



Are Reading Achievement Gaps Closing Over Time in EU and EEA Countries Using PIRLS Data?



Laura Ringienė¹, Audronė Jakaitienė¹, Rimantas Želvys¹, Rita Dukynaitė²

1 – Vilnius University, Lithuania; 2 – Ministry of Education, Science and Sport, Lithuania

Introduction

Educational inequality – reflected in the achievement gap between high- and low-performing students – is a significant concern across countries. A wide achievement gap indicates a high level of inequality within a country.

Objective

This study aims to quantify and compare the achievement gap in reading literacy across countries and over time, specifically from 2001 to 2021, using data from the Progress in International Reading Literacy Study (PIRLS).

Methods

The data set consisted of 270,415 4th-grade students from 12 EU and EEA countries participating in all five PIRLS cycles. We explore both PIRLS' purposes for reading: Literary Experience and Acquiring and Using Information. Considering all five plausible values, we define the achievement gap as the distance between students' 90th and 10th percentile assessment values in a country. In our analysis of achievement gap trends, we examine whether the changes are driven by increases in the 90th percentile or decreases in the 10th percentile.

Results and Conclusions

Different countries exhibited varying achievement gap patterns, and none showed a consistent reduction in the gap across all PIRLS cycles (Fig. 1). This suggests that policy measures failed to decrease educational inequality among students in the selected countries over the past two decades.

More than half of the observed achievement gaps have widened, with roughly one-third of this increase linked to growth at the 90th percentile. Conversely, among the shrinking gaps, about half of the change is explained by improvements at the 10th percentile (Fig. 2). This highlights the importance of analyzing the underlying factors driving these shifts in achievement gaps.

Figure 1. Trends in reading, literary, and informational achievement gaps.

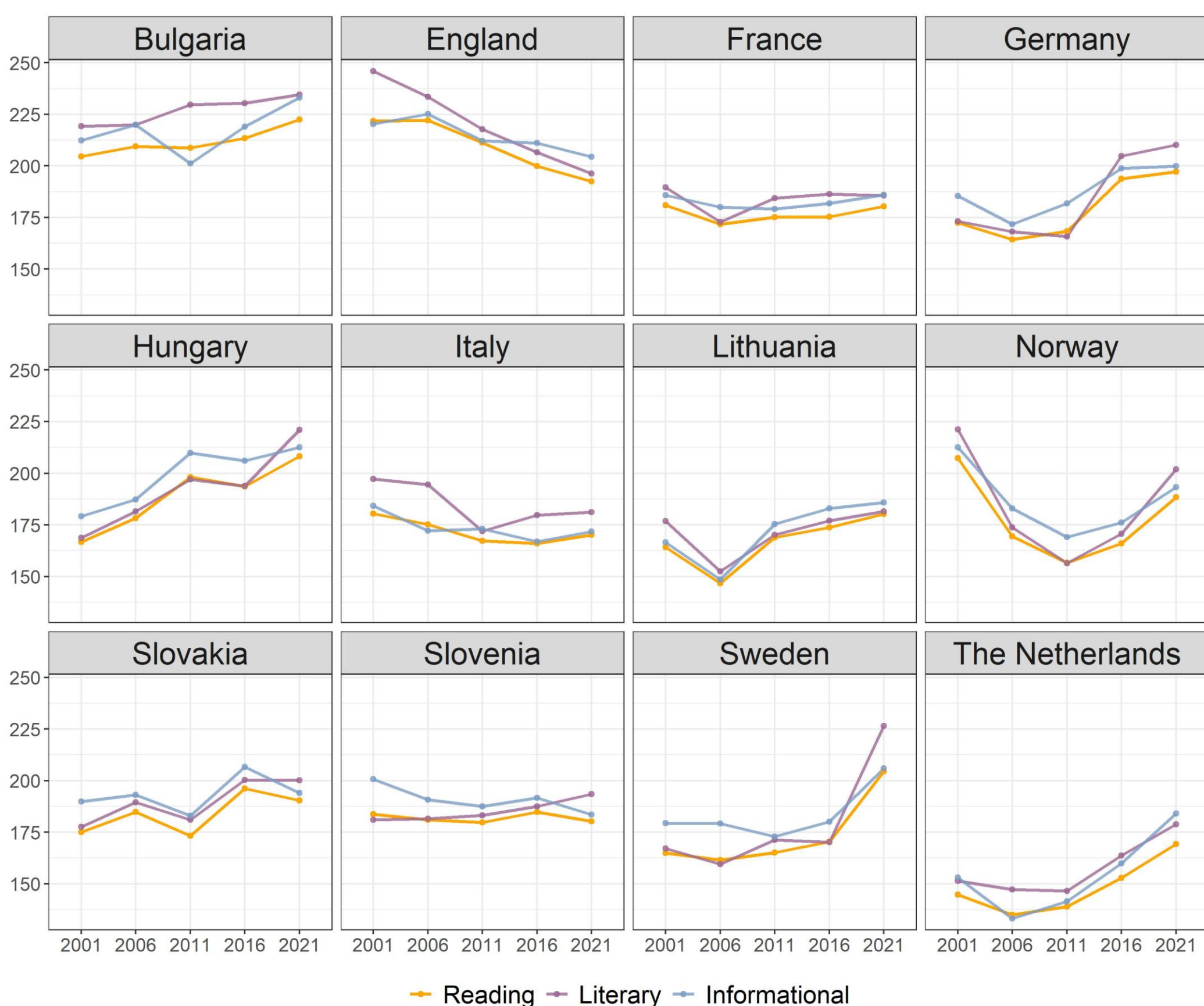
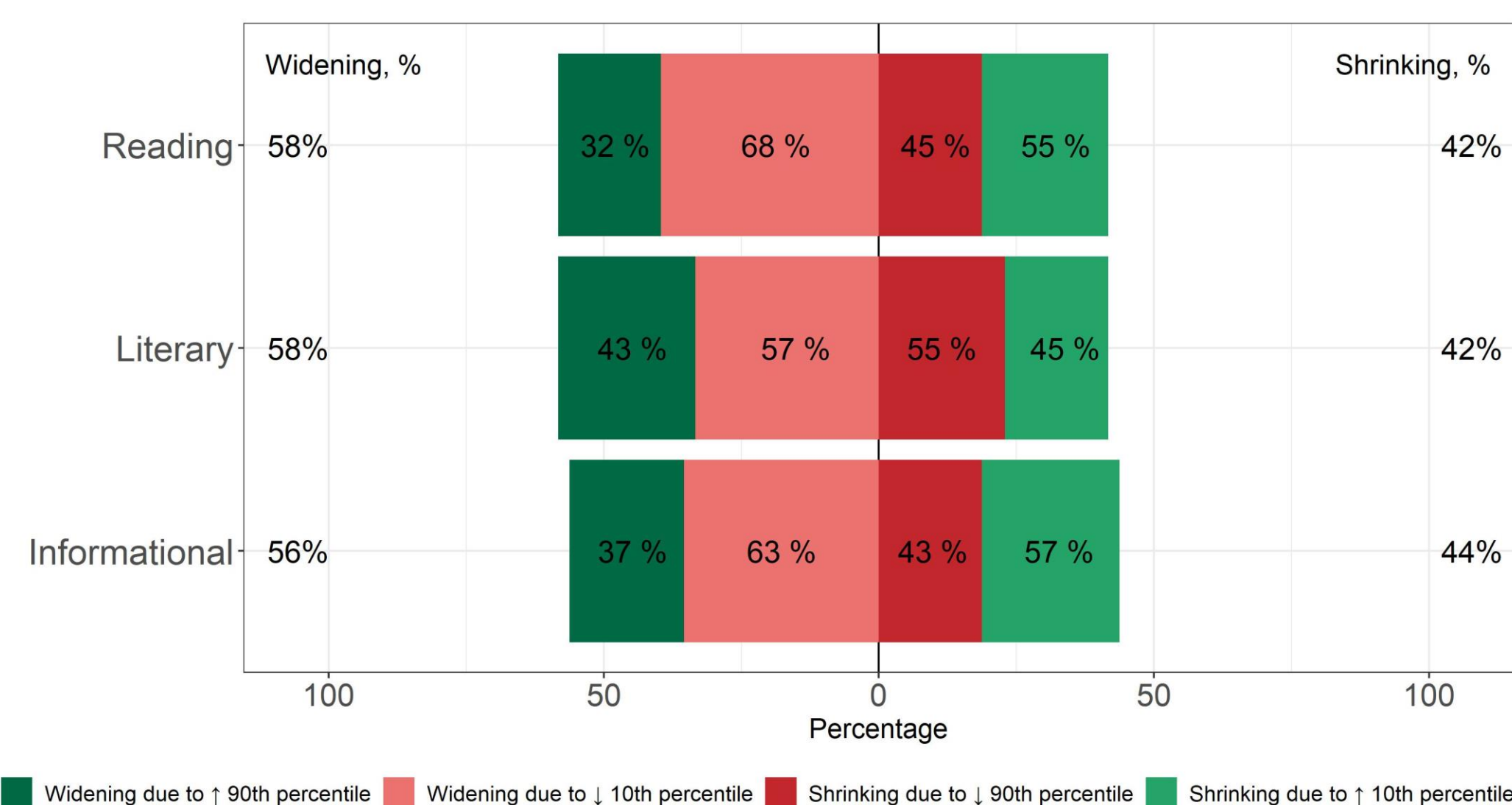
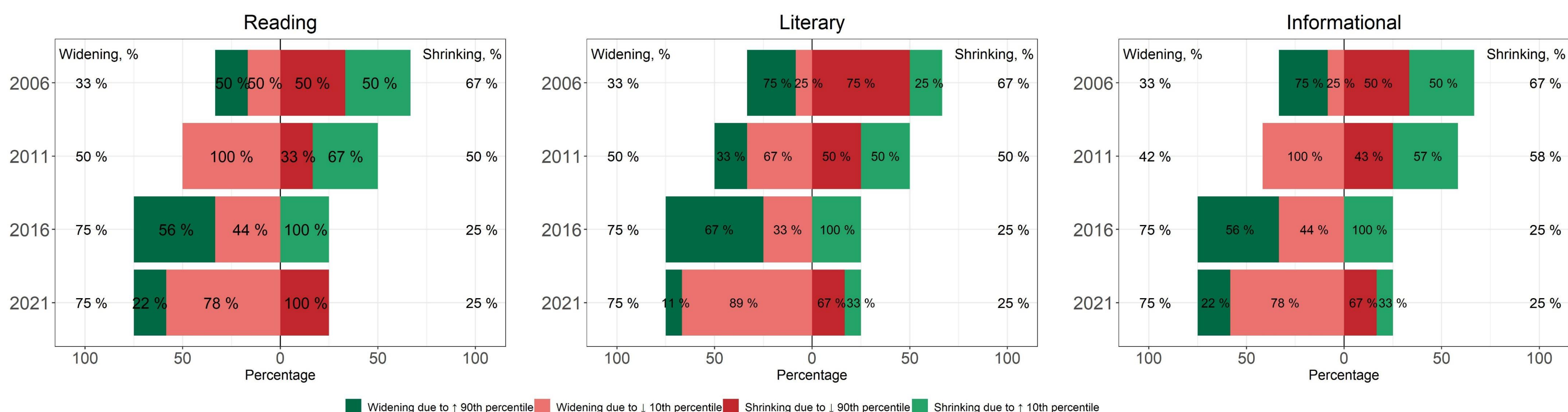


Figure 2. Total widening and shrinking gap percentages are shown on the side. The favourable effect of each part (in green) and the unfavourable effect (in red).



Examining year-by-year drivers, we observe that in the last two cycles about 75% of countries experienced widening achievement gaps (Fig. 3). Notably, in the most recent years, the large increase in gaps is driven primarily by declines at the 10th percentile.

Figure 3. Annual widening and shrinking gap percentages in reading, literature, and informational achievements. The favourable effect of each part (in green) and the unfavourable effect (in red).



We also find no significant correlation between the achievement gap and a country's average performance. Therefore, we argue that analysing countries solely based on their average performance is insufficient, and the achievement gap should also be considered.