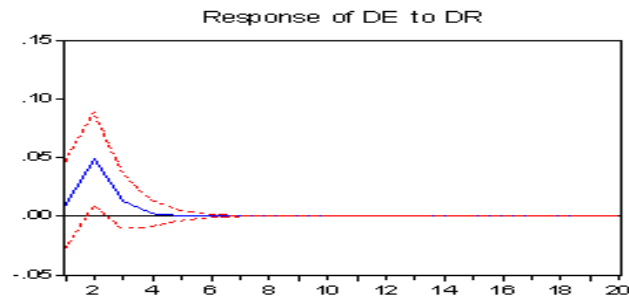


8.5.3 Findings

Figure 8.26 presents that following shocks transmitted through expenditure channel revenue fell below the base line and remained so at $t=2,3$. For $4 \leq t \leq 20$ revenues were found to died out to the base line.

Impulse Response Function of Expenditure for lag order 1(Singapore)

Figure 8.27

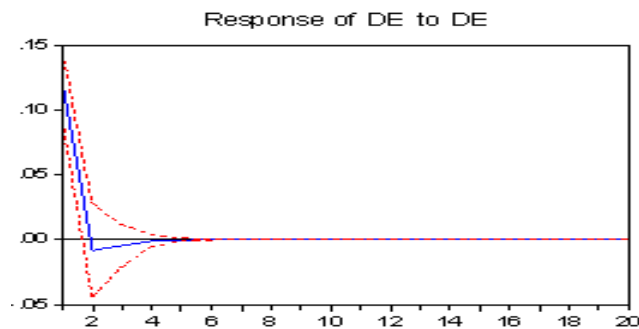


8.5.4 Findings

Figure 8.27 shows that following shocks transmitted through the revenue channel expenditure exhibited an increasing trend at $t=1, 2$. At $t=3, 4$ expenditure produced a declined trend. For $5 \leq t \leq 20$ expenditure collapsed to the base line.

Impulse Response Function of Expenditure for lag order 1(Singapore)

Figure 8.28



8.5.5 Findings

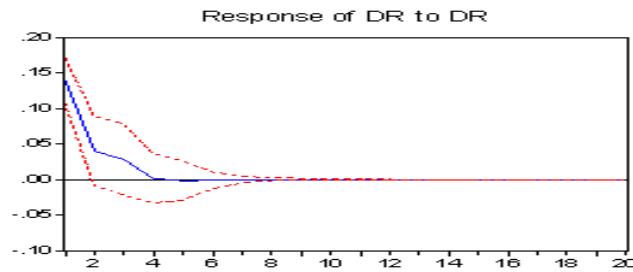
It is observed from the Figure 8.28 that following shocks transmitted through expenditure channel, expenditure responded immediately by increasing above the base line at $t=1$. At $t=2$ it fell sharply and reached below the base line and remained so until $t=3, 4$. For $5 \leq t \leq 20$ expenditure collapsed to the base line.

8.5.6 Findings in sub-section 8.5.2-8.5.5

A shock in revenue was found to have a positive effect on expenditure and revenue in the short run. A shock in expenditure was found to cause a decline in revenue. Both types of shocks were short lived and both expenditure and revenue failed to change the long run base of revenue and expenditure profile.

Impulse Response Function of Revenue for lag order 2 (Singapore)

Figure 8.29

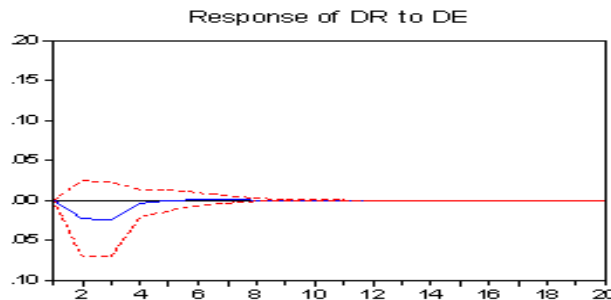


8.5.7 Findings

It is observed from the Figure 8.29 that following shocks transmitted through revenue channel, revenue responded immediately by increasing above the base line at $t=1$. At $t=2, 3$ it fell sharply. For $4 \leq t \leq 20$ revenues totally collapsed to the base line.

Impulse Response Function of Revenue for lag order 2(Singapore)

Figure 8.30

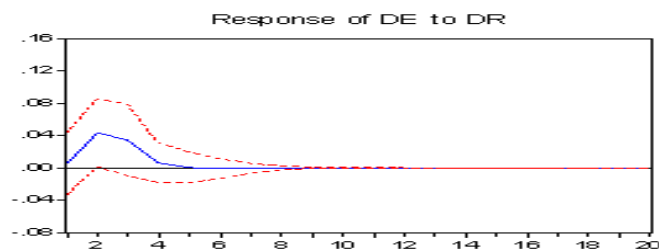


8.5.8 Findings

It is observed from the Figure 8.30 that as shocks transmitted through expenditure channel, revenue responded negatively by falling below the base line at $t=1$ and remained so until $t=2, 3$. For $4 \leq t \leq 20$ revenue totally collapsed to the base line.

Impulse Response Function of Expenditure for lag order 2 (Singapore)

Figure 8.31

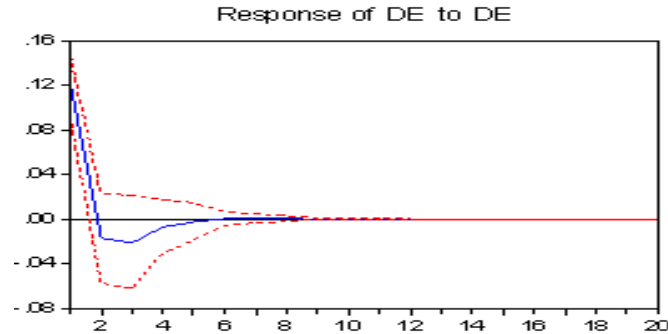


8.5.9 Findings

It is observed from the Figure 8.31 that as shocks transmitted through the revenue channel, expenditure exhibited an increase trend and remained so at $t=2$. For $3 \leq t \leq 5$ expenditure registered a declining trend. Since $t > 5$ expenditures were found to asymptotically die out to zero line.

Impulse Response Function of Expenditure for lag order 2 (Singapore)

Figure 8.32



8.5.10 Findings

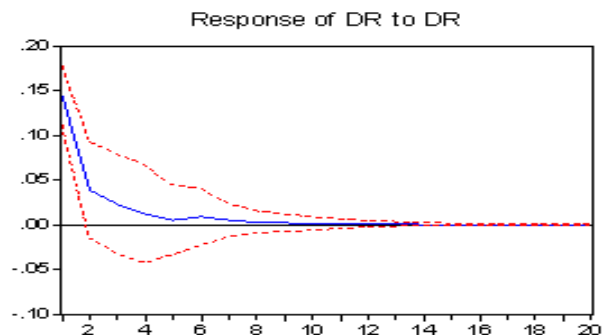
It is observed from the Figure 8.32 that following shocks transmitted through expenditure channel, expenditure responded immediately by increasing above the base line at $t=1$. At $t=2$ it fell sharply and reached below the base line and remained so for $3 \leq t \leq 5$. For $6 \leq t \leq 20$ expenditure did collapse on the base line.

8.5.11 Findings from in sub section 8.5.7-8.5.10

Shocks in revenue were found to have a positive impact on expenditure and revenue up to fourth period. A shock in expenditure was found to cause a negative effect in revenue up to fourth period. Both types of shocks were short lived while both expenditure and revenue shocked failed to change the long run base of revenue and expenditure profiles.

Impulse Response Function of Revenue for lag order 3 (Singapore)

Figure 8.33

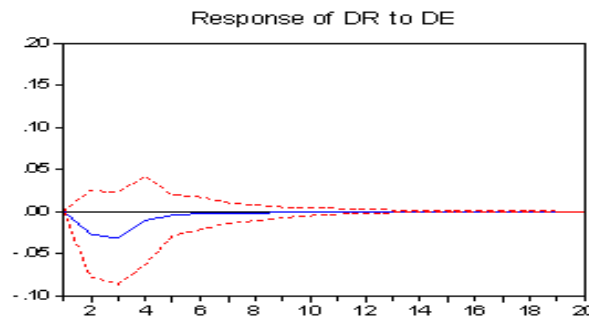


8.5.12 Findings

It is observed from the Figure 8.33 that, as the shocks transmitted through revenue channel revenue responded immediately by increasing above the base line at $t=1$. For $2 \leq t \leq 7$ revenue fell around the base line. For $8 \leq t \leq 20$ revenues totally collapsed to the base line.

Impulse Response Function of Revenue for lag order 3 (Singapore)

Figure 8.34

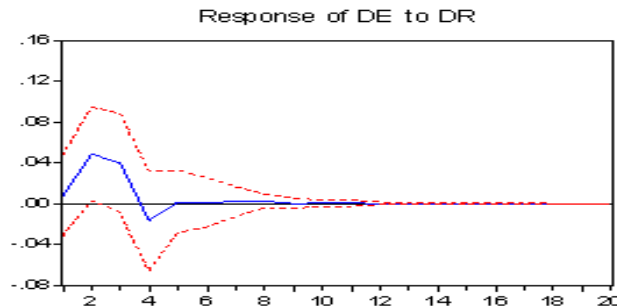


8.5.13 Findings

Figure 8.34 presents that following shocks transmitted through expenditure channel, revenue fell below the base line at $t=1$ and remained so until $t=5$. For $6 \leq t \leq 20$ revenues were found to asymptotically collapse to the base line.

Impulse Response Function of Expenditure for lag order 3 (Singapore)

Figure 8.35

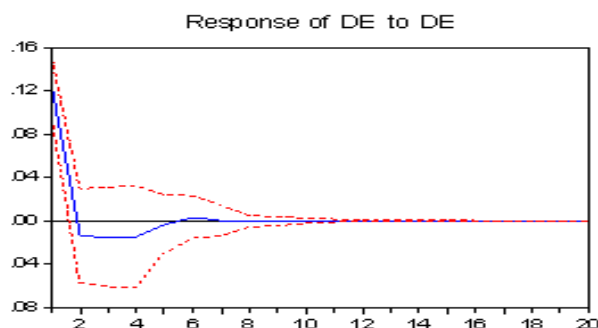


8.5.14 Findings

It is observed from the figure 8.35 that in case of shocks being transmitted through revenue channel expenditure responded immediately by increasing above the base line at $t=1$. For $2 \leq t \leq 3$ revenue fell around the base line and reached below the base line at $t=5$. For $6 \leq t \leq 20$ expenditures totally collapsed to the base line.

Impulse Response Function of Expenditure for lag order 3 (Singapore)

Figure 8.36



8.5.15 Findings

It is observed from the Figure 8.36 that following shocks transmitted through expenditure channel, expenditures responded immediately by increasing above the base line at $t=1$. At $t=2$ it fell below the base line For $2 \leq t \leq 5$ expenditure fell below the base line For $8 \leq t \leq 20$ expenditures were found to die out to the base line.

8.5.16 Findings from in sub-sections 8.5.12-8.5.15

A shock in revenue was found to cause positively impact on expenditure and revenue up to fourth period. A shock in expenditure was found to cause a negative effect in revenue up to fourth period. Both types of shocks were short lived in view of the fact that both expenditure and revenue failed to change the long run base of revenue and expenditure profiles.

8.5.17 Overall summary

The foregoing analysis using lag order 1, 2 and 3 indicates that revenue shock was found to have a positive effect on expenditure profile while expenditure shock was found to cause negative impact on revenue in the first four periods of projections. These results reflect the dependence of expenditure on revenue considerations in the short run in Singapore over the period of study.

Section 8.5-B

8.5.18 Variance Decomposition

Variance decomposition of forecast errors for Singapore is presented in the following table using lag orders 1, 2 and 3.

Table 8.13 (Singapore)

Variance Decomposition of Revenue at lag order 1			
Period	S.E	DR	DE
1	0.137229	100.0000	0.000000
2	0.145100	98.97930	1.020699
3	0.145425	98.91302	1.086979
4	0.145433	98.91077	1.089233
5	0.145434	98.91072	1.089283
6	0.145434	98.91072	1.089284
7	0.145434	98.91072	1.089284
8	0.145434	98.91072	1.089284
9	0.145434	98.91072	1.089284
10	0.145434	98.91072	1.089284
11	0.145434	98.91072	1.089284
12	0.145434	98.91072	1.089284
13	0.145434	98.91072	1.089284
14	0.145434	98.91072	1.089284
15	0.145434	98.91072	1.089284
16	0.145434	98.91072	1.089284
17	0.145434	98.91072	1.089284
18	0.145434	98.91072	1.089284
19	0.145434	98.91072	1.089284
20	0.145434	98.91072	1.089284
Cholesky ordering DR DE			

8.5.19 Findings

Table 8.13 presents that variation in revenue were mainly dominated by revenue shocks in the entire period. Expenditure shocks contributed very insignificant variations in revenue. Total Revenue variation was mainly due to revenue shocks in the first period. Since $t \geq 2$ revenue shocks contributed about 99% variations in revenue while contribution of expenditure was around 1%.

Table 8.14 (Singapore)

Variance Decomposition of Expenditure at lag order1			
Period	S.E	DR	DE
1	0.117827	0.633971	99.36603
2	0.127850	15.17749	84.82251
3	0.128566	15.98680	84.01320
4	0.128592	16.01293	83.98707
5	0.128592	16.01349	83.98651
6	0.128592	16.01350	83.98650
7	0.128592	16.01350	83.98650
8	0.128592	16.01350	83.98650
9	0.128592	16.01350	83.98650
10	0.128592	16.01350	83.98650

11	0.128592	16.01350	83.98650
12	0.128592	16.01350	83.98650
13	0.128592	16.01350	83.98650
14	0.128592	16.01350	83.98650
15	0.128592	16.01350	83.98650
16	0.128592	16.01350	83.98650
17	0.128592	16.01350	83.98650
18	0.128592	16.01350	83.98650
19	0.128592	16.01350	83.98650
20	0.128592	16.01350	83.98650
Cholesky ordering DR DE			

8.5.20 Findings

Table 8.14 presents that expenditure shocks took the dominated role in explaining the variations in expenditures. Total expenditure variations were explained by expenditure shocks at t=1. Expenditure shocks constituted 84% variations in expenditure during the projection periods while revenue shocks accounted for around 16 % variations in expenditure during the projection periods.

8.5.21 Findings in sub-sections 8.5.19-8.5.20

Revenue shocks dominated expenditure shocks in constituting variations in revenue over the entire projection period while expenditure shocks dominated over the revenue shocks in generating the variations in expenditure. Revenue shocks constituted around 16% variations in expenditure which reflects the dependence of expenditure on revenue to some extent. This finding shows the causality running from revenue to expenditure but this causality link is very weak.

Table 8.15 (Singapore)

Variance Decomposition of Revenue of lag order 2			
Period	S.E	DR	DE
1	0.139314	100.0000	0.000000
2	0.146731	97.47971	2.520286
3	0.151276	95.02344	4.976555
4	0.151336	94.95237	5.047630
5	0.151349	94.95196	5.048036
6	0.151358	94.94987	5.050132
7	0.151360	94.94893	5.051073
8	0.151360	94.94883	5.051171
9	0.151360	94.94883	5.051172
10	0.151360	94.94883	5.051173
11	0.151360	94.94883	5.051173
12	0.151360	94.94883	5.051173
13	0.151360	94.94883	5.051173
14	0.151360	94.94883	5.051173
15	0.151360	94.94883	5.051173
16	0.151360	94.94883	5.051173

17	0.151360	94.94883	5.051173
18	0.151360	94.94883	5.051173
19	0.151360	94.94883	5.051173
20	0.151360	94.94883	5.051173
Cholesky ordering DR DE			

8.5.22 Findings

Table 8.15 shows that variations in revenue were mainly dominated by revenue shocks in the entire period. Expenditure shocks contributed very insignificant variations in revenue. Revenue variations were mainly due to revenue shocks in the first period. Since $t \geq 3$ revenue shocks contributed 95% variations in revenue while contribution of expenditure was around 5%.

Table 8.16 (Singapore)

Variance Decomposition of Expenditure at lag order 2			
Period	S.E	DR	DE
1	0.119567	0.157190	99.84281
2	0.128379	11.54809	88.45191
3	0.134513	16.95009	83.04991
4	0.134826	17.06456	82.93544
5	0.134848	17.05996	82.94004
6	0.134854	17.06728	82.93272
7	0.134857	17.06955	82.93045
8	0.134857	17.06972	82.93028
9	0.134857	17.06972	82.93028
10	0.134857	17.06972	82.93028
11	0.134857	17.06972	82.93028
12	0.134857	17.06972	82.93028
13	0.134857	17.06972	82.93028
14	0.134857	17.06972	82.93028
15	0.134857	17.06972	82.93028
16	0.134857	17.06972	82.93028
17	0.134857	17.06972	82.93028
18	0.134857	17.06972	82.93028
19	0.134857	17.06972	82.93028
20	0.134857	17.06972	82.93028
Cholesky ordering DR DE			

8.5.23 Findings

Table 8.16 indicates that expenditure shocks took the dominated role in explaining variations in expenditures. 99% expenditure variations were explained by expenditure shocks at $t=1$. Expenditure shocks constituted 83% variations in expenditures since $t > 2$ while revenue shocks accounted for around 17% variations in expenditures since $t > 2$.

8.5.24 Findings in sub-sections 8.5.22-8.5.23

Revenue shocks dominated expenditure shocks in constituting the variations in revenue over the entire projection period and expenditure shocks dominated over the revenue shocks in generating the variations in expenditure. Revenue shocks constituted around 17% variations in expenditure which reflects the dependence of expenditure on revenue to some extent. The causality running from revenue to expenditure is being confirmed by this result but this causality link is found to be very weak.

Table 8.17 (Singapore)

Variance Decomposition of Revenue at lag order 3			
Period	S.E	DR	DE
1	0.144919	100.0000	0.000000
2	0.152411	96.79553	3.204472
3	0.157453	92.75745	7.242555
4	0.158266	92.34791	7.652086
5	0.158425	92.27162	7.728383
6	0.158681	92.26678	7.733220
7	0.158770	92.25266	7.747343
8	0.158810	92.23558	7.764417
9	0.158824	92.23025	7.769753
10	0.158829	92.22861	7.771386
11	0.158831	92.22810	7.771898
12	0.158832	92.22788	7.772123
13	0.158833	92.22774	7.772264
14	0.158833	92.22768	7.772323
15	0.158833	92.22765	7.772346
16	0.158833	92.22765	7.772355
17	0.158833	92.22764	7.772358
18	0.158833	92.22764	7.772360
19	0.158833	92.22764	7.772361
20	0.158833	92.22764	7.772361
Cholesky ordering DR DE			

8.5.25 Findings

It is observed from the Table 8.17 that the variations in revenue were mainly dominated by revenue shocks in the entire period. Expenditure shocks contributed very insignificant variations in revenue. Total Revenue variation was mainly due to revenue shocks in the first period. Since $t \geq 3$ revenue shocks contributed 92% variations in revenue while that of expenditure was around 8%.

Table 8.18 (Singapore)

Variance Decomposition of Expenditure at lag order 3			
Period	S.E	DR	DE
1	0.122431	0.375941	99.62406
2	0.132581	13.86589	86.13411
3	0.139130	20.57961	79.42039
4	0.140947	21.47919	78.52081
5	0.140998	21.47657	78.52343
6	0.141034	21.47171	78.52829
7	0.141047	21.48591	78.51409
8	0.141068	21.50668	78.49332
9	0.141070	21.50609	78.49391
10	0.141071	21.50606	78.49394
11	0.141071	21.50619	78.49381
12	0.141071	21.50626	78.49374
13	0.141071	21.50635	78.49365
14	0.141071	21.50636	78.49364
15	0.141071	21.50636	78.49364
16	0.141071	21.50636	78.49364
17	0.141071	21.50637	78.49363
18	0.141071	21.50637	78.49363
19	0.141071	21.50637	78.49363
20	0.141071	21.50637	78.49363
Cholesky ordering DR DE			

8.5.26 Findings

Table 8.18 shows that expenditure shocks took the dominated role in explaining variations in expenditures. 99% expenditure variations were explained by expenditure shocks at t=1. Expenditure shocks constituted 78% variations in expenditures since t>3 while revenue shocks accounted for around 22% variations in expenditures since t> 3.

8.5.27 Findings in the sub-section 8.5.25-8.5.26

Revenue shocks took dominating role in constituting the variations in revenue over the entire projection period and expenditure shocks led to significant variations in expenditure. Revenue shocks constituted around 22% variations in expenditure which reflects the dependence of expenditure on revenue to some extent.

8.5.28 Summary of the above results

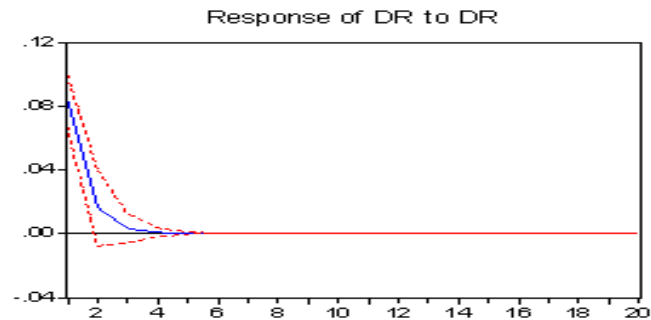
Revenue shocks constituted around 17% - 22% variations in expenditure of lag order 1, 2 and 3. This finding reflects the dependence of expenditure on revenue to some extent. All these results confirm the causality running from revenue to expenditure which was established in VECM and VAR Model. The causality link is found to be weak.

Section 8.6-A

8.6.1 Impulse Response Function of Thailand

The impulse response function for Thailand is presented in the following diagram using lag orders 1, 2 and 3.

Impulse Response Function of Revenue for lag order 1(Thailand)
Figure 8.37

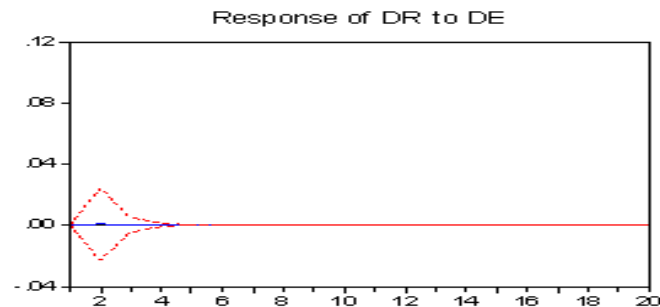


8.6.2 Findings

It is observed from the Figure 8.37 that as shocks transmitted through revenue channel, revenue exhibited immediate response by rising above the base line at $t=1$. For $2 \leq t \leq 4$ revenue fell around the base line. Since $t \geq 5$ revenues were found to died out to zero line.

Impulse Response Function of Revenue for lag order 1(Thailand)

Figure 8.38

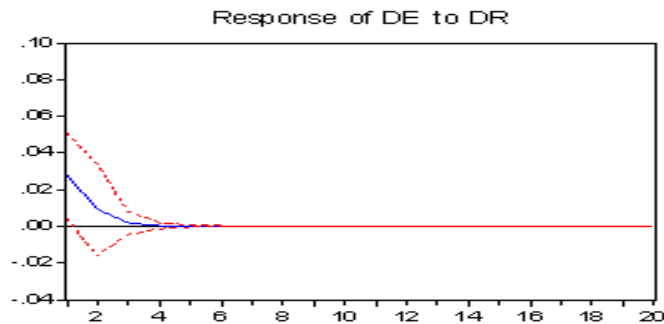


8.6.3 Findings

Figure 8.38 presents that following shocks transmitted through the expenditure channel, revenue totally collapsed since $t \geq 1$. It indicates that expenditure shocks have no impact on revenue at all.

Impulse Response Function of Expenditure for lag order 1(Thailand)

Figure 8.39

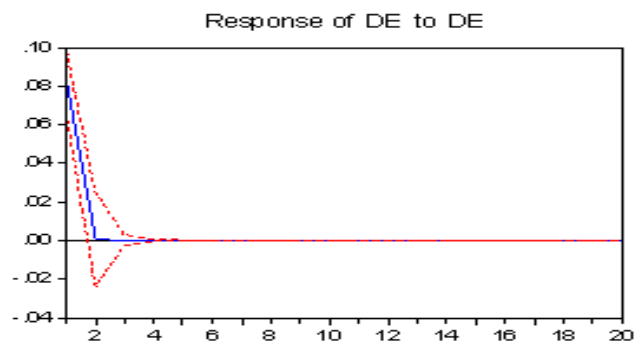


8.6.4 Findings

Figure 8.39 shows that as shocks transmitted through the revenue channel, expenditure responded immediately by increasing above the base line at $t=1$. For $2 \leq t \leq 4$ expenditure fell around the base line. Since $t \geq 5$ expenditures were found to died out to zero line.

Impulse Response Function of Expenditure for lag order 1 (Thailand)

Figure 8.40



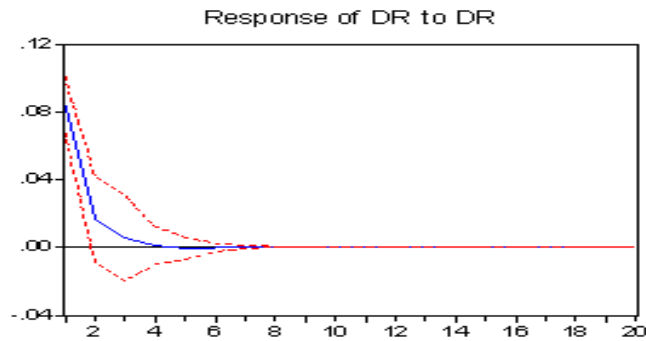
8.6.5 Findings

Figure 8.40 shows that following shocks transmitted through the expenditure channel, expenditure responded immediately by increasing above the base line at $t=1$. At $t=2$ expenditure fell on the base line. Since $t \geq 3$ expenditures were found to died out to zero line.

8.6.6 Findings in sub-sections 8.6.2-8.6.5

It appears from the above analysis that expenditure shocks failed to change the long run equilibrium base of revenue profile. Revenue shocks were found to have a positive impact on expenditure but it was short lived. Revenue shocks failed to change the long run equilibrium base of expenditure profile.

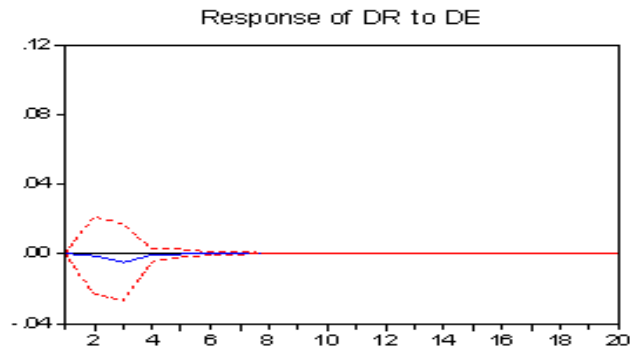
Impulse Response Function of Revenue for lag order 2 (Thailand)
Figure 8.41



8.6.7 Findings

It is observed from the Figure 8.41 that as shocks transmitted through revenue channel, revenue exhibited immediate response by rising above the base line at $t=1$. For $2 \leq t \leq 4$ revenue fell around the base line. Since $t \geq 5$ revenues were found to died out to zero line.

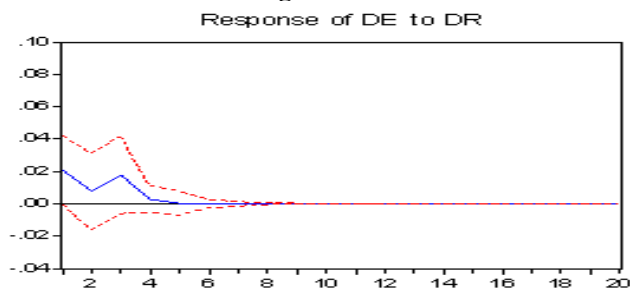
Impulse Response Function of Revenue for lag order 2 (Thailand)
Figure 8.42



8.6.8 Findings

Figure 8.42 presents that following shocks transmitted through expenditure channel, revenue exhibited delayed response at $t=1$. For $2 \leq t \leq 4$ revenue fell around the base line. Since $t \geq 5$ revenues were found to die out to zero line.

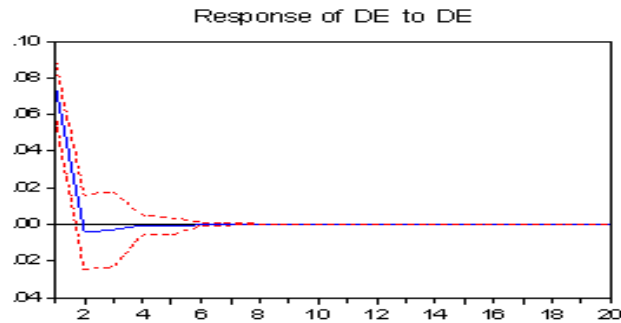
Impulse Response Function of Expenditure for lag order 2 (Thailand)
Figure 8.43



8.6.9 Findings

Figure 8.43 shows that in the face of shocks transmitted through the revenue channel, expenditure exhibited damped oscillations around the base line for $1 \leq t \leq 4$. Since $t \geq 5$ expenditure collapsed on the base line.

Impulse Response Function of Expenditure for lag order 2 (Thailand)
Figure 8.44



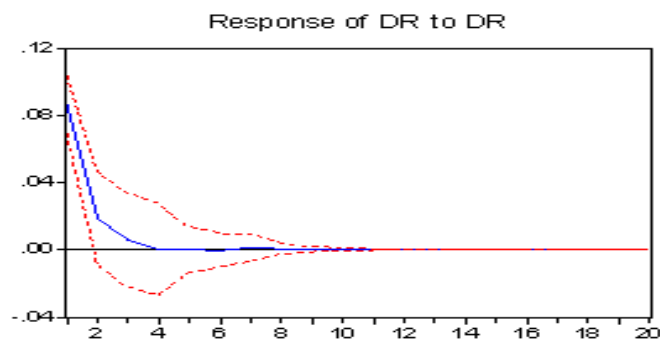
8.6.10 Findings

Figure 8.44 shows that as shocks transmitted through the expenditure channel, expenditure responded immediately by increasing above the base line $t=1$. At $t=2$ expenditure fell below the base line and remained so until $t=2, 3$. Since $t \geq 4$ expenditures were found to die out to zero line.

8.6.11 Findings in sub-sections 8.6.7-8.6.10

Expenditure shocks failed to change the long run equilibrium base of revenue profile. Revenue shocks were found to have a positive impact on expenditure but it was short lived. Revenue shocks failed to change the long run equilibrium base of expenditure profile.

Impulse Response Function of Revenue for lag order 3 (Thailand)
Figure 8.45



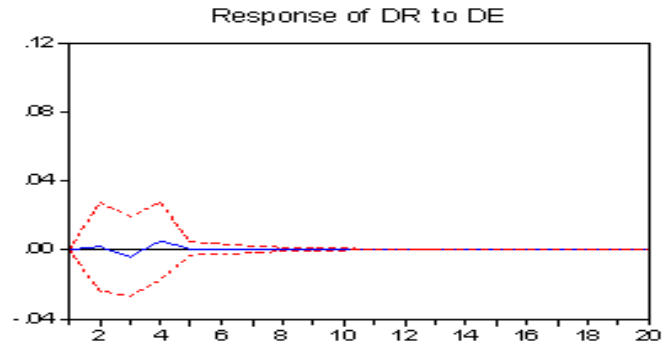
8.6.12 Findings

It is observed from the Figure 8.45 that following shocks transmitted through revenue channel, revenue exhibited immediate response by rising above the base line at $t=1$.

For $2 \leq t \leq 3$ revenue fell around the base line. Since $t \geq 4$ revenues were found to died out to zero line.

Impulse Response Function of Revenue for lag order 3 (Thailand)

Figure 8.46

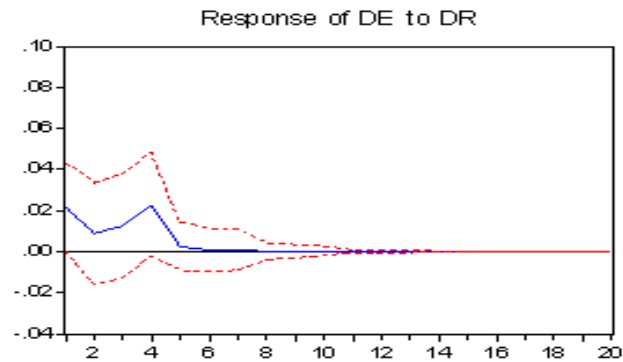


8.6.13 Findings

It is observed from the Figure 8.46 that as shocks transmitted through expenditure channel, revenue exhibited delayed response until $t=1,2$. At $t=3$ revenue fell below the base line. At $t=4$ revenue registered a rise and $t=5$ revenue fell around the base line. Since $t \geq 6$ revenues were found to died out to zero line.

Impulse Response Function of Expenditure for lag order 3(Thailand)

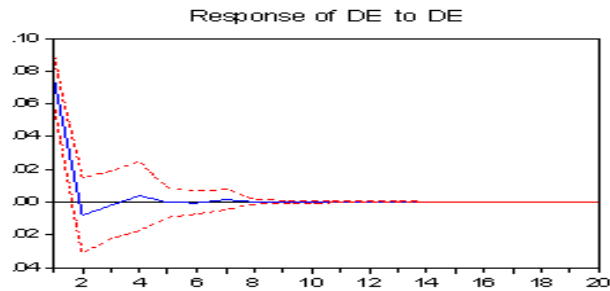
Figure 8.47



8.6.14 Findings

Figure 8.47 presents that in the event of shocks transmitted through revenue channel, expenditure exhibited immediate response by rising above the base line at $t=1$. For $2 \leq t \leq 5$ expenditure produced damped oscillations around the base line. Since $t \geq 6$ revenues were found to die out to zero line.

Impulse Response Function of Expenditure for lag order 3(Thailand)
Figure 8.48



8.6.15 Findings

Figure 8.48 shows that following shocks transmitted through the expenditure channel, expenditure responded immediately by increasing above the base line at t=1. At t=2 expenditure fell below the base line and remained so until t= 3. At t=4 expenditure registered a rise. Since $t \geq 5$ expenditures were found to die out to zero line.

8.6.16 Findings in sub-sections 8.6.12-8.6.15

Expenditure shocks failed to change the long run equilibrium base of revenue profile. Revenue shocks were found to have a mixed effect on expenditure but it was short lived. Revenue shocks failed to change the long run equilibrium base of expenditure profile.

8.6.17 Overall Summary of the findings

From the above analysis it appears that revenue shocks have a positive impact on expenditure in the short run but the shocks failed to change the long run equilibrium base of expenditure profile. Expenditure shocks exerted very insignificant effect on revenue in both the short-run and long-run. Both variables of shocks were short lived.

Section 8.6-B

8.6.18 Variance Decomposition

Variance decomposition for Thailand is presented in the following table using lag orders 1, 2 and 3.

Table 8.19 (Thailand)

Variance Decomposition of Revenue at lag order 1			
Period	S.E	DR	DE
1	0.083262	100.0000	0.000000
2	0.084834	99.99178	0.008223
3	0.084894	99.99146	0.008539
4	0.084897	99.99145	0.008552
5	0.084897	99.99145	0.008552
6	0.084897	99.99145	0.008552
7	0.084897	99.99145	0.008552
8	0.084897	99.99145	0.008552
9	0.084897	99.99145	0.008552
10	0.084897	99.99145	0.008552
11	0.084897	99.99145	0.008552
12	0.084897	99.99145	0.008552
13	0.084897	99.99145	0.008552
14	0.084897	99.99145	0.008552
15	0.084897	99.99145	0.008552
16	0.084897	99.99145	0.008552
17	0.084897	99.99145	0.008552
18	0.084897	99.99145	0.008552
19	0.084897	99.99145	0.008552
20	0.084897	99.99145	0.008552
Cholesky ordering DR DE			

8.6.19 Findings

Table 8.19 presents that variations in revenue were mainly dominated by revenue shocks in the entire period. Expenditure shocks generated very insignificant variations in revenue. Revenue variations were mainly due to revenue shocks in the first period. Since $t \geq 2$ revenue shocks contributed almost 100% variations in revenue.

Table 8.20 (Thailand)

Variance Decomposition of Expenditure at lag order 1			
Period	S.E	DR	DE
1	0.086985	10.28267	89.71733
2	0.087467	11.26156	88.73844
3	0.087485	11.29960	88.70040
4	0.087486	11.30108	88.69892
5	0.087486	11.30114	88.69886
6	0.087486	11.30114	88.69886
7	0.087486	11.30114	88.69886

8	0.087486	11.30114	88.69886
9	0.087486	11.30114	88.69886
10	0.087486	11.30114	88.69886
11	0.087486	11.30114	88.69886
12	0.087486	11.30114	88.69886
13	0.087486	11.30114	88.69886
14	0.087486	11.30114	88.69886
15	0.087486	11.30114	88.69886
16	0.087486	11.30114	88.69886
17	0.087486	11.30114	88.69886
18	0.087486	11.30114	88.69886
19	0.087486	11.30114	88.69886
20	0.087486	11.30114	88.69886
Cholesky ordering DR DE			

8.6.20 Findings

Table 8.20 shows that expenditure shocks contributed 89% variations in expenditure in the entire projection period. Revenue shocks accounted for around 11% variations in expenditure since $t > 1$. Hence expenditure shocks became the dominant factor over the revenue shocks.

8.6.21 Findings in sub-sections 8.6.19-8.6.20

Revenue shocks dominated expenditure shocks in constituting the variations in revenue over the entire projection period and expenditure shocks dominated over the revenue shocks in generating variations in expenditure. Revenue shocks constituted around 11% variations in expenditure which reflects the dependence of expenditure on revenue to some extent.

Table 8.21 (Thailand)

Variance Decomposition of Revenue at lag order 2			
Period	S.E	DR	DE
1	0.086582	100.0000	0.000000
2	0.088607	99.96418	0.035817
3	0.088884	99.76253	0.237470
4	0.089034	99.42544	0.574555
5	0.089036	99.42259	0.577414
6	0.089037	99.42256	0.577441
7	0.089049	99.42251	0.577489
8	0.089050	99.42250	0.577504
9	0.089051	99.42237	0.577629
10	0.089051	99.42227	0.577729
11	0.089051	99.42227	0.577732
12	0.089051	99.42227	0.577732
13	0.089051	99.42227	0.577732
14	0.089051	99.42227	0.577732
15	0.089051	99.42227	0.577732
16	0.089051	99.42227	0.577732
17	0.089051	99.42227	0.577732
18	0.089051	99.42227	0.577732
19	0.089051	99.42227	0.577732
20	0.089051	99.42227	0.577732
Cholesky ordering DR DE			

8.6.22 Findings

Table 8.21 presents that variations in revenue were mainly dominated by revenue shocks in the entire period. Expenditure shocks contributed very insignificant variations in revenue. Revenue variations were mainly due to revenue shocks in the first period. Since $t \geq 2$ revenue shocks contributed 99% variations in revenue while that of expenditure was around 1%.

Table 8.22 (Thailand)

Variance Decomposition of Expenditure at lag order 2			
Period	S.E	DR	DE
1	0.078166	7.324848	92.67515
2	0.078665	8.192610	91.80739
3	0.080694	12.63196	87.36804
4	0.080741	12.72996	87.27004
5	0.080748	12.73007	87.26993
6	0.080748	12.73005	87.26995
7	0.080748	12.73059	87.26941
8	0.080748	12.73064	87.26936
9	0.080748	12.73064	87.26936
10	0.080748	12.73064	87.26936
11	0.080748	12.73064	87.26936
12	0.080748	12.73064	87.26936
13	0.080748	12.73064	87.26936
14	0.080748	12.73064	87.26936
15	0.080748	12.73064	87.26936
16	0.080748	12.73064	87.26936
17	0.080748	12.73064	87.26936
18	0.080748	12.73064	87.26936
19	0.080748	12.73064	87.26936
20	0.080748	12.73064	87.26936
Cholesky ordering DR DE			

8.6.23 Findings

Table 8.22 shows that expenditure shocks contributed 87% variations in expenditure in the entire projection period. Revenue shocks accounted for around 13% variations in expenditure since $t > 2$. Hence expenditure shocks became the dominant factor over the revenue shocks.

8.6.24 Findings in sub-sections 8.6.22-8.6.23

Revenue shocks dominated expenditure shocks in generating the variations in revenue. Expenditure shocks led to significant variations in expenditure. Revenue shocks constituted around 13% variations in expenditure and it reflects the dependence of expenditure on revenue to some extent.

Table 8.23 (Thailand)

Variance Decomposition of Revenue at lag order 3			
Period	S.E	DR	DE
1	0.086582	100.0000	0.000000
2	0.088607	99.96418	0.035817
3	0.088884	99.76253	0.237470
4	0.089034	99.42544	0.574555
5	0.089036	99.42259	0.577414
6	0.089037	99.42256	0.577441
7	0.089049	99.42251	0.577489
8	0.089050	99.42250	0.577504
9	0.089051	99.42237	0.577629
10	0.089051	99.42227	0.577729
11	0.089051	99.42227	0.577732
12	0.089051	99.42227	0.577732
13	0.089051	99.42227	0.577732
14	0.089051	99.42227	0.577732
15	0.089051	99.42227	0.577732
16	0.089051	99.42227	0.577732
17	0.089051	99.42227	0.577732
18	0.089051	99.42227	0.577732
19	0.089051	99.42227	0.577732
20	0.089051	99.42227	0.577732
Cholesky ordering DR DE			

8.6.25 Findings

Table 8.23 presents that variations in revenue were mainly dominated by revenue shocks in the entire period. Expenditure shocks generated very insignificant variations in revenue. Revenue variations were mainly due to revenue shocks in the first period. Since $t \geq 2$ revenue shocks contributed 99% variations in revenue while that of expenditure was around 1%.

Table 8.24 (Thailand)

Variance Decomposition of Expenditure at lag order 3			
Period	S.E	DR	DE
1	0.078005	7.780141	92.21986
2	0.078946	8.866941	91.13306
3	0.079966	11.12484	88.87516
4	0.083299	17.88107	82.11893
5	0.083340	17.96100	82.03900
6	0.083344	17.96754	82.03246
7	0.083363	17.97033	82.02967
8	0.083363	17.97050	82.02950
9	0.083363	17.97071	82.02929
10	0.083364	17.97312	82.02688
11	0.083364	17.97322	82.02678
12	0.083364	17.97322	82.02678
13	0.083364	17.97323	82.02677
14	0.083364	17.97323	82.02677
15	0.083364	17.97323	82.02677
16	0.083364	17.97323	82.02677
17	0.083364	17.97323	82.02677

18	0.083364	17.97323	82.02677
19	0.083364	17.97323	82.02677
20	0.083364	17.97323	82.02677
Cholesky ordering DR DE			

8.6.26 Findings

Table 8.24 reports that expenditure shocks dominated over the revenue shocks in generating the variations in expenditure. Expenditure shocks contributed 82% variations in expenditure in the entire projection period. Revenue shocks accounted for around 17% variations in expenditure since $t > 3$.

8.6.27 Findings in sub-sections 8.6.25-8.6.26

Revenue shocks dominated expenditure shocks in constituting the variations in revenue over the entire projection period and expenditure shocks dominated over the revenue shocks in generating the variations in expenditure. Revenue shocks constituted around 18% variations in expenditure which reflects the dependence of expenditure on revenue to some extent.

8.6.28 Summary of the above findings

Revenue shocks produced significant contribution to the constitution of revenue profile and expenditure shocks took the greater role than revenue shocks in constituting the expenditure profile. No Granger causality status between revenue and expenditure obtained in VECM and VAR has been confirmed through intervention analysis.