

# Logic Tree of Tau Node for Subduction Source

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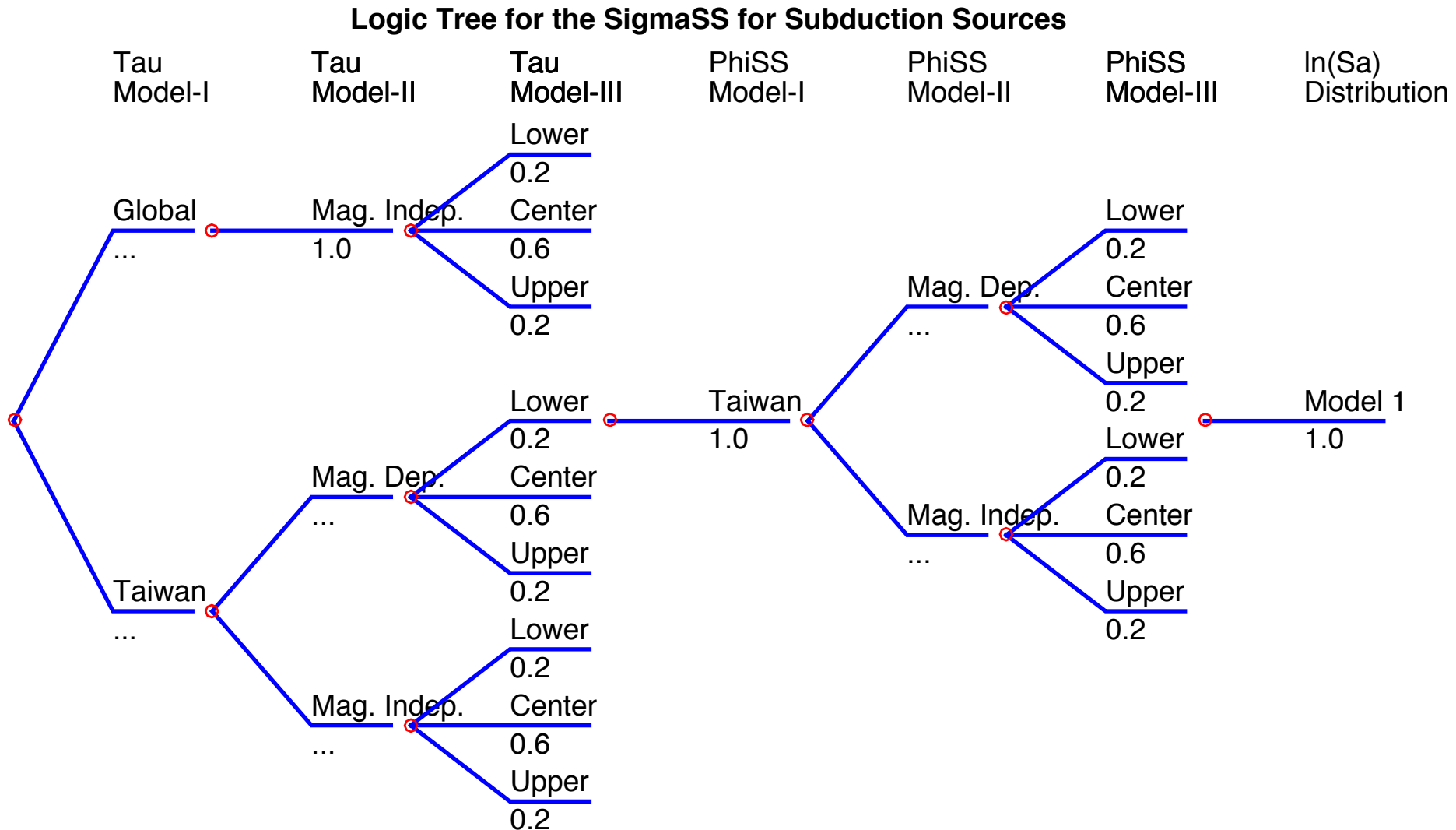
**Taiwan SSHAC Level 3 PSHA Study**  
**Taipei, Taiwan**

# Content

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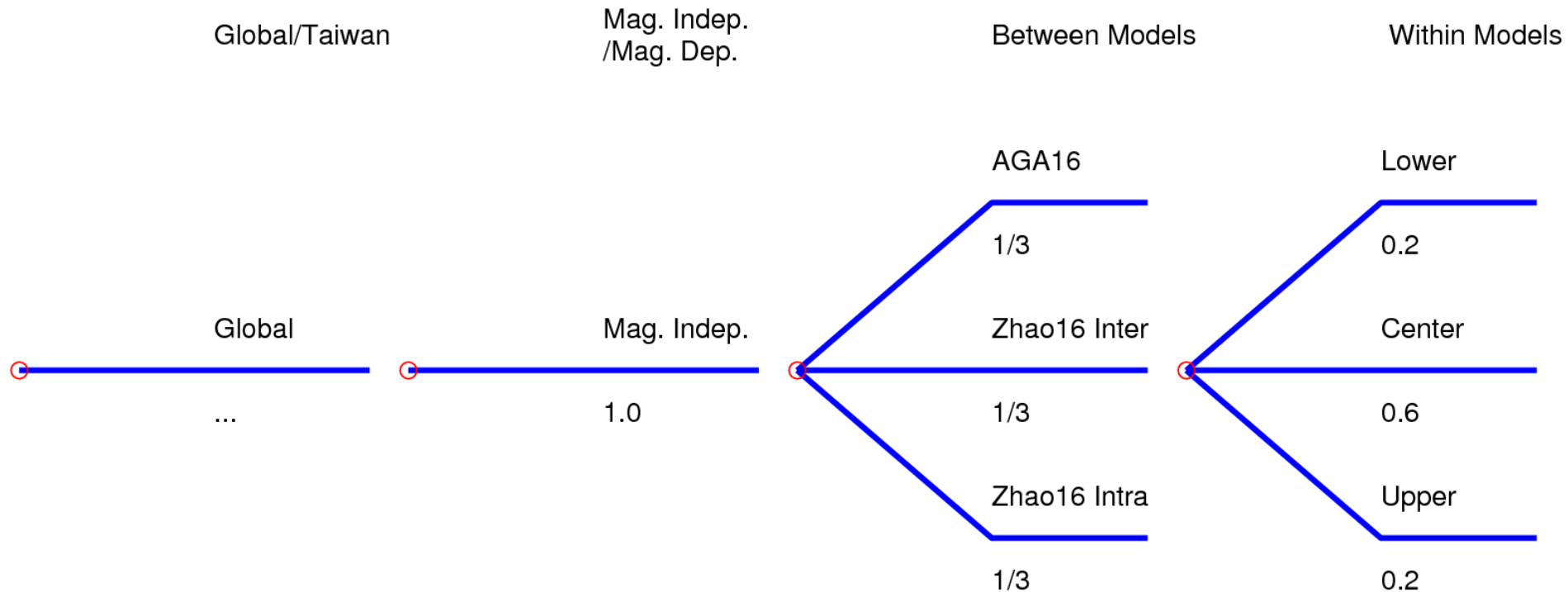
- **Logic Tree of Tau Node for Subduction Sources**
- **List of Tau Models with TDIs for Subduction Sources**
- **Develop Logic Tree of Tau Models for Subduction Sources**
- **Comparison of Tau Models for Subduction Sources**

# Logic Tree of the SigmaSS for Subduction Source



# Logic Tree of Tau Node for Subduction Event - Global Branch

Logic Tree of Tau Node for Subduction Event



**Note: finally this will be integrated into one node with 3 branches**

# List of Tau Models with TDIs for Subduction Sources

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## ■ Foreign Tau models

- AGA16
- Zhao16
  - Interface
  - Intralab

# Develop Logic Tree of Tau Models for Subduction Sources – Taiwan Branch

## ■ Approach 1

- If  $\sigma_{W,i} \ll \sigma_B$   
 $\Rightarrow$  Only consider  $\sigma_B$

## ■ Approach 2

- If  $\sigma_{W,i} \sim \sigma_B$   
 $\Rightarrow$  Use Monte Carlo method to calculate  $\sigma_{Total}$

## ■ Approach 3

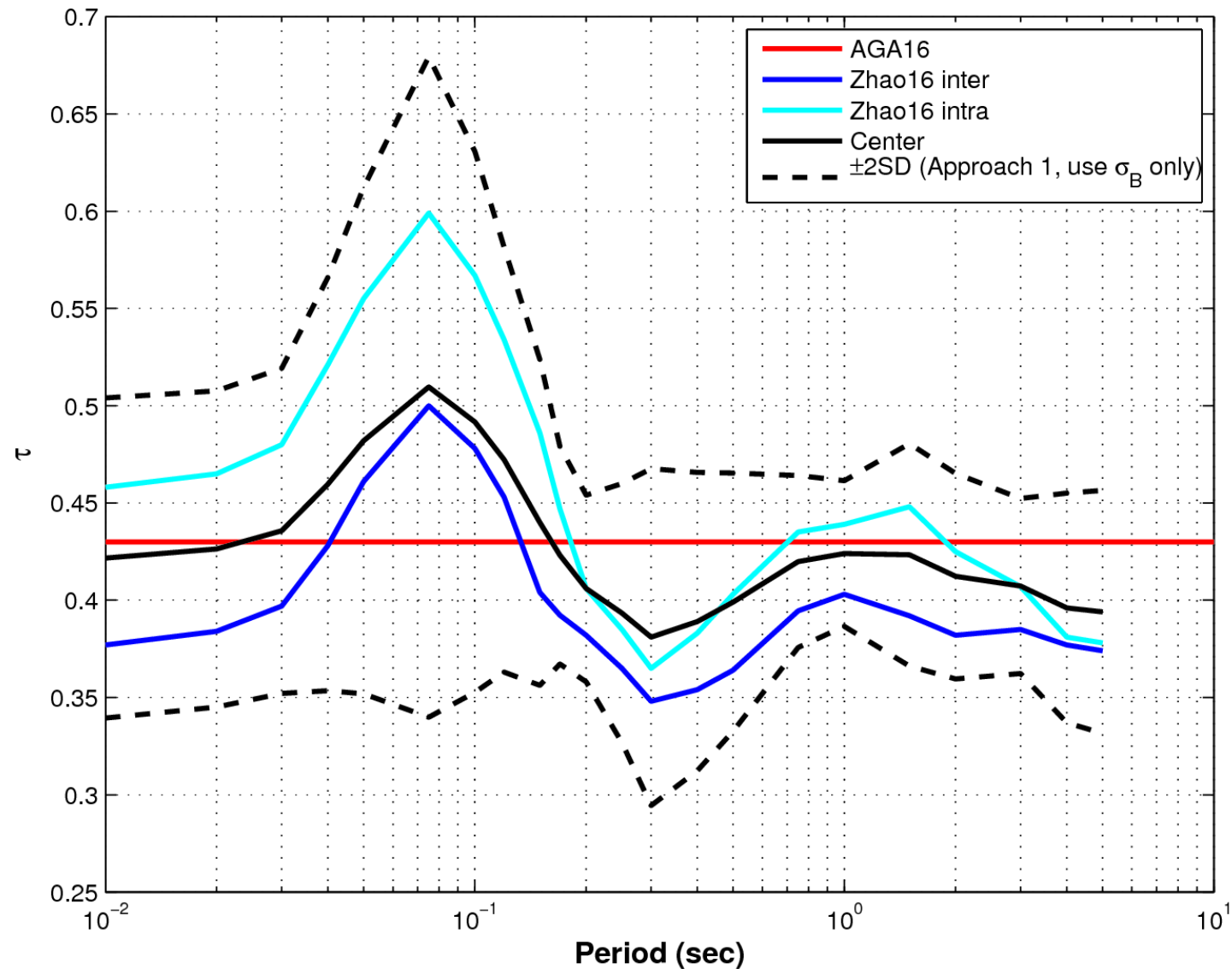
- If each  $\sigma_{Within,i}$  both nearly  
 $\Rightarrow \sigma_T = \sqrt{\overline{\sigma_{W,i}}^2 + \sigma_B^2}$

$\sigma_T = \text{Total of SD}$

$\sigma_{W,i} = \text{Within model of SD}$

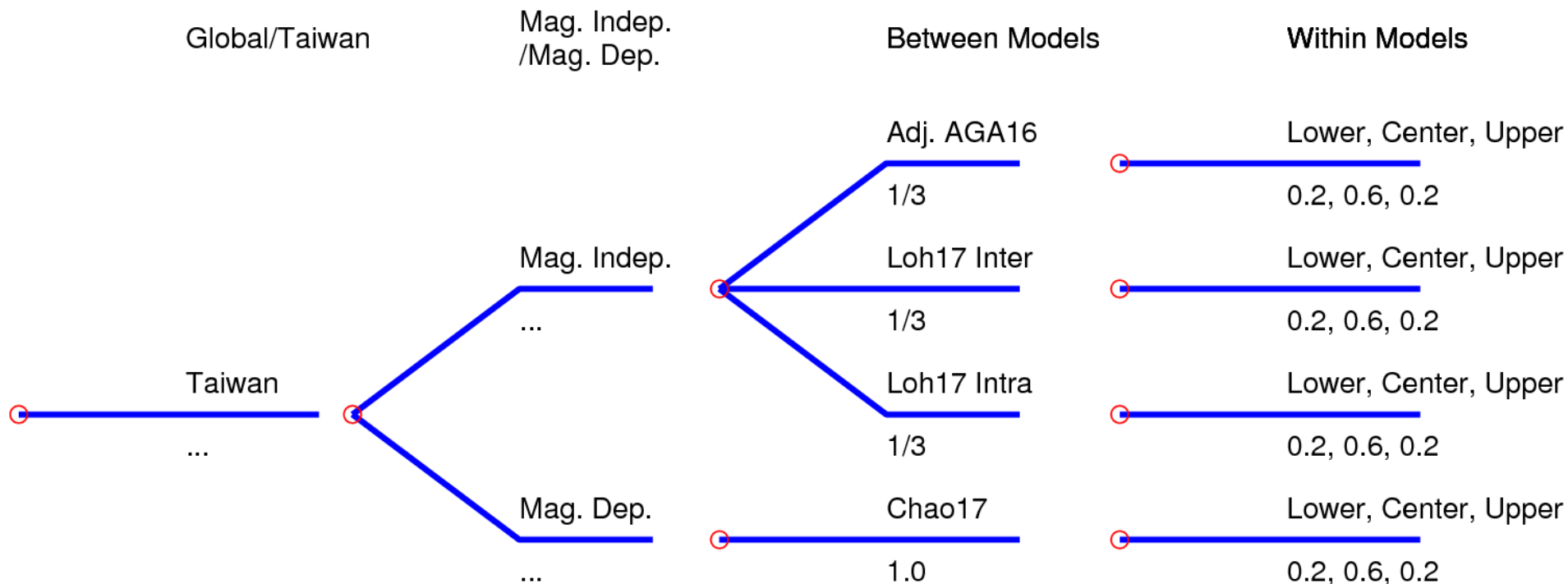
$\sigma_B = \text{Between model of SD}$

# Comparison Magnitude-Independent Tau Models for Subduction Event– Global Branch (Approach 1)



# Logic Tree of Tau Node for Subduction Event - Taiwan Branch

Logic Tree of Tau Node for Subduction Event



**Note: finally this will be integrated into two nodes with 3 branches for each node**

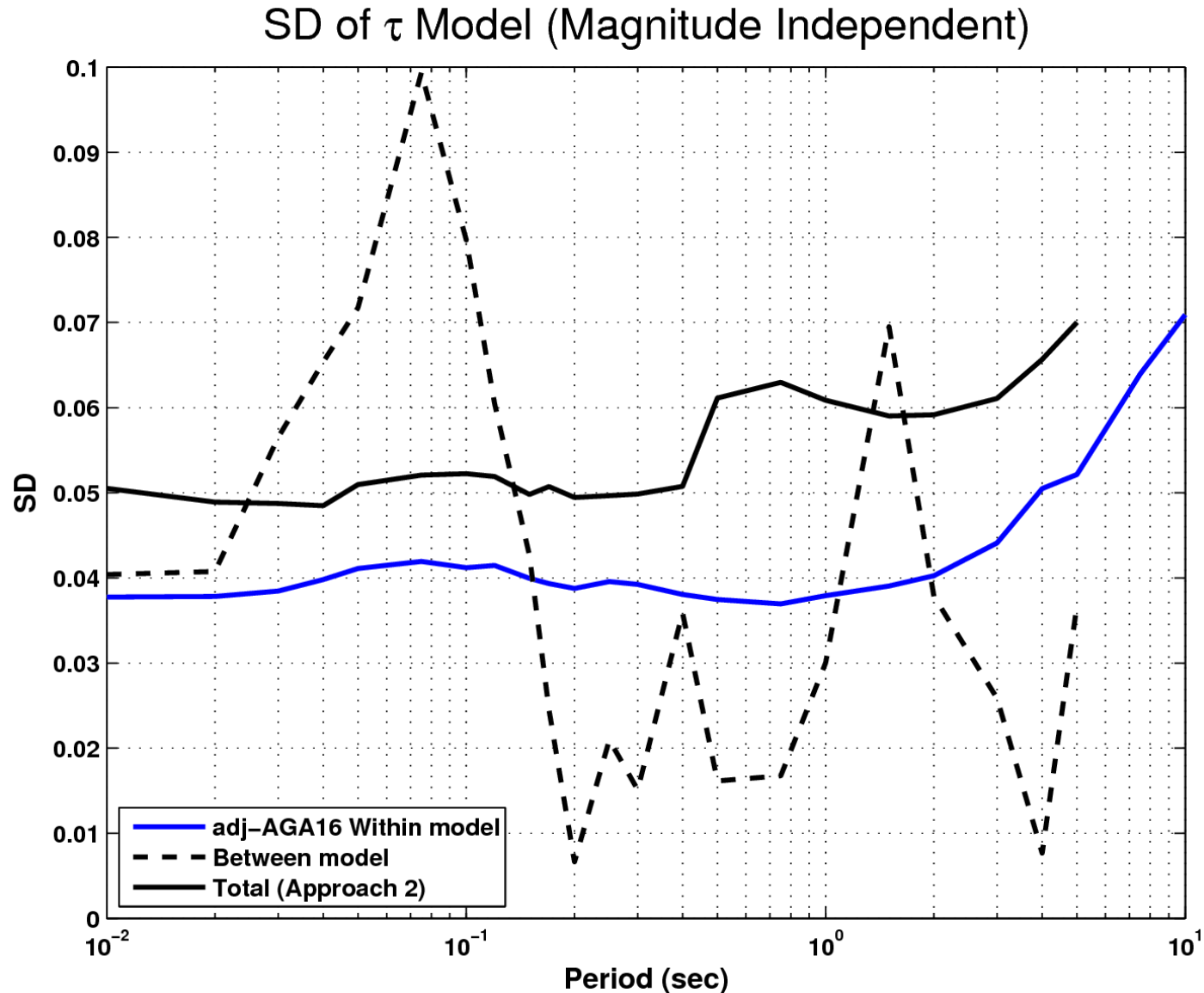


# List of Tau Models with TDIs for Subduction Sources

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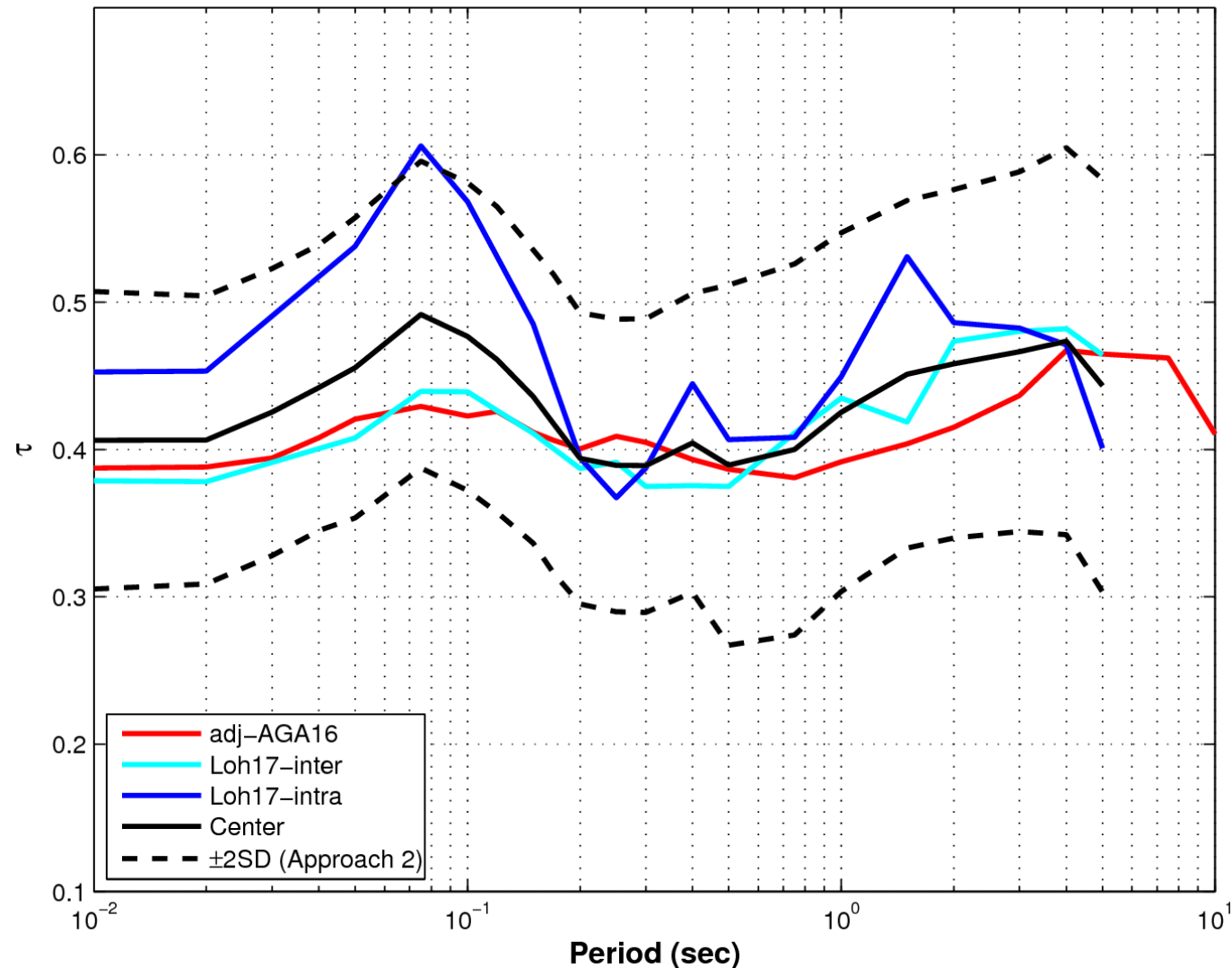
- **Taiwan Tau models**
  - Magnitude -Independent
    - Adj-AGA16
    - Loh17
  - Magnitude -dependent
    - Chao17

# Develop the Magnitude-Independent Tau Models for Subduction Event – Taiwan Branch (Approach 2)

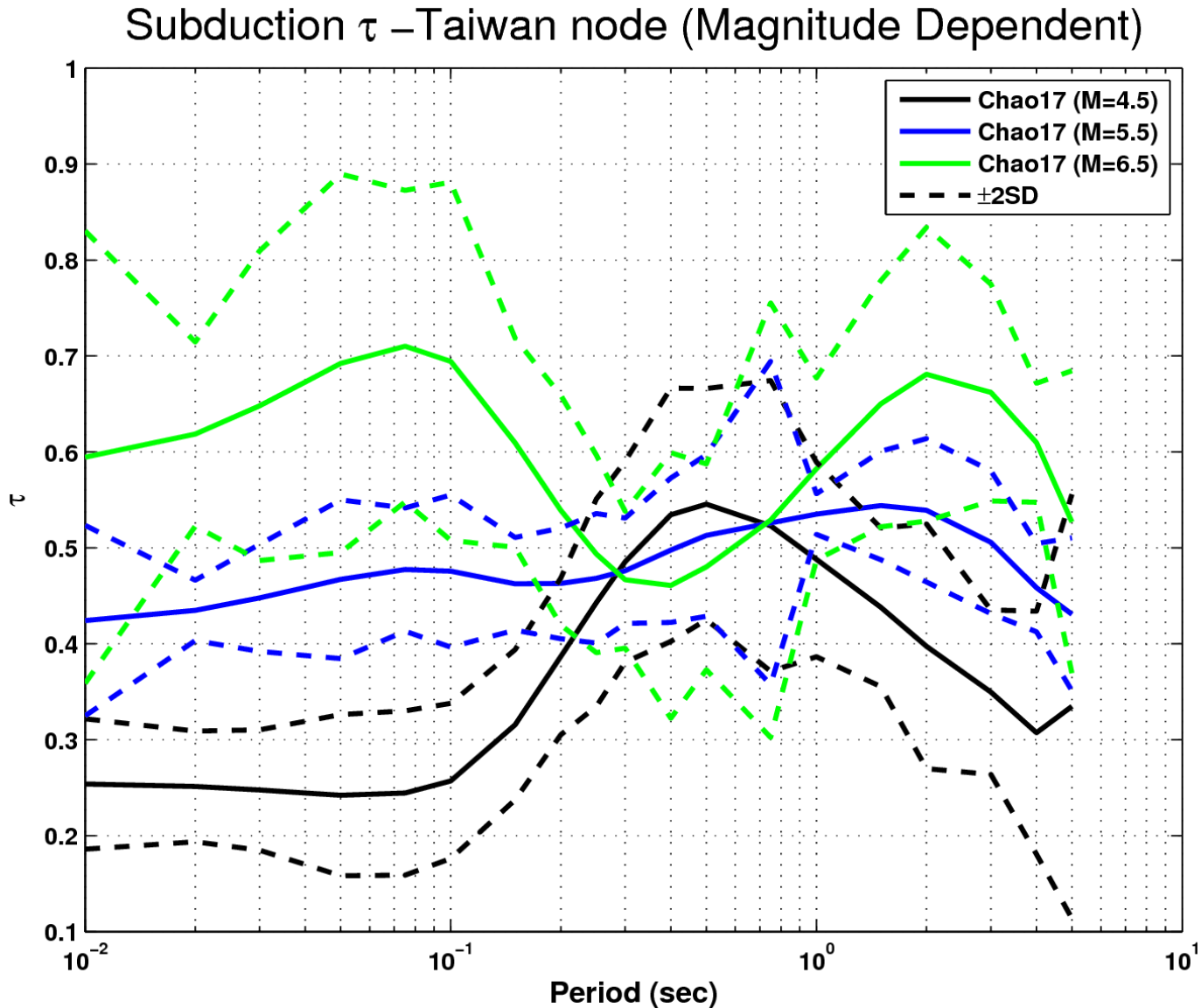


# Develop the Magnitude-Independent Tau Models for Subduction Event – Taiwan Branch

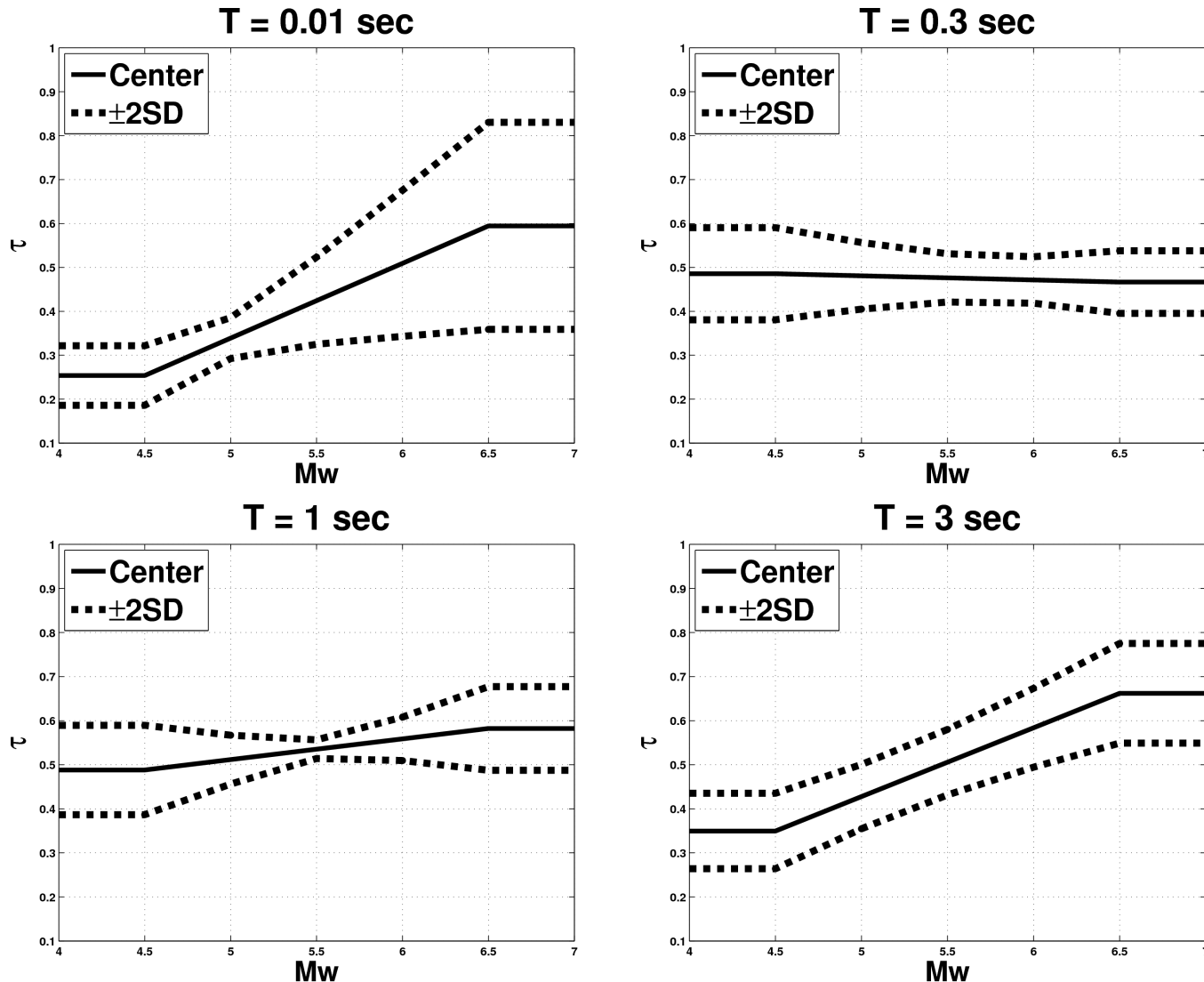
Subduction  $\tau$  – Taiwan node (Magnitude Independent)



# Comparison Magnitude-Dependent of Tau Model for Subduction Event – Taiwan Branch

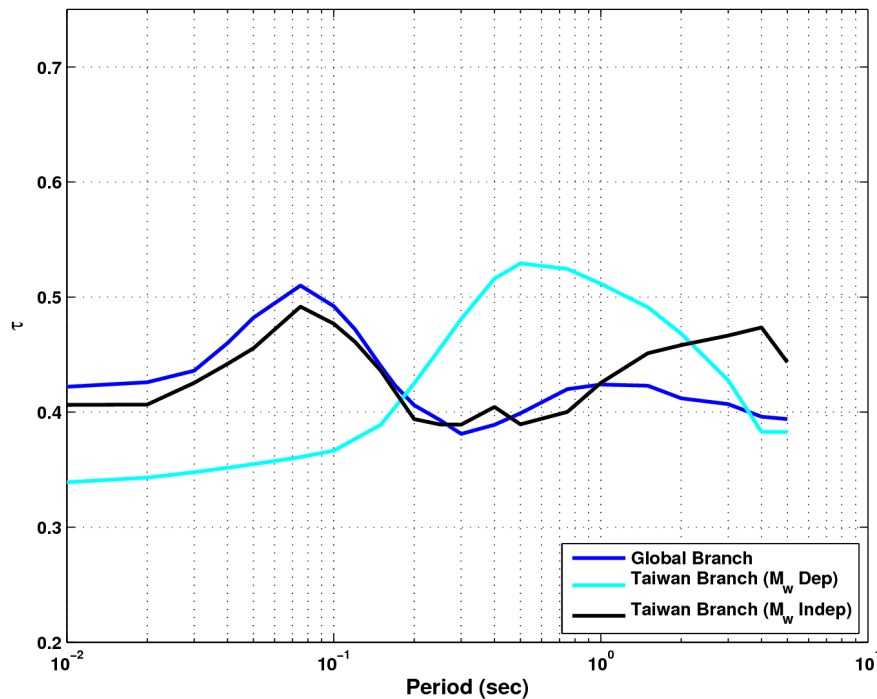


# Develop Magnitude-Dependent of Tau Model for Subduction Event

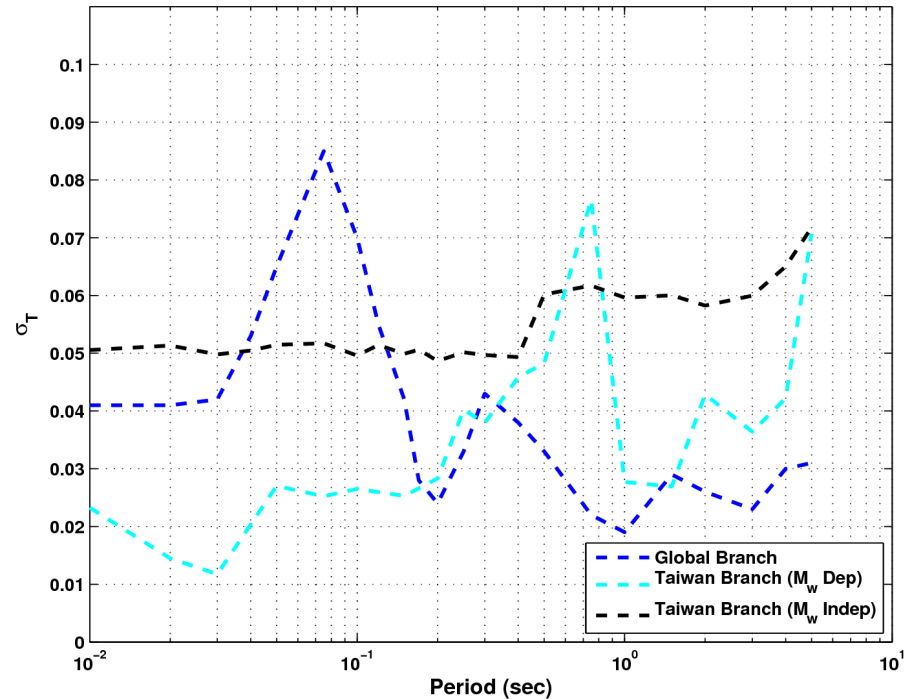


# Comparison Tau Models for Mw=5

$\tau$  Model, Mw = 5

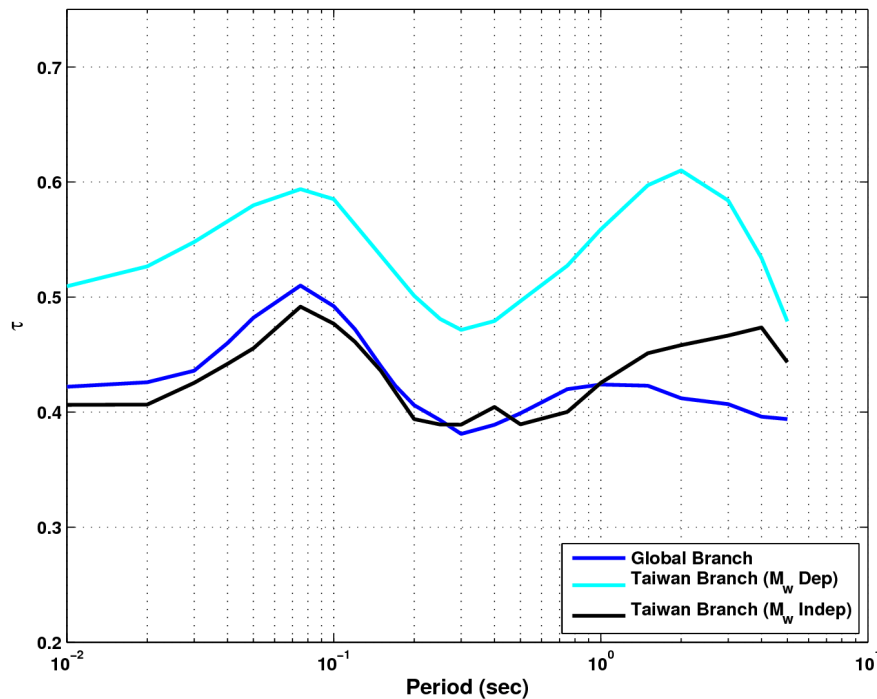


Total SD of  $\tau$  Model, Mw = 5

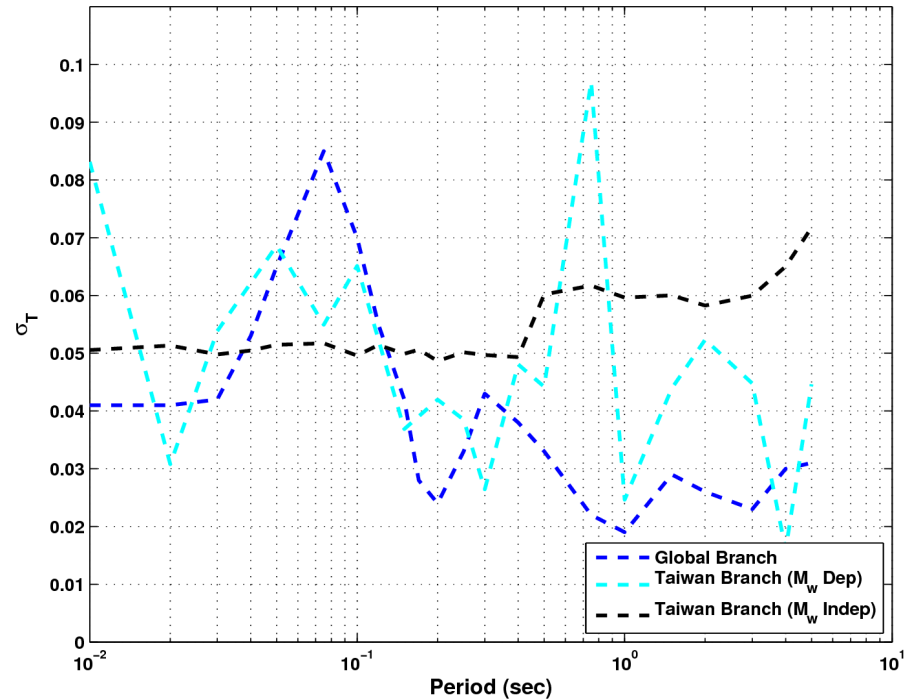


# Comparison Tau Models for Mw=6

$\tau$  Model, Mw = 6

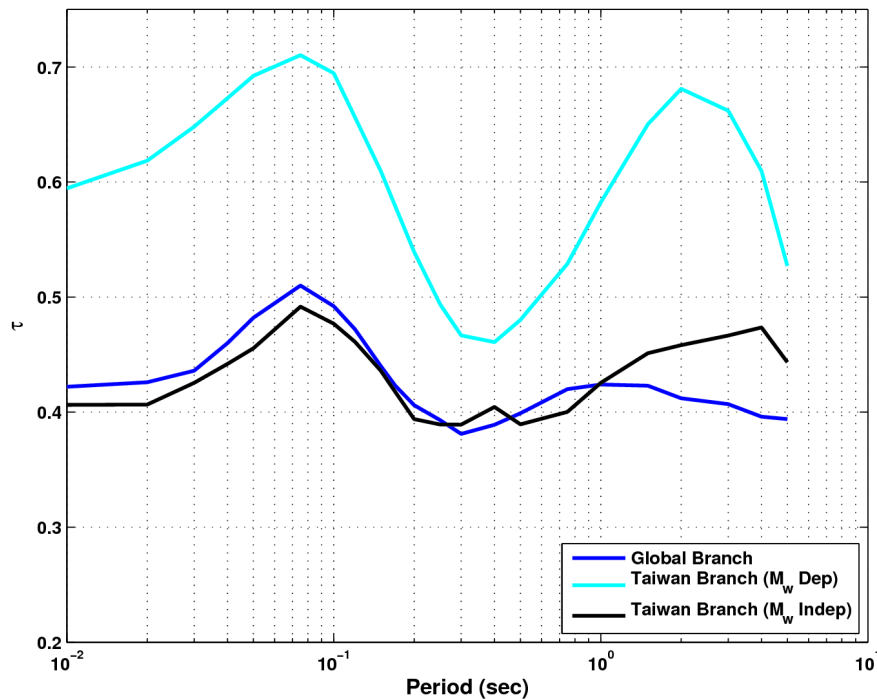


Total SD of  $\tau$  Model, Mw = 6

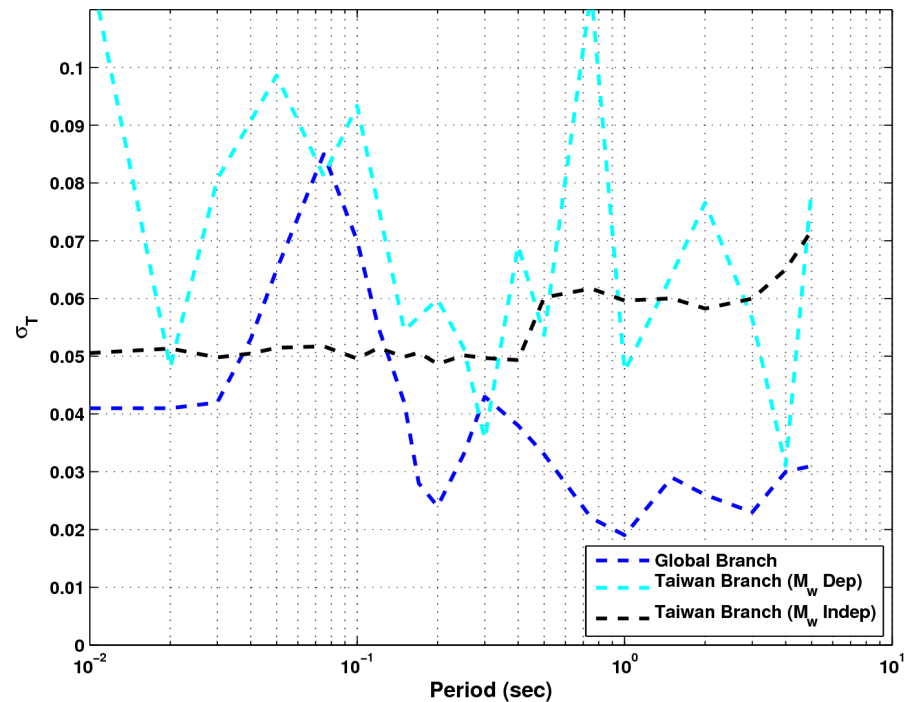


# Comparison Tau Models for Mw=7

$\tau$  Model, Mw = 7

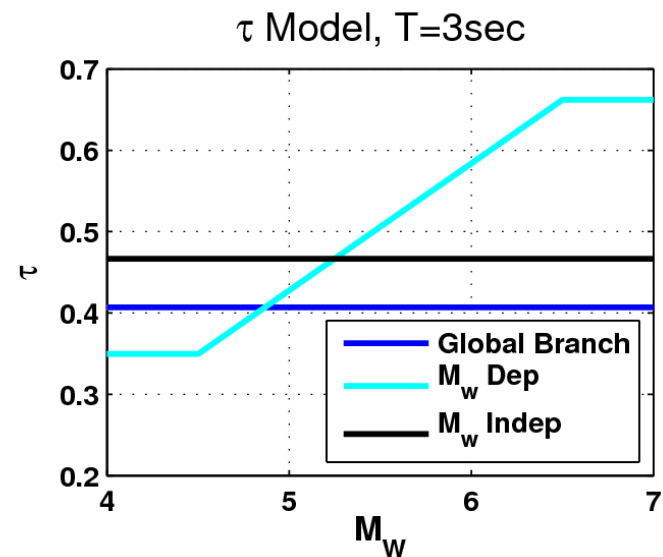
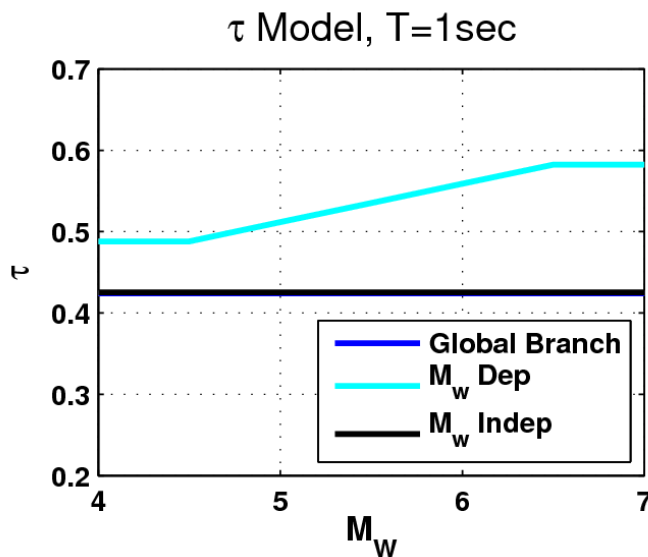
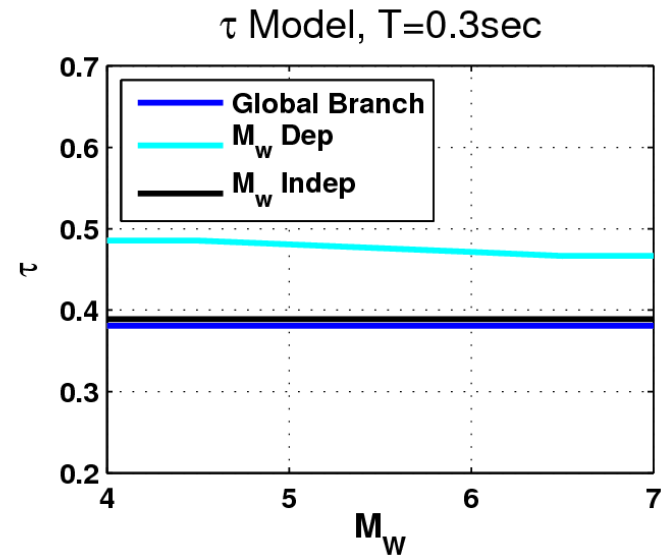
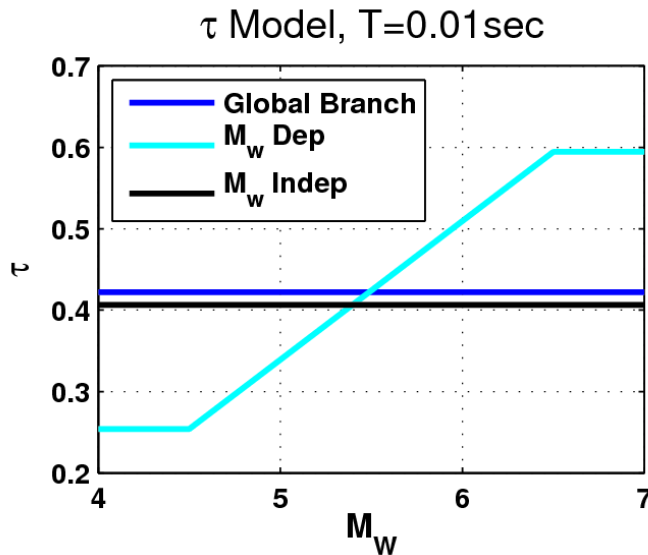


Total SD of  $\tau$  Model, Mw = 7

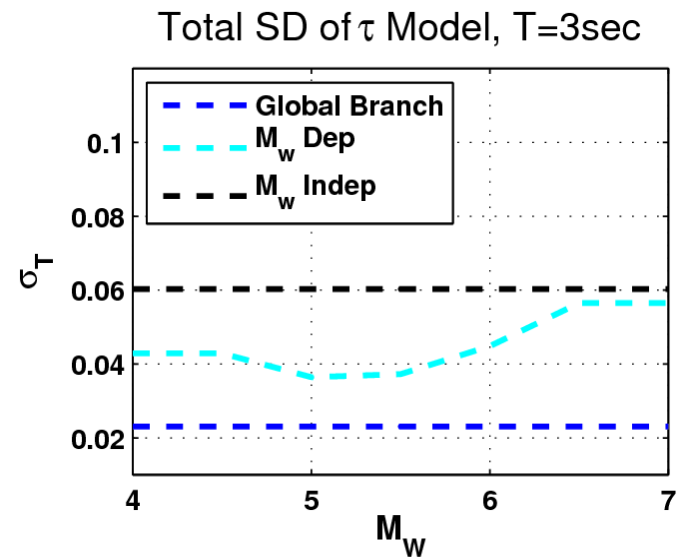
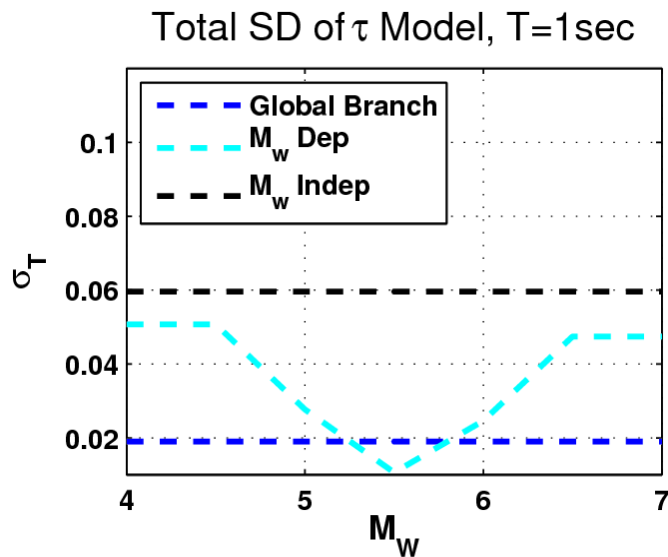
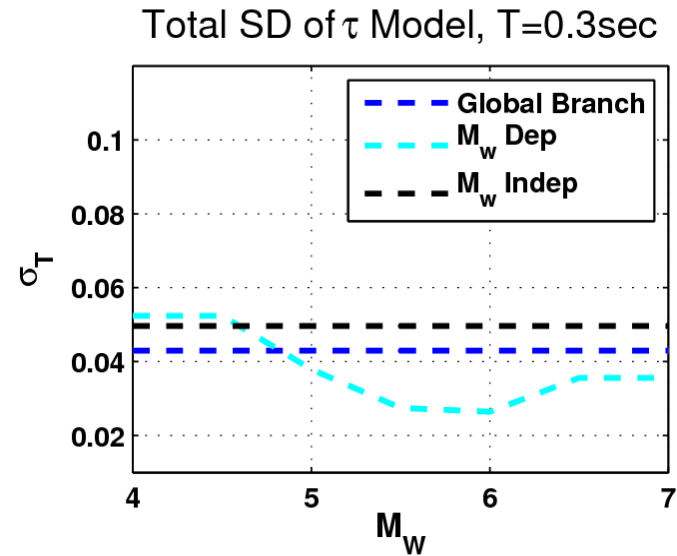
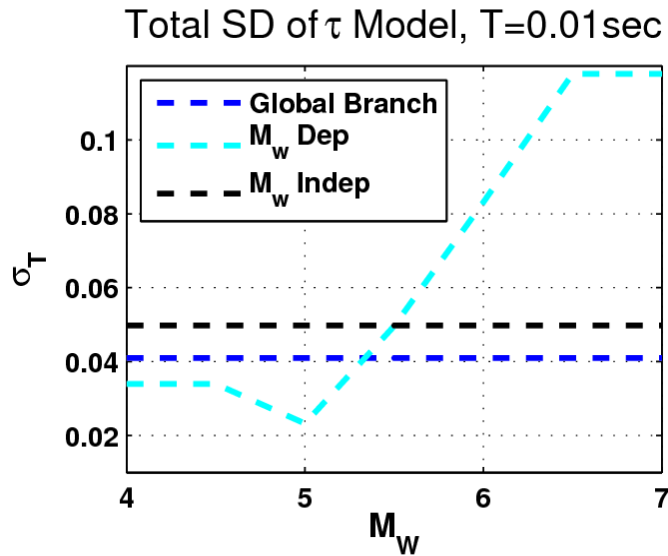




# Comparison Tau Models



# Comparison Total SD of Tau Models



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**Thank You for Your Attention !!**

**Questions ?**