

**Supplemental Material S8.** Sensitivity analyses: phonological processing growth models including age of amplification.

| <i>Predictors</i>                                    | <b>Phonological Awareness<br/>(Robust)</b> |                      |                  | <b>Phonological Memory</b> |                    |                  | <b>Phonological Recoding<br/>(Robust)</b> |                      |                  |
|------------------------------------------------------|--------------------------------------------|----------------------|------------------|----------------------------|--------------------|------------------|-------------------------------------------|----------------------|------------------|
|                                                      | <i>Est.</i>                                | <i>CI (95%)</i>      | <i>p-value</i>   | <i>Est.</i>                | <i>CI (95%)</i>    | <i>p-value</i>   | <i>Est.</i>                               | <i>CI (95%)</i>      | <i>p-value</i>   |
| Intercept                                            | -1.18                                      | -1.44 – -0.92        | < .001           | -0.98                      | -1.22 – -0.74      | < .001           | 0.61                                      | 0.32 – 0.91          | < .001           |
| Time (centered at 1)                                 | <b>0.60</b>                                | <b>0.46 – 0.74</b>   | <b>&lt; .001</b> | <b>0.29</b>                | <b>0.25 – 0.33</b> | <b>&lt; .001</b> | <b>-0.31</b>                              | <b>-0.35 – -0.26</b> | <b>&lt; .001</b> |
| Time: Quadratic                                      | <b>-0.06</b>                               | <b>-0.09 – -0.02</b> | <b>.001</b>      |                            |                    |                  |                                           |                      |                  |
| Group (CNH)                                          | 0.18                                       | -0.22 – 0.58         | .384             | <b>0.61</b>                | <b>0.22 – 0.99</b> | <b>.002</b>      | 0.01                                      | -0.47 – 0.49         | .960             |
| Age of Amplification                                 | <b>-0.35</b>                               | <b>-0.58 – -0.12</b> | <b>.003</b>      | -0.16                      | -0.38 – 0.07       | .171             | 0.11                                      | -0.17 – 0.38         | .456             |
| <b>Random Effects</b>                                |                                            |                      |                  |                            |                    |                  |                                           |                      |                  |
| $\sigma^2$                                           | 0.17                                       |                      |                  | 0.17                       |                    |                  | 0.17                                      |                      |                  |
| T <sub>00</sub>                                      | 0.34                                       | ChildID              |                  | 0.33                       | ChildID            |                  | 0.50                                      | ChildID              |                  |
| ICC                                                  | 0.67                                       |                      |                  | 0.66                       |                    |                  | 0.74                                      |                      |                  |
| N                                                    | 60                                         | ChildID              |                  | 60                         | ChildID            |                  | 60                                        | ChildID              |                  |
| Observations                                         | 242                                        |                      |                  | 244                        |                    |                  | 239                                       |                      |                  |
| Marginal R <sup>2</sup> / Conditional R <sup>2</sup> | 0.398 / 0.800                              |                      |                  | 0.369 / 0.785              |                    |                  | 0.195 / 0.794                             |                      |                  |

*Note.* The intercept may be interpreted as the number of standard deviations below the sample mean a child with hearing loss would be predicted to score on the outcome at Time 1 (i.e., ~4 years old) for a child with an average age of amplification based on the sample-average among participating children with hearing loss. This value was z-scored based on the mean and standard deviation for children with hearing loss. A single z-scored value corresponding with the age of zero was entered for children with normal hearing (CNH), to allow for inclusion of their data in the analyses.