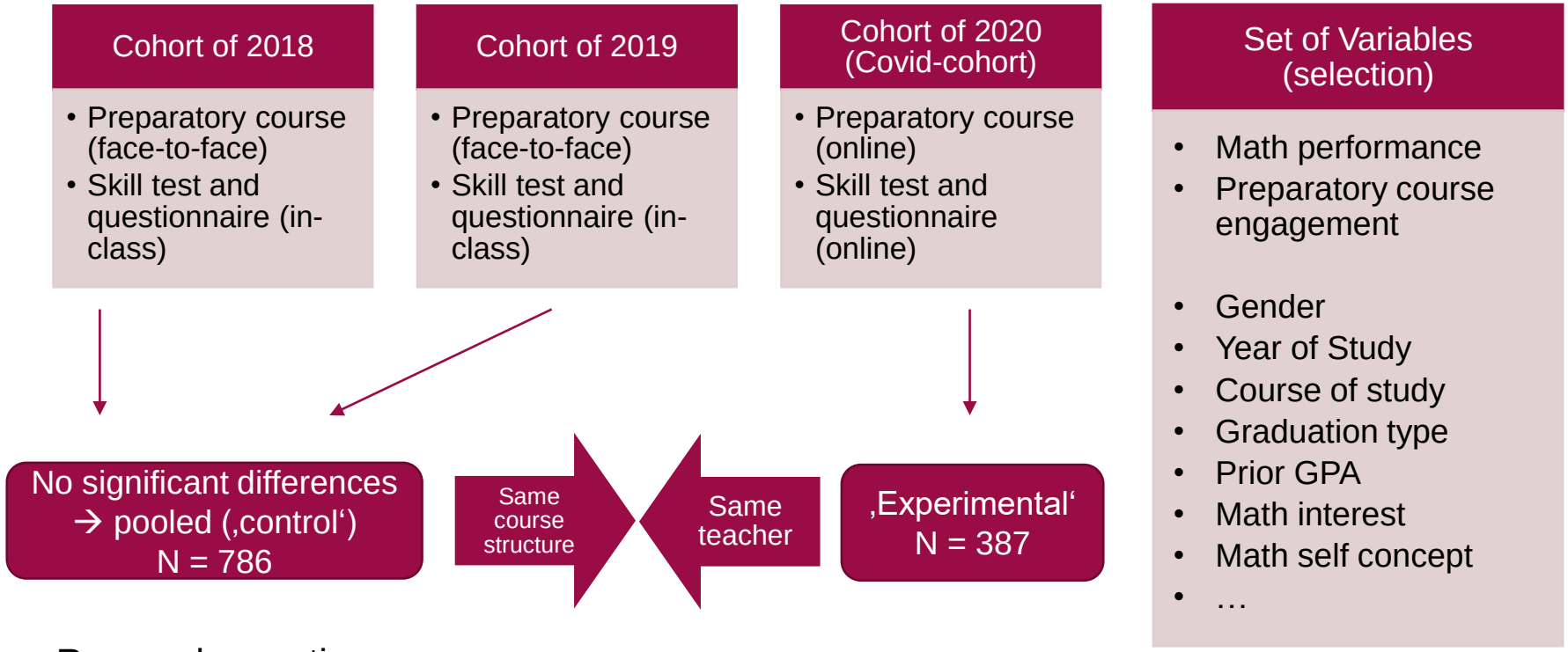
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Increasing the effect of a remedial mathematics course by switching to an online format during the COVID-19 crisis: evidence from a German university

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Overview of the study



- Research questions:
  - **RQ 1:** What changes in students' participation, if any, resulted from the switch to digital pre-course instruction?
  - **RQ 2:** To what extent, if any, does the performance of students change?
  - **RQ 3:** Are variables in the explanation of performance changing with respect to previous years?

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Results and implication

- RQ 1 (changes in participation and course engagement)
  - Descriptive analysis: Participation declined significantly (45 % in 2018/2019 and 37 % in 2020)
  - Probit regression with controls: Pariticaption declined but not significantly

  → Changes in participation can (partly) be traced back to slightly different cohort structure
  - Course engagement score (‚attending' lectures and tutorials, solving exercises) rose significantly from 60% to 68%

- RQ 2 (changes in student's performance)
  - The preparatory course effect for the 2018/2019 cohorts is 1.4 points in the skill test (if engagement score equals 100%)
  - The preparatory course effect for the 2020 cohort 3.4 points in the skill test (if engagement score equals 100%)

  → Comparison of in-class test and online test problematic. We found evidence of „cheating" (using calculators) but

  1) Both groups (participants and non-participants) cheated the same
  2) We controlled for the higher 2020 baseline-score in our analysis

- RQ 3 (changes in variables determining performance)
  - We found a gender gap in 2020 (compared to the 2018/2019 cohorts)
  - Non Economics students (such as economics education) were less successfull in 2020 (compared to the 2018/2019 cohorts)

  → Women might be more affected in personal circumstances during the pandemic (Aristovnik et al. 2020)

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