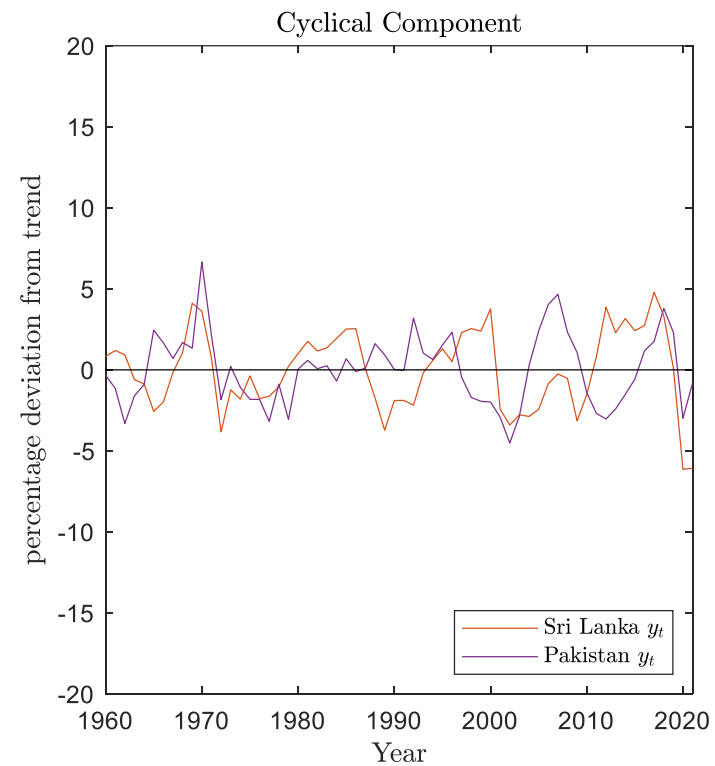
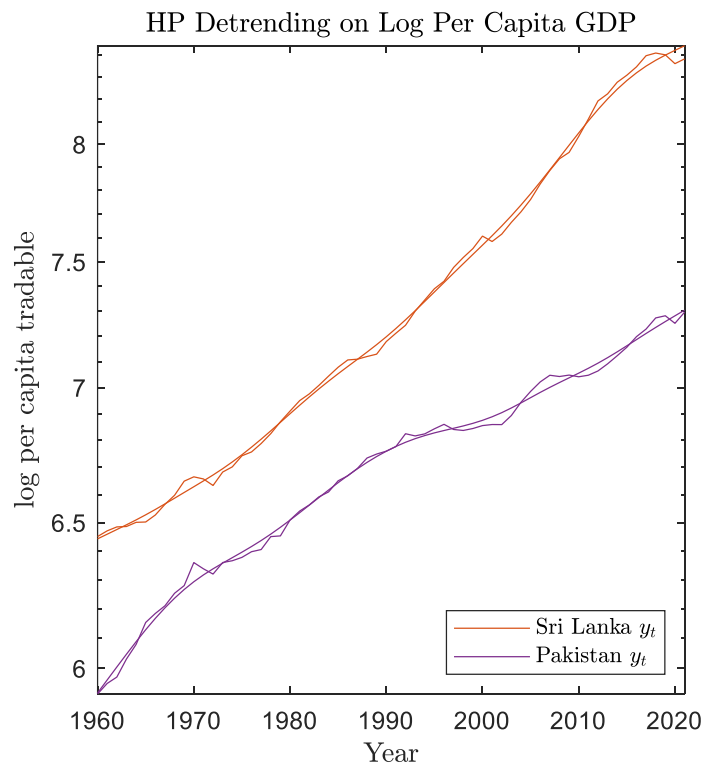


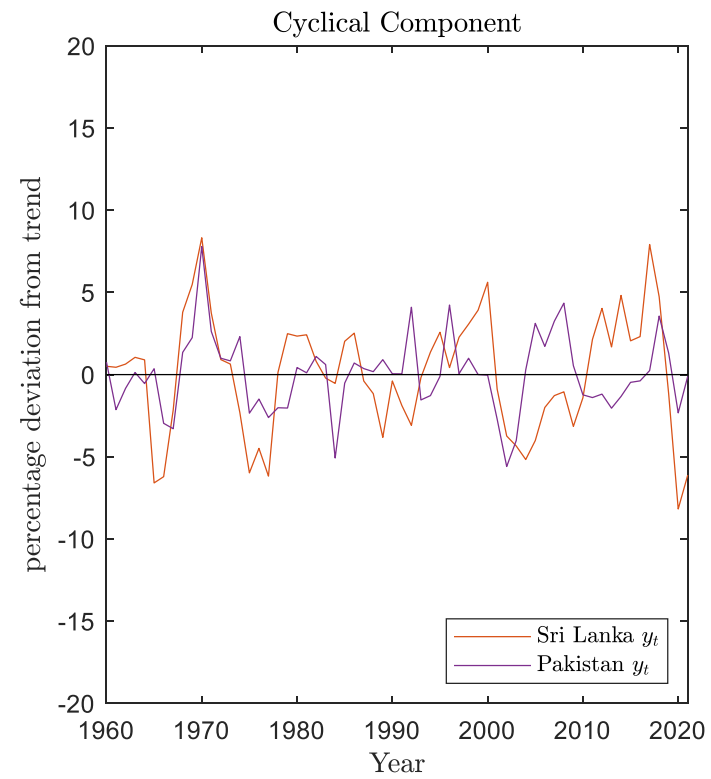
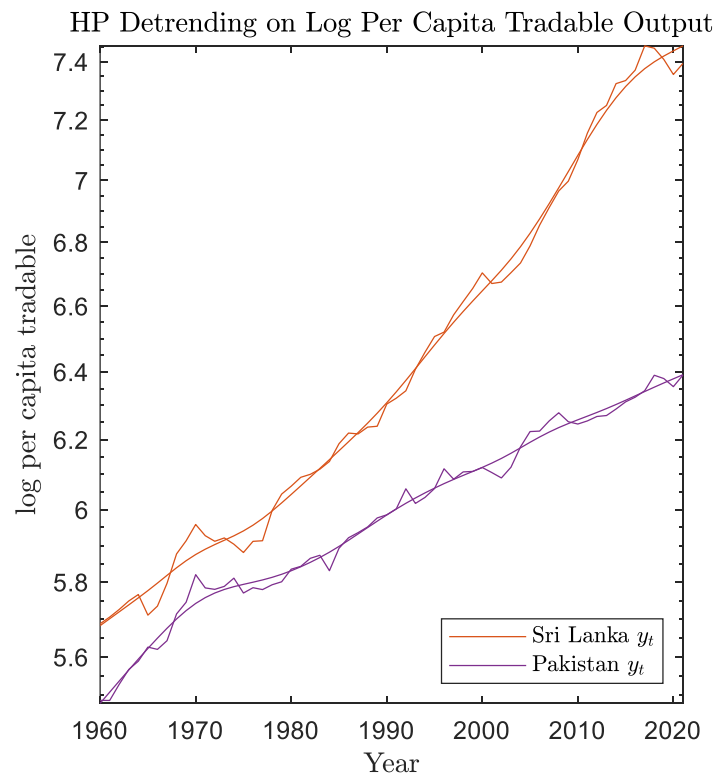
Output Process

- 比較使用不同 filtering (HP-Filter/ Removing Log Quadratic trend) 與 Output proxy(Real GDP / Real Tradable GDP)，所產生的 y^T

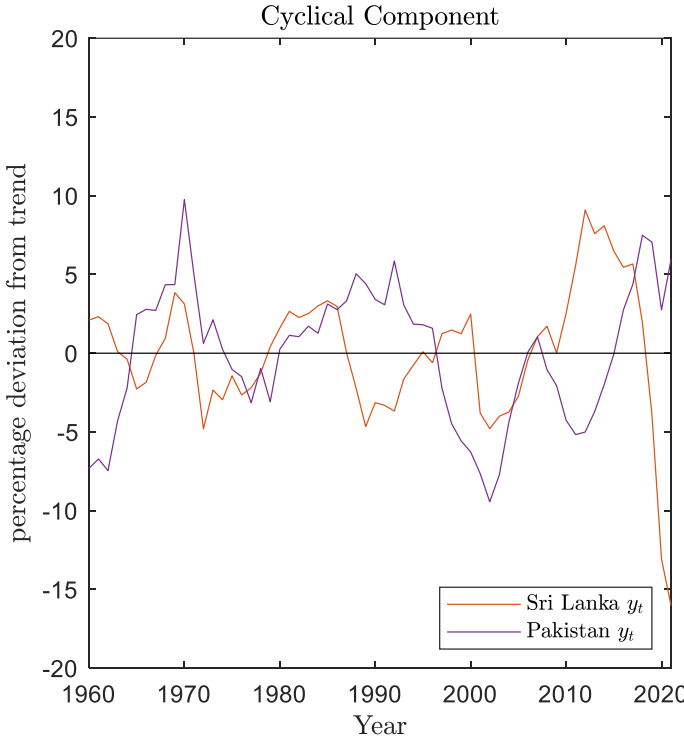
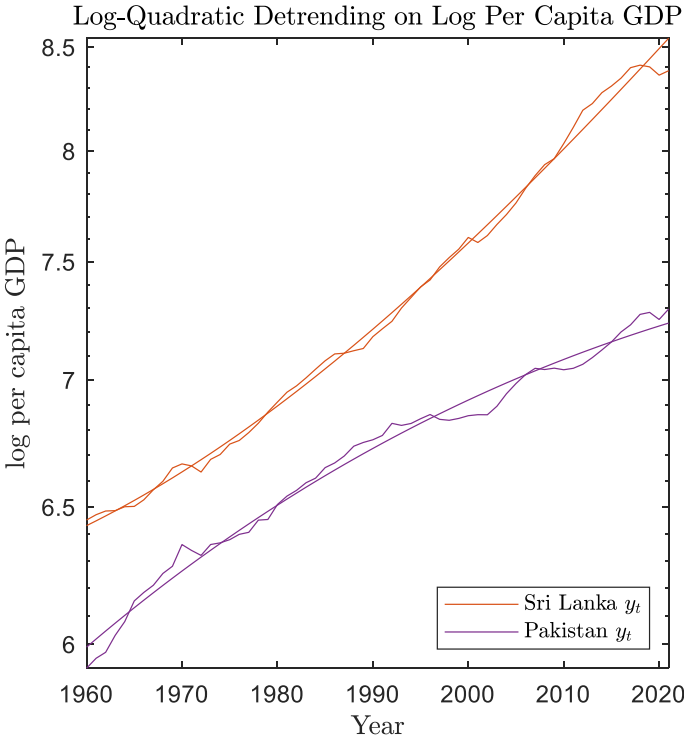
GDP + HP filter



Tradable + HP filter

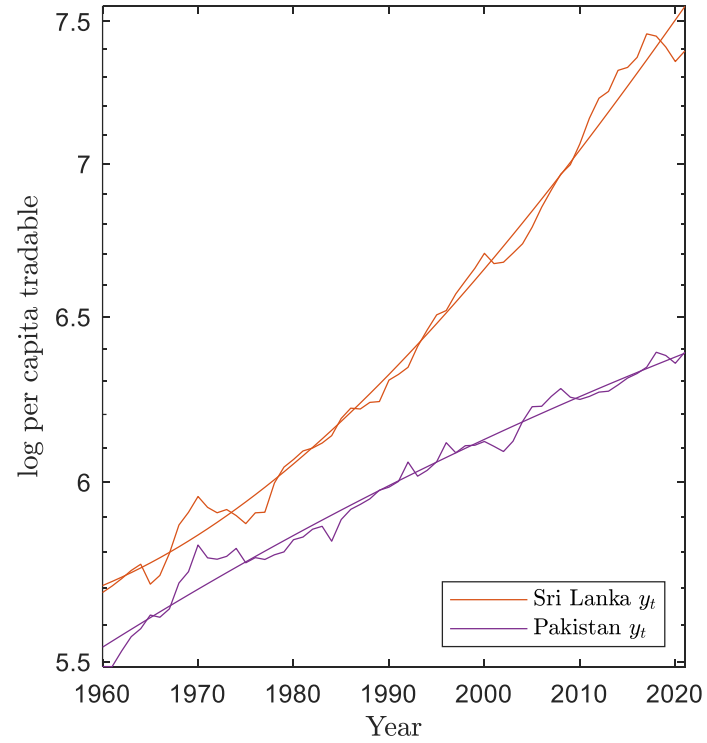


GDP + Log-quadratic

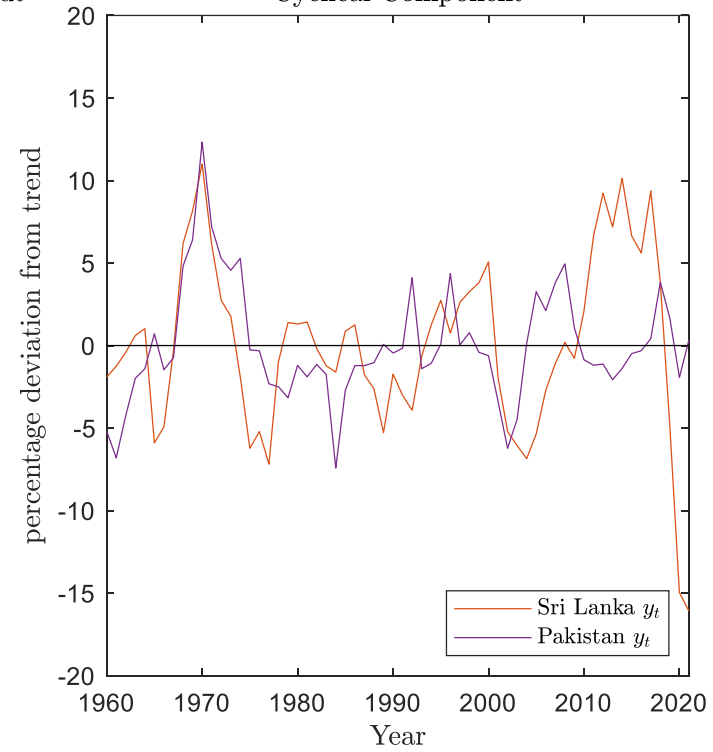


Tradable + Log-quadratic

Log-Quadratic Detrending on Log Per Capita Tradable Output



Cyclical Component



結果如下表：

Output Proxy	Filtering	Sri Lanka			Pakistan		
		ρ	σ	Unconditional std	ρ	σ	Unconditional std
GDP	HP	0.912	0.0122	2.98%	0.9008	0.0110	2.52%
Tradable	HP	0.9114	0.0180	4.37%	0.8518	0.0116	2.21%
GDP	Log-Q	0.9326	0.0212	5.88%	0.9585	0.0216	7.56%
Tradable	Log-Q	0.9325	0.0266	7.38%	0.9239	0.0174	4.55%

使用不同 output proxy 與 filtering 的組合估計 $(\beta, \delta_1, \delta_2)$ 的結果。注意，當使用 tradable output 作為 output 的 proxy 時，估計時的 target 會由 debt-to-GDP 變為 debt-to-tradable GDP。

Output Proxy	Filtering	Sri Lanka			Pakistan		
		β	δ_1	δ_2	β	δ_1	δ_2
GDP	HP	0.7302	-0.5292	0.5995	0.6947	-0.4939	0.5482
Tradable	HP	0.7499	-0.2532	0.339	0.6912	-0.4799	0.5408
GDP	Log-Q	0.805	-0.4834	0.5755	0.8297	-0.4408	0.5225
Tradable	Log-Q	0.9186	-0.2000	0.2981	0.9229	-0.4424	0.5186

(Seems that y^T received by removing the log quadratic term yields a more sensible subjective discount parameter.)

Output Proxy	Filtering	Sri Lanka			Pakistan		
		Debt/GDP	Freq	Output Loss	Debt/GDP	Freq	Output Loss
GDP	HP	0.77	2.01	0.06	0.52	2.54	0.047
GDP	Log-Q	0.73	2.6	0.07	0.56	3.37	0.06
	<i>target</i>	<i>0.75</i>	<i>2.6</i>	<i>0.07</i>	<i>0.44</i>	<i>2.6</i>	<i>0.07</i>
Tradable	HP	1.7	0.7	0.07	1.04	0.98	0.05
Tradable	Log-Q	1.72	0.3	0.08	1.04	0.53	0.06
	<i>target</i>	<i>1.75</i>	<i>2.6</i>	<i>0.07</i>	<i>1.02</i>	<i>2.6</i>	<i>0.07</i>

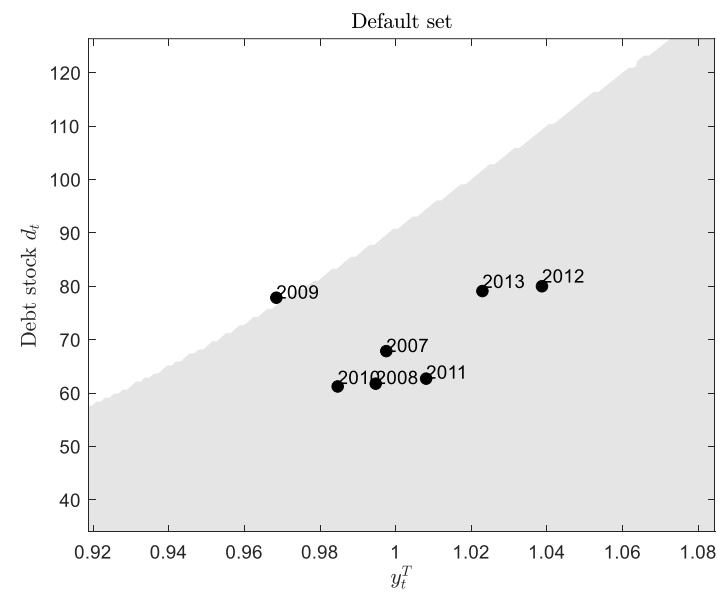
Default set

座標上的 debt level，是由 $\text{total debt} / \text{nominal GDP}$ 而來。若 y_T 的 proxy 是 tradable GDP，則會是 $\text{total debt} / \text{nominal tradable GDP}$ 。

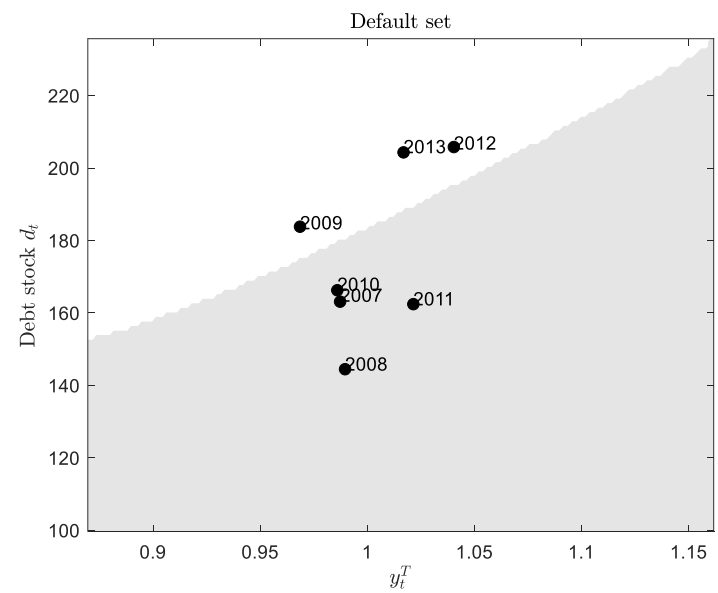
與 target debt ratio 時的做法相同，我將計算後的 $\text{annual debt-to-GDP ratio} * 0.37 \text{ (haircut)} * 4 \text{ (quarters)}$ ，表示 unsecured debt to GDP ratio per quarter.

Sri Lanka

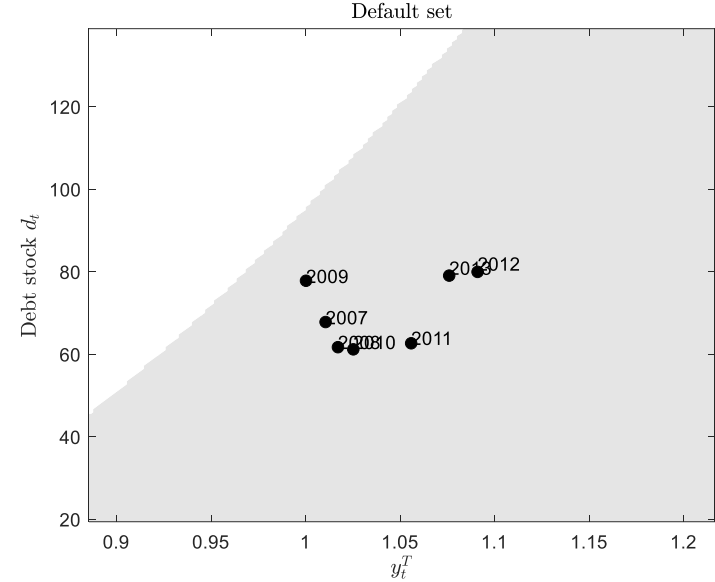
GDP + HP



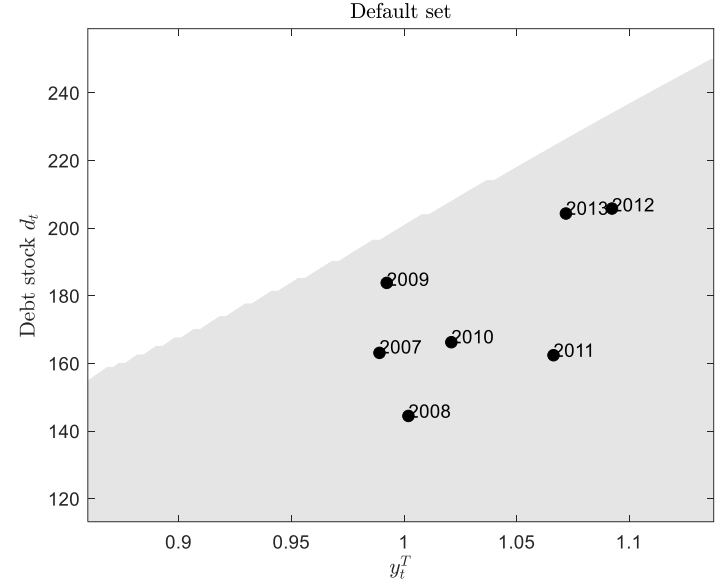
Tradable + HP



GDP +log-quadratic

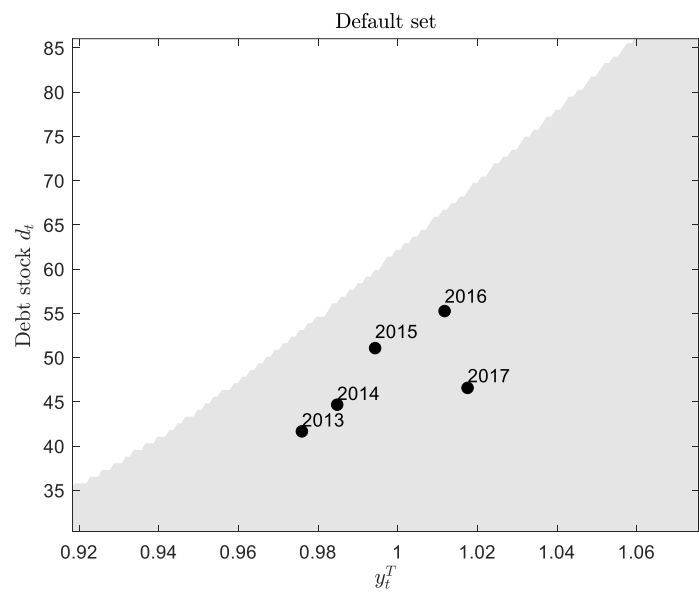


Tradable + log-quadratic

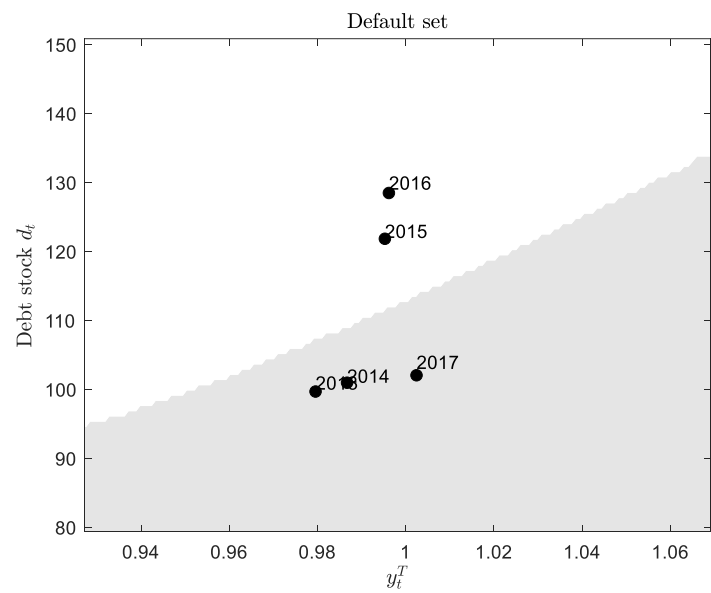


Pakistan

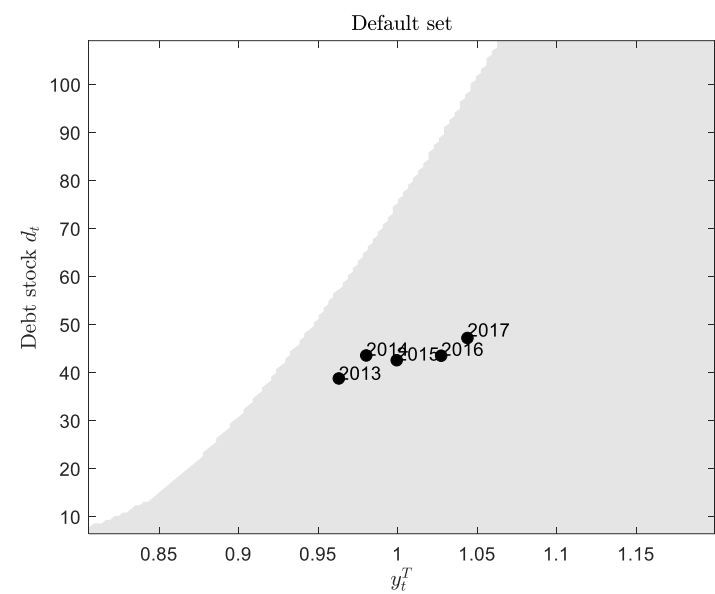
GDP + HP



Tradable + HP



GDP +log-quadratic



Tradable + log-quadratic

