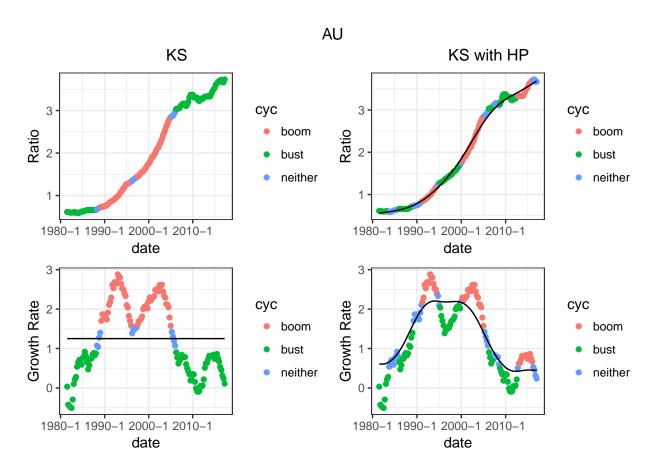
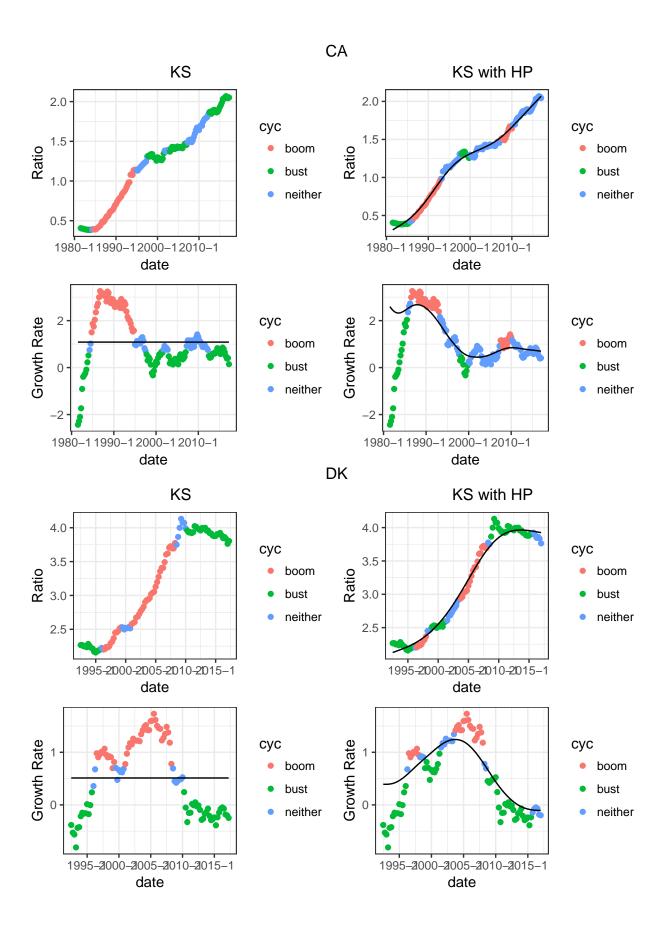
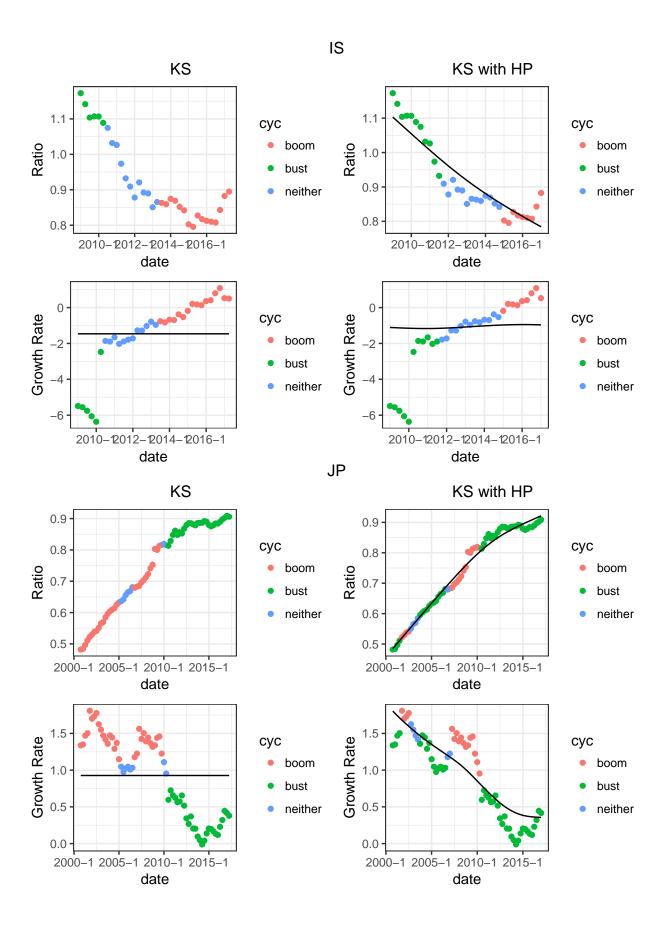
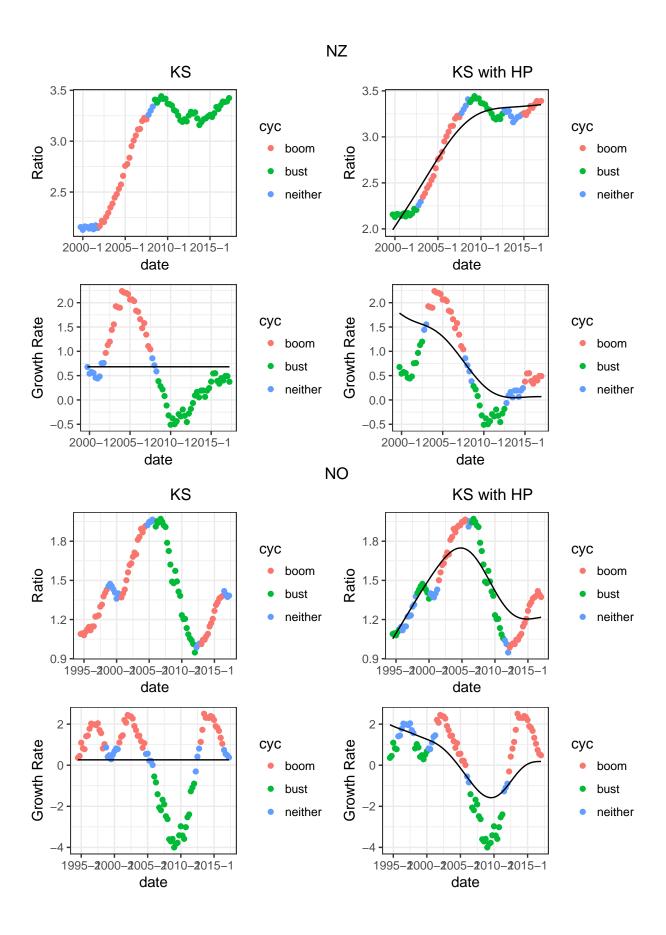
Business Cycle Dating

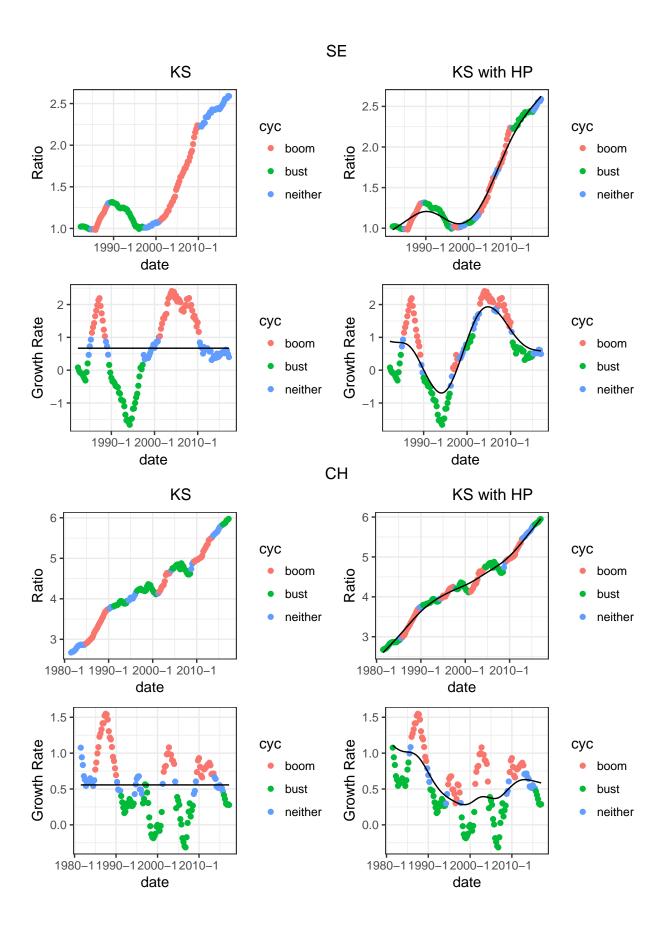
Haoyu Sheng 8/7/2019

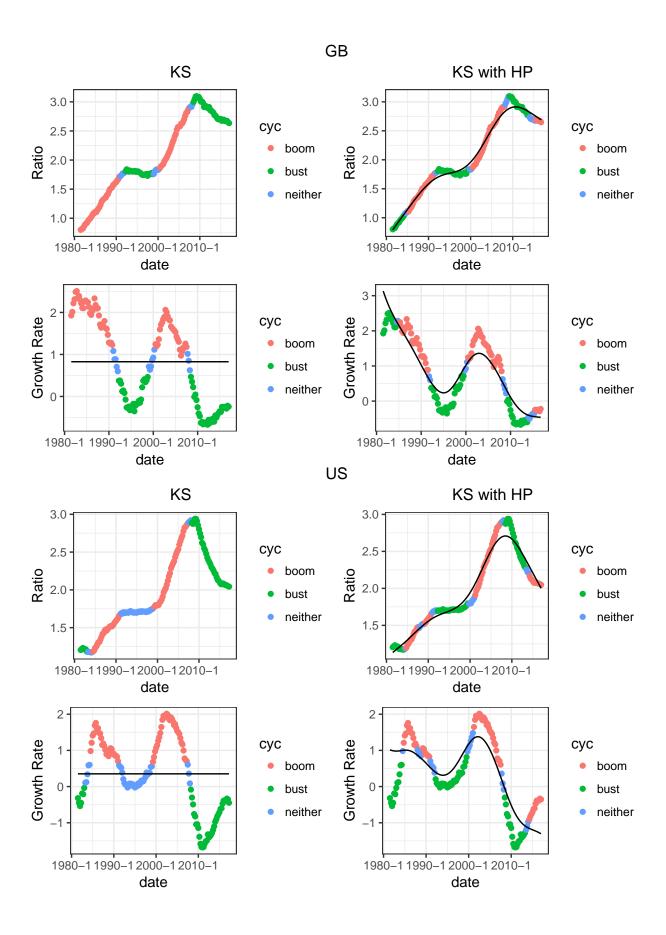


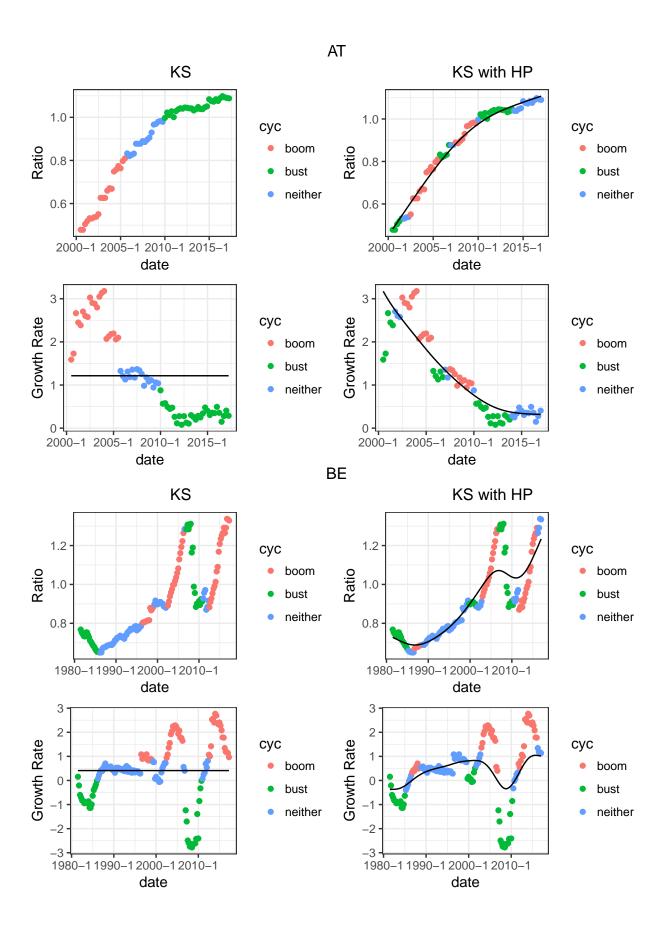


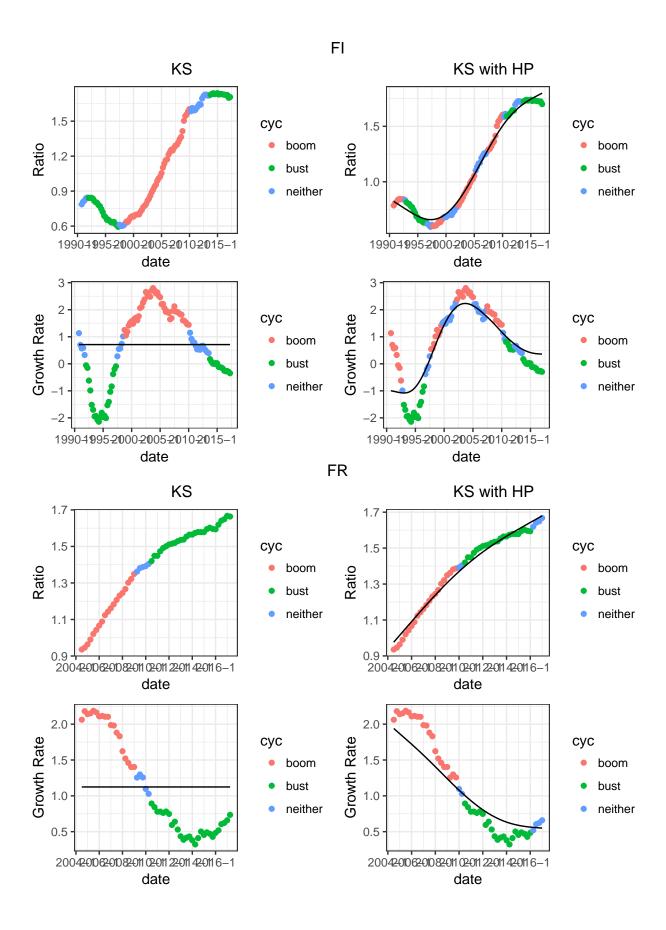


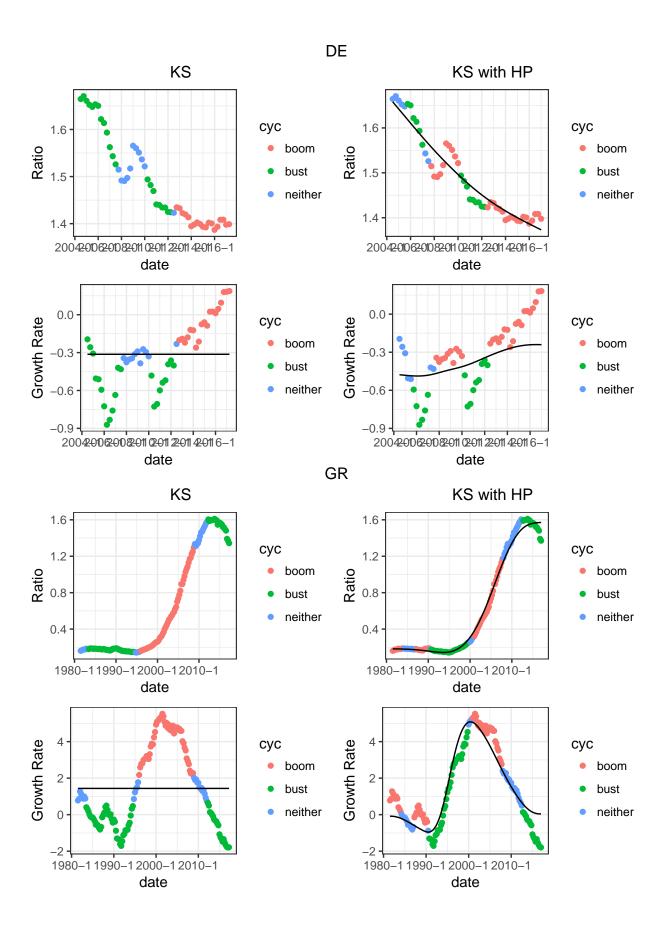


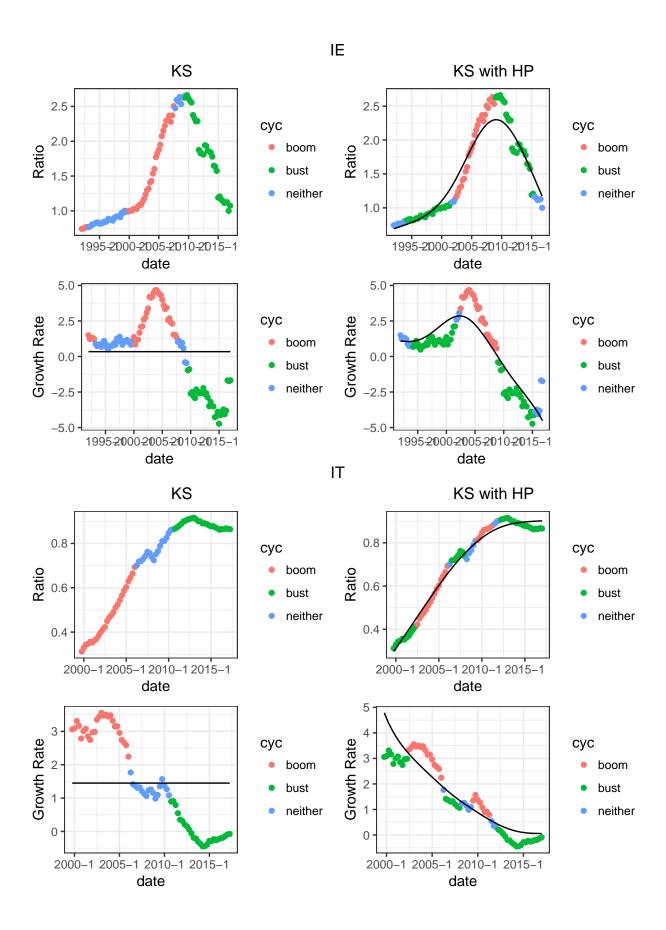


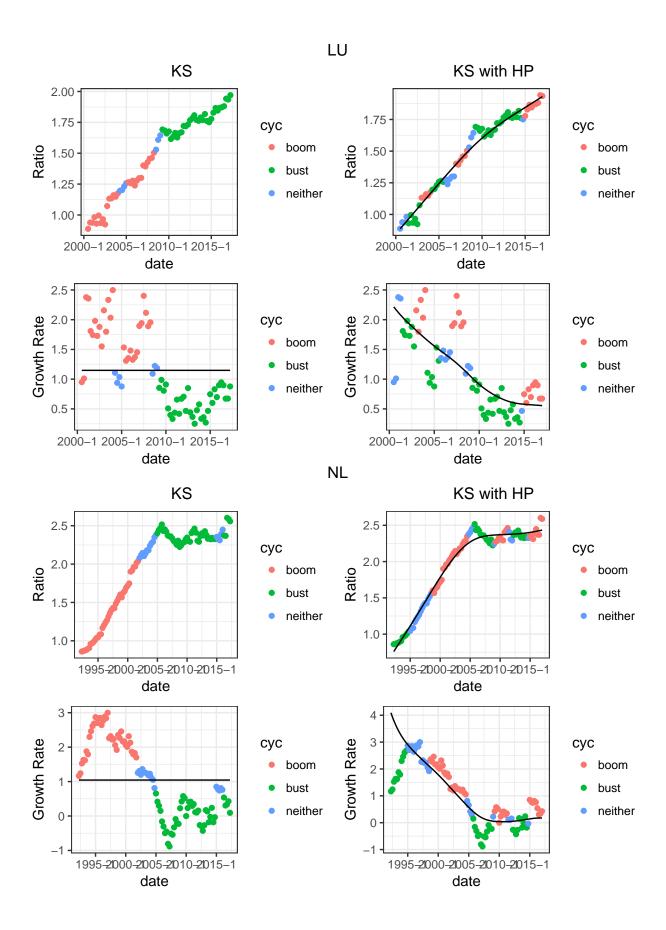


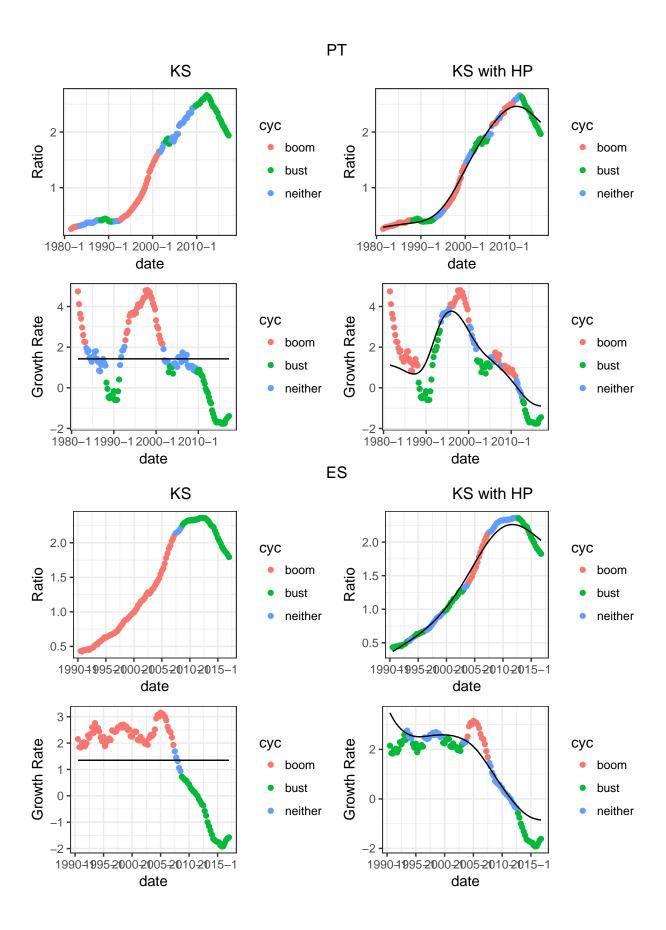


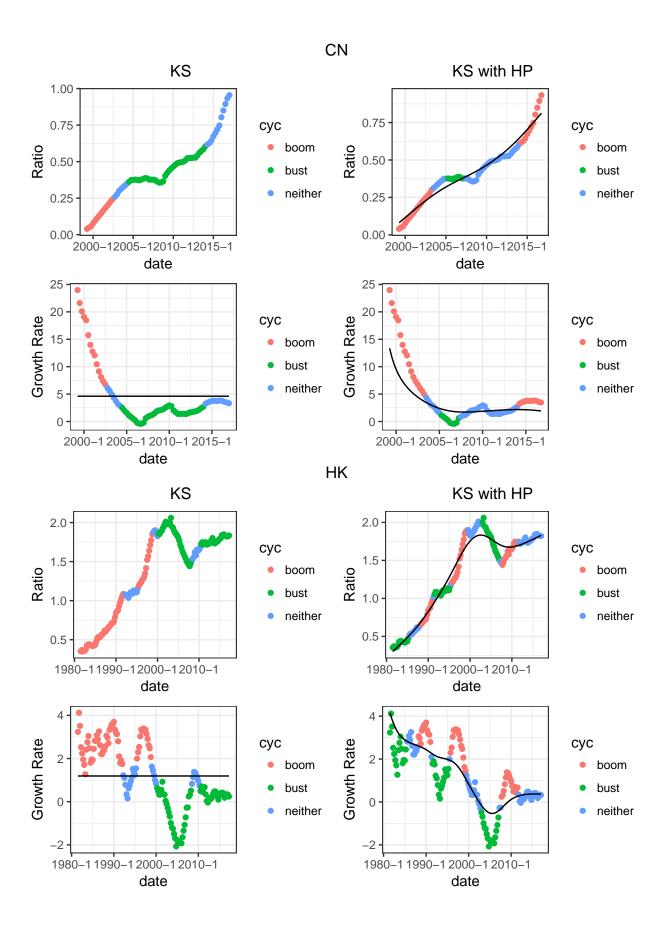


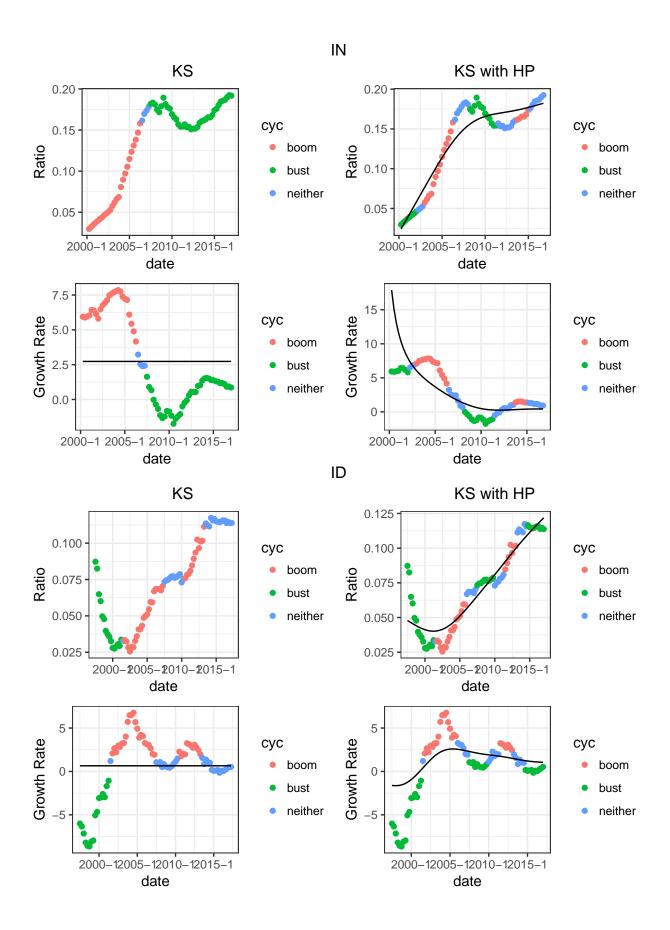


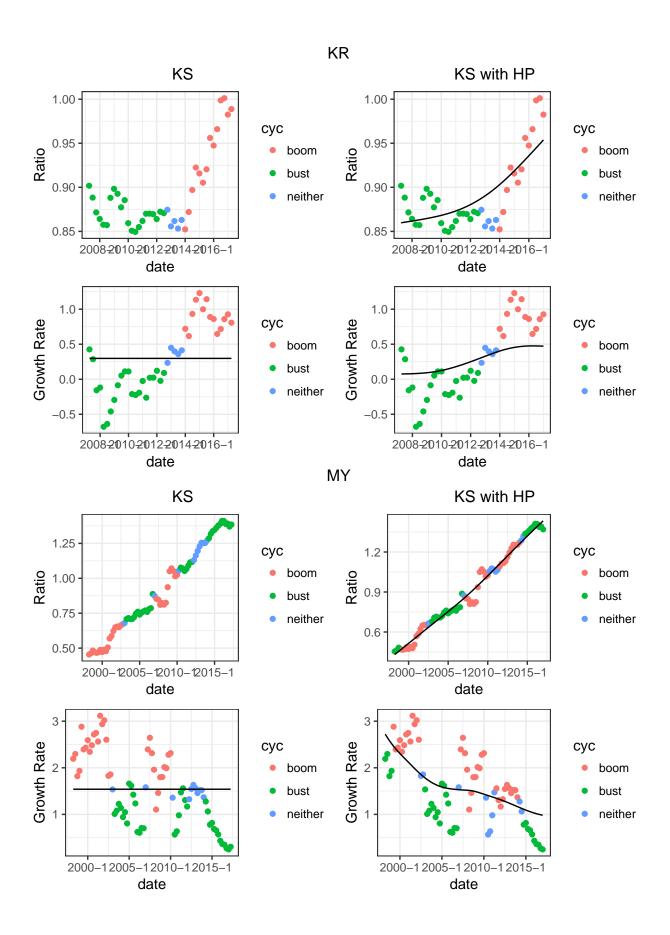


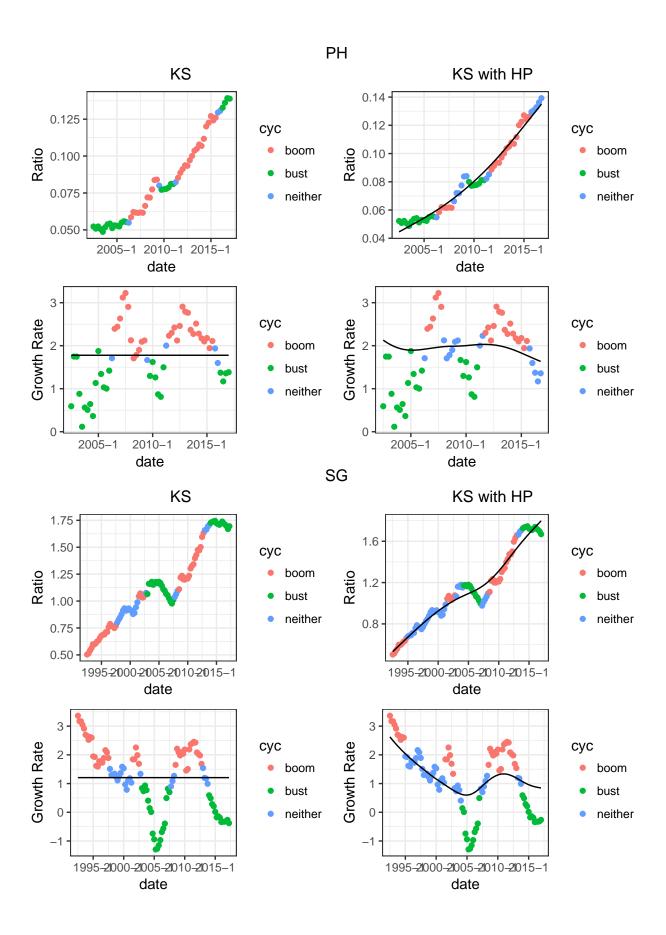


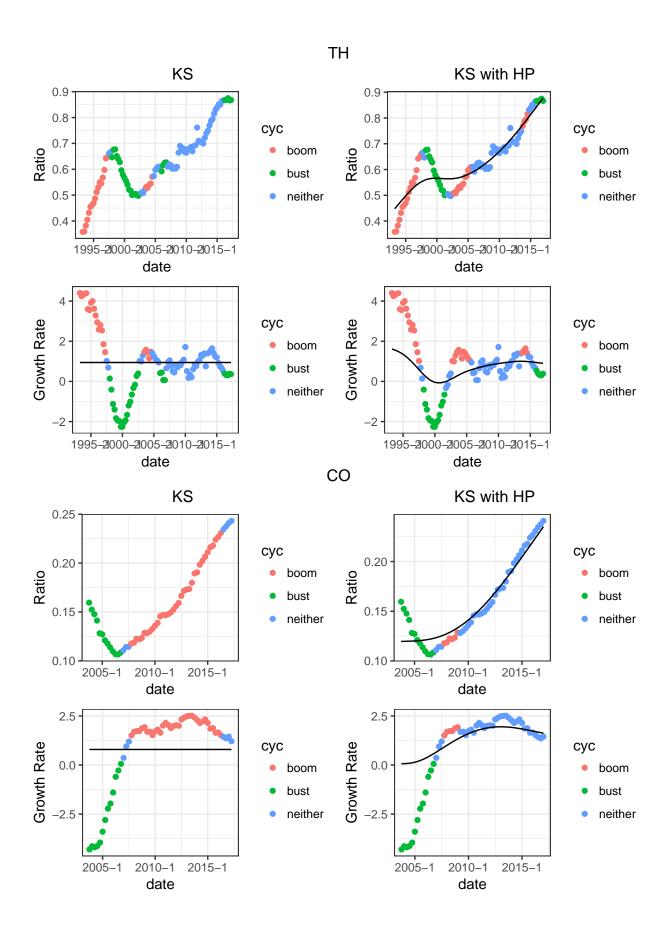




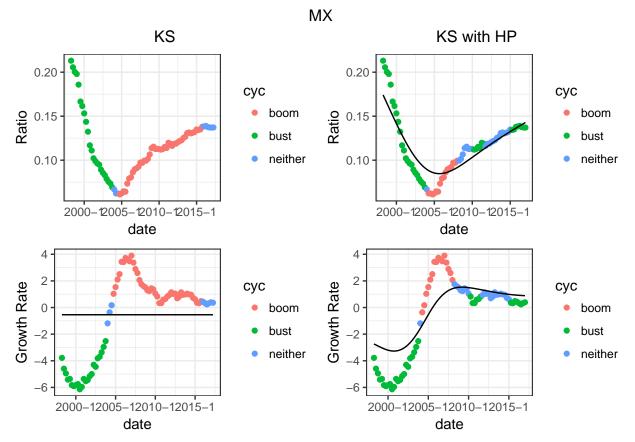


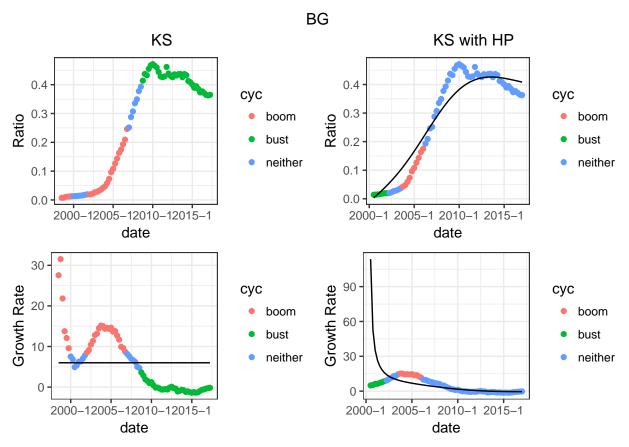




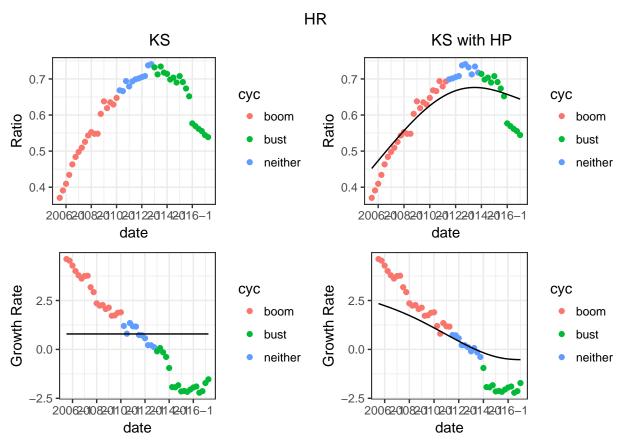


Warning in log(trend): NaNs produced

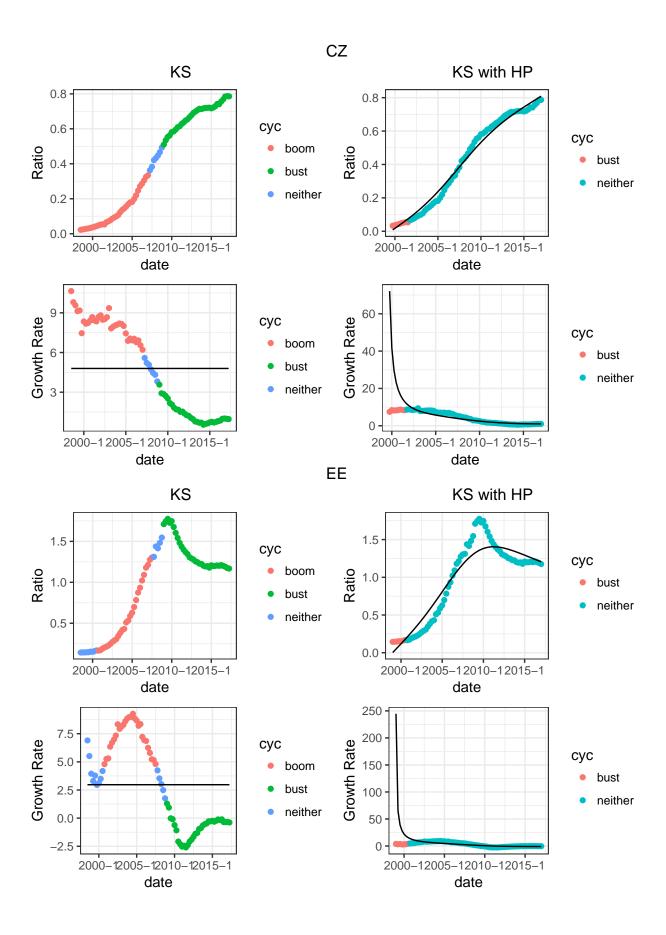


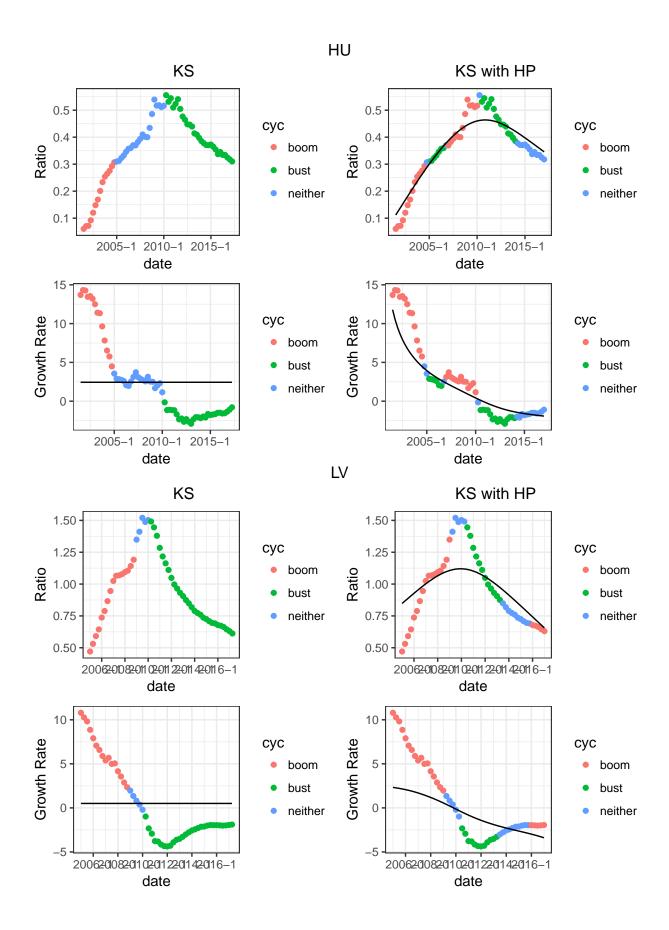


Warning in log(trend): NaNs produced

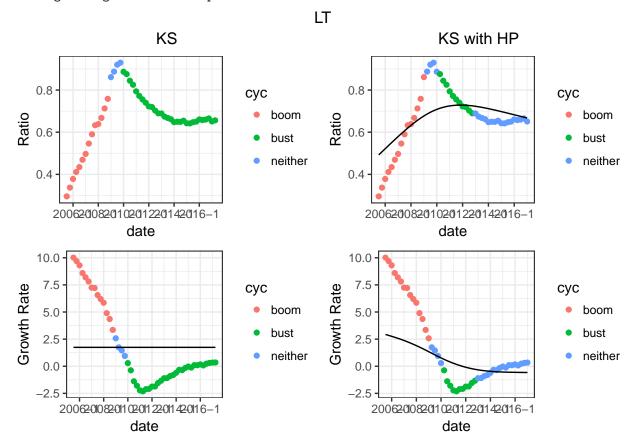


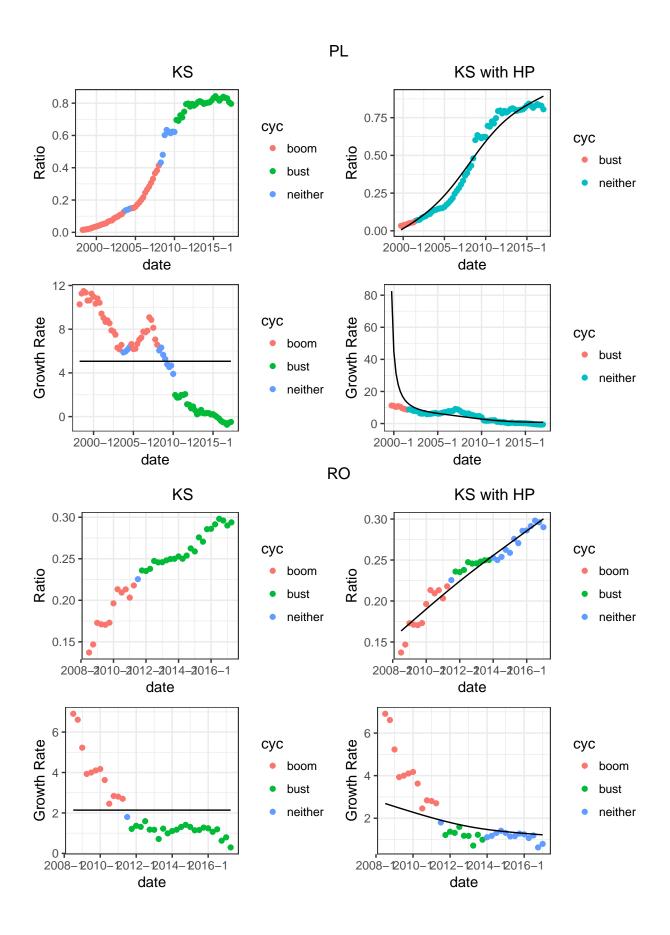
Warning in log(trend): NaNs produced

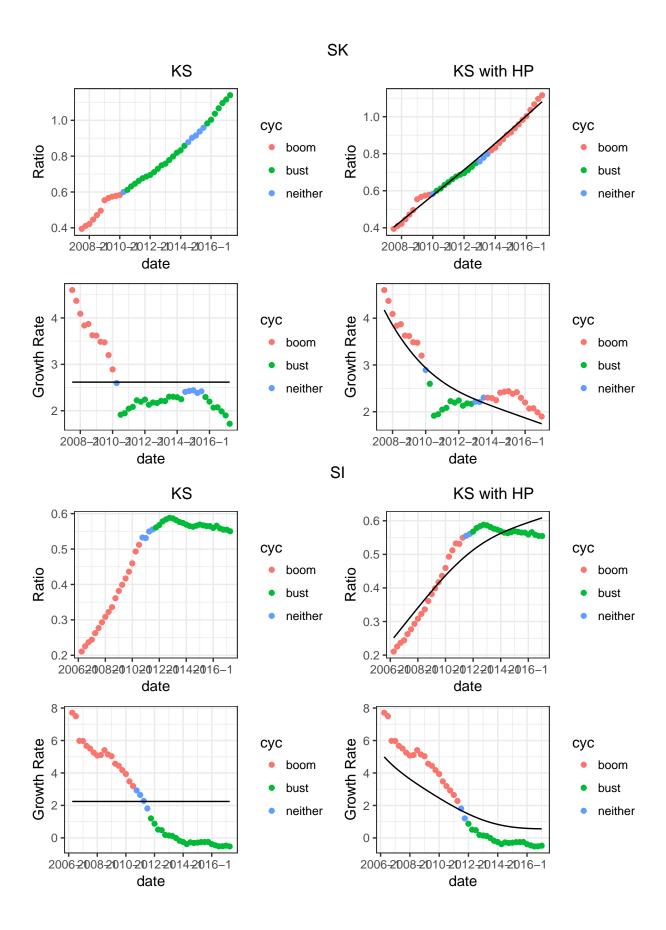


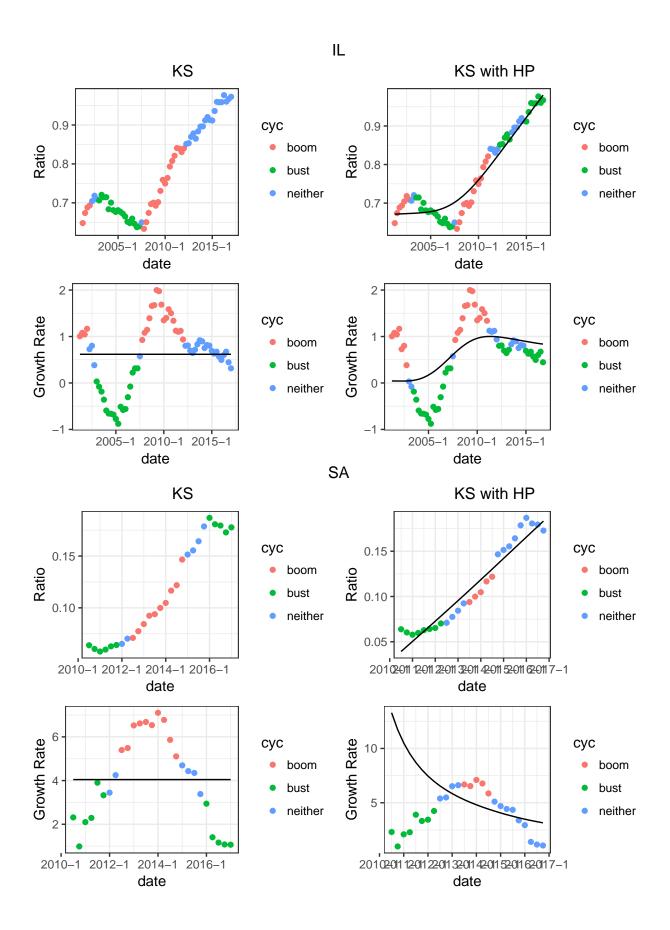


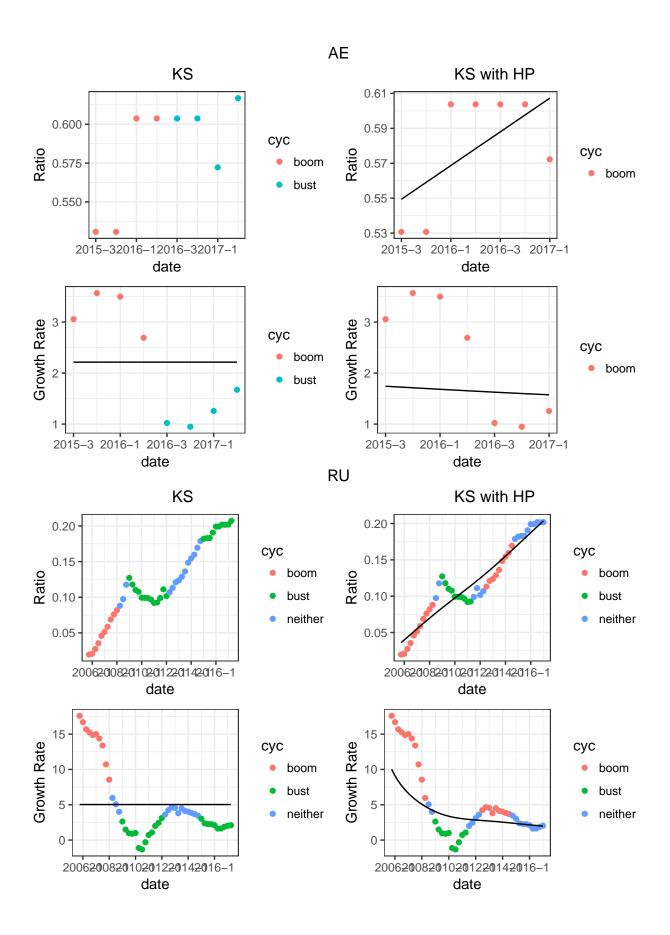
Warning in log(trend): NaNs produced

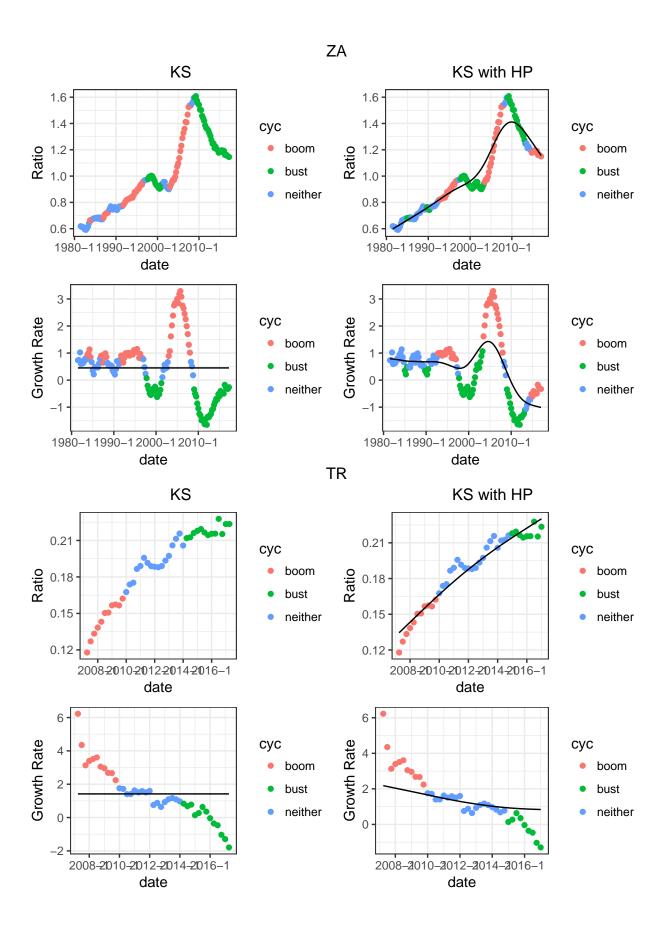


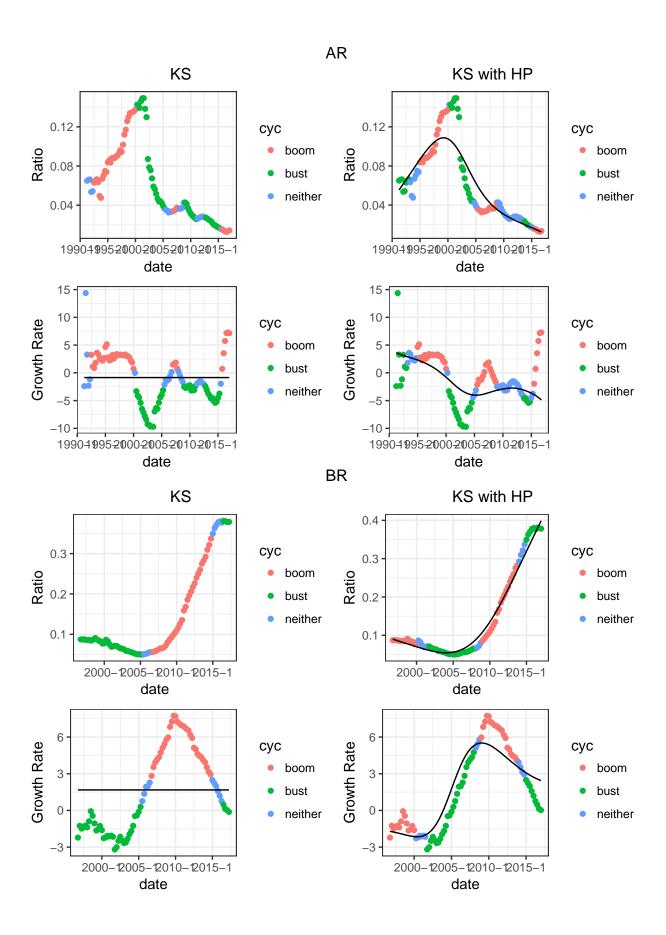


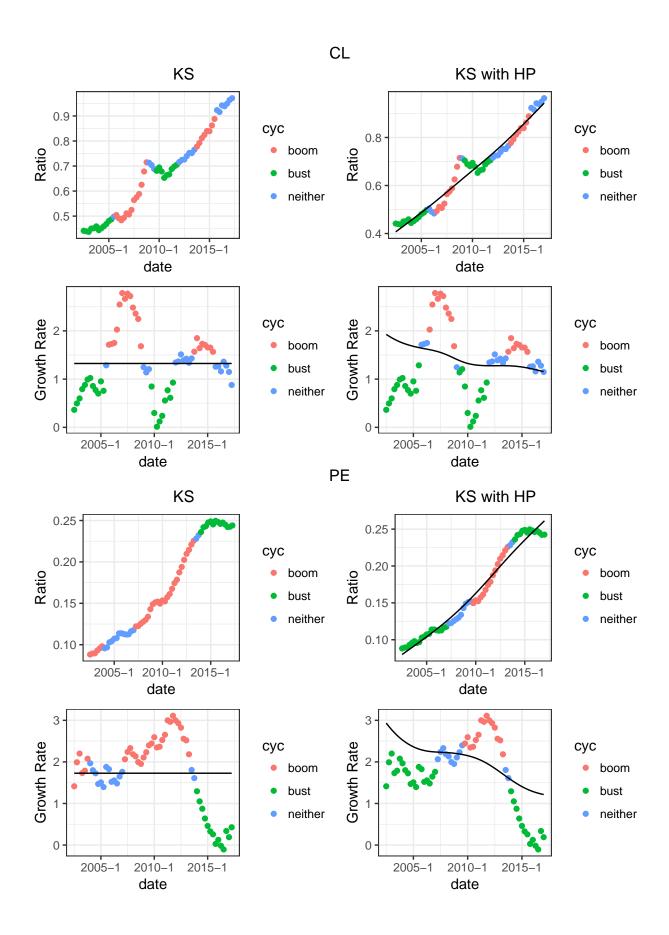


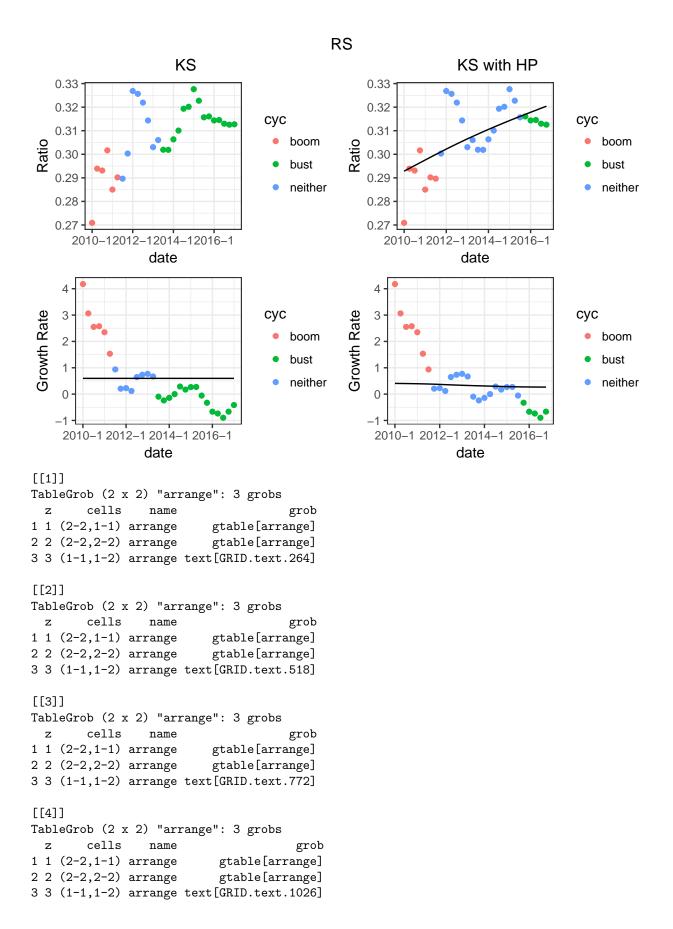












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[[5]]
TableGrob (2 x 2) "arrange": 3 grobs
 z cells name
                                          grob
1 1 (2-2,1-1) arrange gtable[arrange]
2 2 (2-2,2-2) arrange gtable[arrange]
3 3 (1-1,1-2) arrange text[GRID.text.1280]
[[6]]
TableGrob (2 x 2) "arrange": 3 grobs
 z cells name
                                          grob
1 1 (2-2,1-1) arrange gtable[arrange]
2 2 (2-2,2-2) arrange gtable[arrange]
3 3 (1-1,1-2) arrange text[GRID.text.1534]
[[7]]
TableGrob (2 x 2) "arrange": 3 grobs
       cells name
1 1 (2-2,1-1) arrange gtable[arrange]
2 2 (2-2,2-2) arrange gtable[arrange]
3 3 (1-1,1-2) arrange text[GRID.text.1788]
[[8]]
TableGrob (2 x 2) "arrange": 3 grobs
        cells name
                                          grob
1 1 (2-2,1-1) arrange gtable[arrange]
2 2 (2-2,2-2) arrange gtable[arrange]
3 3 (1-1,1-2) arrange text[GRID.text.2042]
[[9]]
TableGrob (2 x 2) "arrange": 3 grobs
z cells name grob
1 1 (2-2,1-1) arrange gtable[arrange]
2 2 (2-2,2-2) arrange gtable[arrange]
                                          grob
3 3 (1-1,1-2) arrange text[GRID.text.2296]
[[10]]
TableGrob (2 x 2) "arrange": 3 grobs
 z cells name
                                          grob
1 1 (2-2,1-1) arrange gtable[arrange]
2 2 (2-2,2-2) arrange gtable[arrange]
3 3 (1-1,1-2) arrange text[GRID.text.2550]
[[11]]
TableGrob (2 x 2) "arrange": 3 grobs
 z cells name
                                          grob
1 1 (2-2,1-1) arrange gtable[arrange]
2 2 (2-2,2-2) arrange gtable[arrange]
3 3 (1-1,1-2) arrange text[GRID.text.2804]
[[12]]
TableGrob (2 x 2) "arrange": 3 grobs
  z cells name
                                          grob
1 1 (2-2,1-1) arrange gtable[arrange]
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2 2 (2-2,2-2) arrange gtable[arrange]
3 3 (1-1,1-2) arrange text[GRID.text.3058]
[[13]]
TableGrob (2 x 2) "arrange": 3 grobs
 z cells name
                                         grob
1 1 (2-2,1-1) arrange gtable[arrange]
2 2 (2-2,2-2) arrange gtable[arrange]
3 3 (1-1,1-2) arrange text[GRID.text.3312]
[[14]]
TableGrob (2 x 2) "arrange": 3 grobs
                                         grob
 z cells name
                           gtable[arrange]
1 1 (2-2,1-1) arrange
2 2 (2-2,2-2) arrange gtable[arrange]
3 3 (1-1,1-2) arrange text[GRID.text.3566]
[[15]]
TableGrob (2 x 2) "arrange": 3 grobs
 z cells name
                                         grob
                           gtable[arrange]
1 1 (2-2,1-1) arrange
2 2 (2-2,2-2) arrange gtable[arrange]
3 3 (1-1,1-2) arrange text[GRID.text.3820]
[[16]]
TableGrob (2 x 2) "arrange": 3 grobs
 z cells name
                                         grob
1 1 (2-2,1-1) arrange gtable[arrange]
2 2 (2-2,2-2) arrange gtable[arrange]
3 3 (1-1,1-2) arrange text[GRID.text.4074]
[[17]]
TableGrob (2 x 2) "arrange": 3 grobs
 z cells name
                                         grob
1 1 (2-2,1-1) arrange gtable[arrange]
2 2 (2-2,2-2) arrange gtable[arrange]
3 3 (1-1,1-2) arrange text[GRID.text.4328]
[[18]]
TableGrob (2 x 2) "arrange": 3 grobs
        cells name
1 1 (2-2,1-1) arrange gtable[arrange]
2 2 (2-2,2-2) arrange gtable[arrange]
3 3 (1-1,1-2) arrange text[GRID.text.4582]
[[19]]
TableGrob (2 x 2) "arrange": 3 grobs
        cells name
grob

____,___) arrange gtable[arrange]
2 2 (2-2,2-2) arrange gtable[arrange]
3 3 (1-1 1-0)
3 3 (1-1,1-2) arrange text[GRID.text.4836]
[[20]]
TableGrob (2 x 2) "arrange": 3 grobs
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cells
                name
                                     grob
                        gtable[arrange]
1 1 (2-2,1-1) arrange
2 2 (2-2,2-2) arrange
                          gtable[arrange]
3 3 (1-1,1-2) arrange text[GRID.text.5090]
[[21]]
TableGrob (2 x 2) "arrange": 3 grobs
       cells
                name
                                     grob
1 1 (2-2,1-1) arrange
                          gtable[arrange]
2 2 (2-2,2-2) arrange
                         gtable[arrange]
3 3 (1-1,1-2) arrange text[GRID.text.5344]
[[22]]
TableGrob (2 x 2) "arrange": 3 grobs
       cells
                name
                                     grob
1 1 (2-2,1-1) arrange
                          gtable[arrange]
2 2 (2-2,2-2) arrange
                          gtable[arrange]
3 3 (1-1,1-2) arrange text[GRID.text.5598]
[[23]]
TableGrob (2 x 2) "arrange": 3 grobs
       cells
                name
1 1 (2-2,1-1) arrange
                         gtable[arrange]
2 2 (2-2,2-2) arrange
                          gtable[arrange]
3 3 (1-1,1-2) arrange text[GRID.text.5852]
[[24]]
TableGrob (2 x 2) "arrange": 3 grobs
       cells
                name
                                     grob
                          gtable[arrange]
1 1 (2-2,1-1) arrange
2 2 (2-2,2-2) arrange
                          gtable[arrange]
3 3 (1-1,1-2) arrange text[GRID.text.6106]
[[25]]
TableGrob (2 x 2) "arrange": 3 grobs
                                     grob
       cells
                name
                         gtable[arrange]
1 1 (2-2,1-1) arrange
2 2 (2-2,2-2) arrange
                         gtable[arrange]
3 3 (1-1,1-2) arrange text[GRID.text.6360]
[[26]]
TableGrob (2 x 2) "arrange": 3 grobs
 z cells
                                     grob
                name
1 1 (2-2,1-1) arrange
                         gtable[arrange]
2 2 (2-2,2-2) arrange
                         gtable[arrange]
3 3 (1-1,1-2) arrange text[GRID.text.6614]
[[27]]
TableGrob (2 x 2) "arrange": 3 grobs
      cells name
1 1 (2-2,1-1) arrange
                          gtable[arrange]
2 2 (2-2,2-2) arrange
                         gtable[arrange]
3 3 (1-1,1-2) arrange text[GRID.text.6868]
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[[28]]
TableGrob (2 x 2) "arrange": 3 grobs
        cells name
                            gtable[arrange]
1 1 (2-2,1-1) arrange
                            gtable[arrange]
2 2 (2-2,2-2) arrange
3 3 (1-1,1-2) arrange text[GRID.text.7122]
[[29]]
TableGrob (2 x 2) "arrange": 3 grobs
        cells name
                                        grob
1 1 (2-2,1-1) arrange
                            gtable[arrange]
2 2 (2-2,2-2) arrange
                            gtable[arrange]
3 3 (1-1,1-2) arrange text[GRID.text.7376]
[[30]]
TableGrob (2 x 2) "arrange": 3 grobs
        cells
                                        grob
               name
                          gtable[arrange]
1 1 (2-2,1-1) arrange
2 2 (2-2,2-2) arrange
                           gtable[arrange]
3 3 (1-1,1-2) arrange text[GRID.text.7630]
[[31]]
TableGrob (2 x 2) "arrange": 3 grobs
                name
 z cells
                                        grob
1 1 (2-2,1-1) arrange gtable[arrange]
2 2 (2-2,2-2) arrange gtable[arrange]
3 3 (1-1,1-2) arrange text[GRID.text.7884]
[[32]]
TableGrob (2 x 2) "arrange": 3 grobs
       cells
                name
                                        grob
grob
(_ 2,1-1) arrange gtable[arrange]
2 2 (2-2,2-2) arrange gtable[arrange]
3 3 (1-1 1-2)
3 3 (1-1,1-2) arrange text[GRID.text.8138]
[[33]]
TableGrob (2 x 2) "arrange": 3 grobs
 z cells
                name
                                        grob
1 1 (2-2,1-1) arrange gtable[arrange]
2 2 (2-2,2-2) arrange
                           gtable[arrange]
3 3 (1-1,1-2) arrange text[GRID.text.8392]
[[34]]
TableGrob (2 x 2) "arrange": 3 grobs
        cells
                name
                                        grob
                         gtable[arrange]
gtable[arrange]
1 1 (2-2,1-1) arrange
2 2 (2-2,2-2) arrange
3 3 (1-1,1-2) arrange text[GRID.text.8646]
[[35]]
TableGrob (2 x 2) "arrange": 3 grobs
       cells name
1 1 (2-2,1-1) arrange gtable[arrange]
2 2 (2-2,2-2) arrange gtable[arrange]
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3 3 (1-1,1-2) arrange text[GRID.text.8900]
[[36]]
TableGrob (2 x 2) "arrange": 3 grobs
 z cells name
                                        grob
1 1 (2-2,1-1) arrange
                            gtable[arrange]
2 2 (2-2,2-2) arrange gtable[arrange]
3 3 (1-1,1-2) arrange text[GRID.text.9154]
[[37]]
TableGrob (2 x 2) "arrange": 3 grobs
 z cells name
                                        grob
1 1 (2-2,1-1) arrange
                            gtable[arrange]
1 1 (2-2,1-1) arrange gtable[arrange]
2 2 (2-2,2-2) arrange gtable[arrange]
3 3 (1-1,1-2) arrange text[GRID.text.9398]
[[38]]
TableGrob (2 x 2) "arrange": 3 grobs
       cells name
1 1 (2-2,1-1) arrange gtable[arrange]
2 2 (2-2,2-2) arrange gtable[arrange]
3 3 (1-1,1-2) arrange text[GRID.text.9642]
TableGrob (2 x 2) "arrange": 3 grobs
        cells name
                                        grob
1 1 (2-2,1-1) arrange
                            gtable[arrange]
, - 1, arrange
2 2 (2-2,2-2) arrange
                            gtable[arrange]
3 3 (1-1,1-2) arrange text[GRID.text.9896]
[[40]]
TableGrob (2 x 2) "arrange": 3 grobs
        cells name
gtable[arrange]
2 2 (2-2,2-2) arrange gtable[arrange]
3 3 (1-1 1-2)
3 3 (1-1,1-2) arrange text[GRID.text.10150]
[[41]]
TableGrob (2 x 2) "arrange": 3 grobs
        cells name
                           gtable[arrange]
1 1 (2-2,1-1) arrange
2 2 (2-2,2-2) arrange
                             gtable[arrange]
3 3 (1-1,1-2) arrange text[GRID.text.10404]
[[42]]
TableGrob (2 x 2) "arrange": 3 grobs
        cells
                 name
                                         grob
1 1 (2-2,1-1) arrange gtable[arrange]
2 2 (2-2,2-2) arrange gtable[arrange]
3 3 (1-1,1-2) arrange text[GRID.text.10648]
[[43]]
TableGrob (2 x 2) "arrange": 3 grobs
  z cells name
                                         grob
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1 1 (2-2,1-1) arrange gtable[arrange]
2 2 (2-2,2-2) arrange gtable[arrange]
3 3 (1-1,1-2) arrange text[GRID.text.10902]
TableGrob (2 x 2) "arrange": 3 grobs
       cells name
                                              grob
1 1 (2-2,1-1) arrange gtable[arrange]
2 2 (2-2,2-2) arrange gtable[arrange]
3 3 (1-1,1-2) arrange text[GRID.text.11156]
TableGrob (2 x 2) "arrange": 3 grobs
        cells name
                                              grob
1 1 (2-2,1-1) arrange gtable[arrange]
2 2 (2-2,2-2) arrange gtable[arrange]
3 3 (1-1,1-2) arrange text[GRID.text.11410]
TableGrob (2 x 2) "arrange": 3 grobs
 z cells name
                                              grob
1 1 (2-2,1-1) arrange gtable[arrange]
2 2 (2-2,2-2) arrange gtable[arrange]
3 3 (1-1,1-2) arrange text[GRID.text.11664]
TableGrob (2 x 2) "arrange": 3 grobs
 z cells name
                                              grob
1 1 (2-2,1-1) arrange gtable[arrange]
2 2 (2-2,2-2) arrange gtable[arrange]
3 3 (1-1,1-2) arrange text[GRID.text.11918]
TableGrob (2 x 2) "arrange": 3 grobs
 z cells name
                                              grob
1 1 (2-2,1-1) arrange gtable[arrange]
2 2 (2-2,2-2) arrange gtable[arrange]
3 3 (1-1,1-2) arrange text[GRID.text.12142]
[[49]]
TableGrob (2 x 2) "arrange": 3 grobs
       cells name
                                              grob
1 1 (2-2,1-1) arrange gtable[arrange]
2 2 (2-2,2-2) arrange gtable[arrange]
3 3 (1-1,1-2) arrange text[GRID.text.12396]
TableGrob (2 x 2) "arrange": 3 grobs
       cells name
                                              grob
1 1 (2-2,1-1) arrange gtable[arrange]
2 2 (2-2,2-2) arrange gtable[arrange]
3 3 (1-1,1-2) arrange text[GRID.text.12650]
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[[51]]

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TableGrob (2 x 2) "arrange": 3 grobs
z cells name grob
1 1 (2-2,1-1) arrange gtable[arrange]
2 2 (2-2,2-2) arrange gtable[arrange]
                                                    grob
3 3 (1-1,1-2) arrange text[GRID.text.12904]
TableGrob (2 x 2) "arrange": 3 grobs
z cells name grob
1 1 (2-2,1-1) arrange gtable[arrange]
2 2 (2-2,2-2) arrange gtable[arrange]
3 3 (1-1,1-2) arrange text[GRID.text.13158]
[[53]]
TableGrob (2 x 2) "arrange": 3 grobs
z cells name grob
1 1 (2-2,1-1) arrange gtable[arrange]
2 2 (2-2,2-2) arrange gtable[arrange]
                                                    grob
3 3 (1-1,1-2) arrange text[GRID.text.13412]
[[54]]
TableGrob (2 x 2) "arrange": 3 grobs
z cells name grob
1 1 (2-2,1-1) arrange gtable[arrange]
2 2 (2-2,2-2) arrange gtable[arrange]
3 3 (1-1,1-2) arrange text[GRID.text.13666]
[[55]]
TableGrob (2 x 2) "arrange": 3 grobs
z cells name grob
1 1 (2-2,1-1) arrange gtable[arrange]
2 2 (2-2,2-2) arrange gtable[arrange]
3 3 (1-1,1-2) arrange text[GRID.text.13920]
TableGrob (2 x 2) "arrange": 3 grobs
 z cells name
1 1 (2-2,1-1) arrange gtable[arrange]
2 2 (2-2,2-2) arrange gtable[arrange]
3 3 (1-1,1-2) arrange text[GRID.text.14174]
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