CHAPTER 11
SUMMARY OF THE STUDY

11.1 Summary of the study

Government revenue and government expenditure relationships in four Southeast Asian counties (Indonesia Singapore, Malaysia, Thailand) over different periods have been studied. A summary of major findings on different dimensions of the relationships between revenue and expenditure is being presented below.

11.2 Findings on Stationarity and Cointegration-

The findings on stationarity and cointegration between government revenue and government expenditure in chapter 4 and 5 are as follows.

(i) Both revenue and expenditure series for all chosen countries are non-stationary during the period of study. These are found to be integrated of order 1 i.e I (1).

(ii) Both revenue and expenditure series for each of the four Southeast Asian countries have a long-run equilibrium relationship over the period under investigation. They are Cointegrated CI (1,0)

(iii) The long-run equilibrium relationships between government revenue and government expenditure for all chosen countries are stable as found in the estimation of respective VEC Models.

11.3 Granger Causality-

Summary of the study with the historical dataset of all chosen countries during different periods of time on the direction of causal relationships between government revenue and government expenditure as in chapter 6 and 7 has been depicted in the table 11.1

Table-11.1

Summary of Granger Causality (Historical dataset)

Country	Lag order	Granger Causality through ECM	Granger Causality through VAR	Standard Granger Causality Test	Comments
Indonesia	1	R→E	X	X	Revenue Granger caused expenditure
	2	R→E	R→E	R→E	Revenue Granger caused expenditure
	3	R→E	R→E	X	Revenue Granger caused expenditure
Malaysia	1	X	X	X	No causality
	2	X	X	X	No causality
	3	X	X	X	No causality
Singapore	1	X	R→E	R→E	Revenue Granger caused expenditure
	2	X	R→E	R→E	Revenue Granger caused expenditure
	3	R→E	R→E	R→E	Revenue Granger caused expenditure
Thailand	1	X	X	X	No causality
	2	X	X	X	No causality
	3	X	X	X	No causality

Note: R→E means revenue causes expenditure & X means no causal relationship.

The results reported in the table 11.1 suggest that

(i) Government revenue Granger caused government expenditure in Singapore and Indonesia over the respective periods of study. Tax-and-Spend principle plays a vital role in Singapore and Indonesia in case of fiscal management.

(ii) Both government revenue and government expenditure appeared to be exogeneous to each other in Malaysia and Thailand over the respective periods

of study. Fiscal Neutrality Principle appears to hold good for Malaysia and Thailand.

11.4 Findings from Impulse Response Function Analysis

The major findings from the study of impulse response functions of revenue and expenditure as in chapter 8 are given in the following table11.2

Table- 11.2

Summary of Impulse Response Function (Historical dataset)

Country	Lag order	Expenditure shocks in revenue variation	Revenue shocks in expenditure variation	Comments
Indonesia	1	Insignificant	Insignificant	Revenue shocks have a positive impact on expenditure
	2	Insignificant	Significant	
	3	Insignificant	Significant	
Malaysia	1	Insignificant	Insignificant	Expenditure shocks have a very insignificant positive effect on revenue and vice versa
	2	Insignificant	Insignificant	
	3	Insignificant	Insignificant	
Singapore	1	Insignificant	Significant	Revenue shocks cause a positive responses from expenditure
	2	Insignificant	Significant	
	3	Insignificant	Significant	
Thailand	1	Insignificant	Insignificant	Revenue shocks generate insignificant positive responses from expenditure
	2	Insignificant	Significant	
	3	Insignificant	significant	

11.4.1. A Findings from Revenue Responses in Indonesia over the Historical Dataset.

Findings reported in the table 11.2 exhibit that

Shocks transmitted through the channel of expenditure and revenue

   (i) were very short lived

   (ii) failed to change the long-run equilibrium base line and

   (iii) Shocks transmitted through expenditure channel played a very negligible role in generating short-run variations in revenue.

11.4.1. B Findings from Expenditure Responses in Indonesia over the Historical Dataset.

Shocks transmitted through the channel of revenue and expenditure

         (i)   were short lived

(ii) failed to change the long-run equilibrium base and.

(iii) revenue shocks accounted for a larger part of the variations in expenditure.

11.4.2. A Findings from Revenue Responses in Malaysia over the Historical Dataset.

Shocks transmitted through the channel of expenditure and revenue

(i) were very short lived

(ii) failed to change the long-run equilibrium base line and

(iii) shocks transmitted through expenditure channel generated significant variations in expenditure while revenue shocks were the predominant cause behind the variations in revenue.

11.4.2. B Findings from Expenditure Responses in Malaysia over the Historical Dataset.

Shocks transmitted through the channel of revenue and expenditure

(i) were short lived

(ii) failed to change the long-run equilibrium base and

(iii) Variations in revenue were mainly due to revenue shocks and variations in expenditure were mainly due to expenditure shocks.

11.4.3. A Findings from Revenue Responses in Singapore over the Historical Dataset.

Effects of the shocks transmitted through the channel of expenditure and revenue are given below

(i) All shocks were short lived

(ii) Both revenue and expenditure shocks failed to change the long-run equilibrium base line and

(iii) Shocks transmitted through expenditure channel led to significant variations in expenditure while revenue shocks were the predominant cause behind the variations in revenue.

11.4.3. B Findings from Expenditure Responses in Singapore over the Historical Dataset.

Effects of the shocks transmitted through the channel of revenue and expenditure are presented below

(i) All types of shocks were short lived

(ii) Failed to change the long-run equilibrium base line and

(iii) Revenue shocks were found to have a positive effect on expenditure profile.

11.4.4. A Findings from Revenue Responses in Thailand over the Historical Dataset.

Shocks transmitted through the channel of expenditure and revenue

(i) were short lived

(ii) failed to change the long-run equilibrium base line and

(iii)Shocks transmitted through expenditure channel generated insignificant variations in expenditure and revenue shocks were the predominant cause behind the variations in revenue.

11.4.4. B Findings from Expenditure Responses in Thailand over the Historical Dataset.

Results of the shocks transmitted through the channel of expenditure and revenue are given below

(i) All shocks were short lived

(ii) Both revenue and expenditure shocks failed to change the long-run equilibrium base line and

(iii) Revenue shocks were found to have a insignificant positive impact on expenditure in the short-run.

11.5 Findings from the Variance Decomposition Study

The major findings of the study with variance decomposition of forecast errors as in chapter 8 are presented in the table 11.3

Table 11.3

Summary of Results of Variance Decompositions of Forecast Errors

Country	Lag order	Contribution (%) of expenditure shocks in revenue variation	Contribution (%) of revenue shocks in expenditure variation	Comments
Indonesia	1	0.34	63	Revenue shocks explain larger variations in expenditure and expenditure shocks generated vary insignificant variations in revenue profile.
	2	5.15	57	
	3	6.24	57	
Malaysia	1	1.80	30	Expenditure shocks accounted for substantial part of variations in expenditure and revenue shocks had a predominant role in revenue profile.
	2	3.72	33	
	3	07	34	
Singapore	1	01	16	Revenue shocks explain insignificant variations in expenditure & expenditure shocks had very minimal effect on revenue profile.
	2	05	17	
	3	08	22	
Thailand	1	00	11	Expenditure shocks accounted for substantial part of variations in expenditure & revenue shocks had a predominant role in revenue profile.
	2	0.57	12	
	3	0.57	18	

The results reported in the table 11.3 indicate

11.5.1. (A) Decomposition of Revenue Variations in Indonesia over the Historical Dataset.

(i)   Revenue variations were mainly due to revenue shocks, since revenue shocks contributed at least 93% of variations in revenue profile.

(ii) Expenditure shocks accounted for at most 7% of variations in revenue variations.

(iii) Revenue shocks were the predominant factor in generating the variations in revenue.

11.5.1. (B) Decomposition of Expenditure Variations in Indonesia over the Historical Dataset.

(i)   Variations in expenditure were mainly due to revenue shocks, since revenue shocks contributed at least 57% of variations in expenditure profile.

(ii) Expenditure shocks accounted for at most 43% of variations in expenditure variations.

(iii) Revenue shocks were the main guiding factor in generating the variations in expenditure.

11.5.2. (A) Decomposition of Revenue Variations in Malaysia over the Historical Dataset.

(i)   Revenue variations were mainly due to revenue shocks, since revenue shocks contributed at least 94% of variations in revenue profile.

(ii) Expenditure shocks accounted for at most 6% of variations in revenue variations.

(iii) Revenue shocks took the dominant role in generating the variations in revenue.

11.5.2. (B) Decomposition of Expenditure Variations in Malaysia over the Historical Dataset.

(i)   Variations in expenditure were mainly due to expenditure shocks, since expenditure shocks contributed to at least 66% of variations in expenditure profile.

(ii) Revenue shocks accounted for at most 34% of variations in expenditure variations.

(iii) Expenditure shocks dominated over the revenue shocks in generating the variations in expenditure.

11.5.3. (A) Decomposition of Revenue Variations in Singapore over the Historical Dataset.

(i)   Variations in revenue were mainly due to revenue shocks, since revenue shocks contributed at least 93% of variations in revenue profile.

(ii) Expenditure shocks contributed at most 7% of variations in revenue variations.

(iii) Revenue shocks took the dominant role in generating the variations in revenue.

11.5.3. (B) Decomposition of Expenditure Variations in Singapore over the Historical Dataset.

  (i)   Variations in expenditure were mainly due to expenditure shocks, since revenue shocks contributed at most 17%-20% of variations in expenditure profile.

  (ii) Expenditure shocks accounted for around 80% of variations in expenditure variations and

  (iii) Expenditure shocks dominated over the revenue shocks in generating variations in expenditure. This indicates that the causality from revenue to expenditure is weak.

11.5.4. (A) Decomposition of Revenue Variations in Thailand over the Historical Dataset.

  (i)   Revenue variations were mainly due to revenue shocks, since revenue shocks contributed at least 99% variations in revenue profile.

  (ii) Expenditure shocks accounted for at most 1% variations in revenue variations and

  (iii) Revenue shocks took the dominant role in generating variations in revenue.

11.5.4. (B) Decomposition of Expenditure Variations in Thailand over the Historical Dataset.

  (i)   Variations in expenditure were mainly due to expenditure shocks, since expenditure shocks explained at least 82% of variations in expenditure profile.

  (ii) Revenue shocks accounted for at most 18% of variations in expenditure variations and

  (iii) Expenditure shocks dominated over revenue shocks in generating variations in expenditure.

11.6 Structural Stability and Direction of Causality link-

Chow Test along with Recursive Residual Test and CUSUM Tests as in chapter 9 confirm that structural break occured in the existing relationships for all the chosen countries over the period of study. On the basis of structural break in a particular year, two sub-periods have been identified for all chosen countries during the period concerned. The summary of our study on Granger causality in different sub-periods has been reported in the table 11.4

Table-11.4

Summary of Granger Causality in Different Sub-periods

Country	Historical Data period	Granger causality in Historical Dataset	First sub-period	Granger causality	Second sub-period	Granger causality
Indonesia	1968-2008	Revenue caused expenditure	1968-1997	Revenue caused expenditure and vice versa	1998-2008	Revenue caused expenditure
Malaysia	1963-2007	No causal relationship	1963-1984	Revenue caused expenditure	1985-2007	Expenditure caused revenue
Singapore	1966-2008	Revenue caused expenditure	1966-1997	Expenditure caused revenue	1988-2008	Revenue caused expenditure
Thailand	1953-2007	No causal relationship	1953-1987	Revenue caused expenditure	1988-2007	Revenue caused expenditure

Table 11.4 exhibits the following features of Granger causality in different sub-periods in the chosen countries.

11.6.1 Effects of structural change on the causal relationship between revenue & expenditure in Indonesia.

In Indonesia bidirectional causality link did exist in the first sub-period 1968-1997. This was not in conformity with the findings over the historical dataset. Moreover in the second sub-period 1998-2008, the direction of causality was from revenue to expenditure. This was in conformity with the findings over a historical dataset.

11.6.2 Effects of structural change on the causal relationship between revenue & expenditure in Malaysia.

In Malaysia causality running from revenue to expenditure did observe in the first sub-period 1963-1984 and in the second sub-period 1985-2007 unidirectional causality, running from

expenditure to revenue was found. This was in striking contrast with the findings of 'no causal relation' in historical dataset.

11.6.3 Effects of structural change on the causal relationship between revenue & expenditure in Singapore.

In Singapore the first period 1966-1987 was marked by presence of unidirectional causality running from expenditure to revenue and in the second sub period 1988-2007 unidirectional causality from revenue to expenditure was found. This was in striking contrast with the findings of 'revenue Granger caused expenditure' in the historical dataset.

11.6.4 Effects of structural change on the causal relationship between revenue & expenditure in Thailand.

In Thailand unidirectional causality running from revenue to expenditure did exist in the first sub period 1953-1987 and in the second sub period 1988- 2007 the same causality link is found. This finding was also in striking contrast with the evidence of 'no causal relation between revenue and expenditure' in historical dataset.