

## **IT tools at Macroeconomics evaluation summary**

### *Context and intervention*

The final exam for first-year Bachelor's degree course Macroeconomics (block 4; Law, Economics and Governance, 2016-2017) tests for the ability to apply macro-economic models. This has proven to be a stumbling block for students. To better train students in the application of basic models and to stimulate them to practice, a number of changes were implemented, including the use of IT tools. The primary IT tool deployed and evaluated was PeerWise. Due to developments during the course, other tools either weren't used as planned or failed to provide useful data.

### *(presumptive) Mechanism*

The idea behind all this was that these tools will cause students to study more regularly and that they will facilitate knowledge exchange so that students can benefit from each other's efforts. If students use PeerWise every week to actively engage with the subject matter by developing, answering and evaluating questions, they will have a much better sense of what elements of the subject matter are most important. It also allows students to learn from each other.

### *Results*

Students and teachers gave the use of IT tools in the Macroeconomics course neutral to poor reviews. Even so, use of PeerWise appears to positively affect students' performance on both sections of the exam (open questions and multiple choice) as well as their final scores for the course. Developing questions appears to be a particularly effective exercise. A comparison of students who used PeerWise and students who did not showed that using PeerWise had a positive effect on students' performance on the retake's open question section. Because the open questions in particular call for the application of macro-economic models, the differences between the results of PeerWise users and other students and the correlation of PeerWise use to exam results (retake and original) may be an indication that PeerWise aids the practice of that skill. PeerWise itself received neither positive nor negative reviews. According to students, the use of PeerWise had little influence on how well they cooperated, gave and received feedback and prepared for and understood their lectures. More positive reviews do correlate with higher PeerWise scores and a better grade on the exam.

### *Standout results*

- It appears that both students and teachers rate the implementation of ICT tools in the Macroeconomics course as poor.
- Regardless, using a tool like PeerWise appears to contribute to better results on both sections of the exam (open questions and multiple-choice questions) and better grades overall. Developing questions appears to be an especially valuable exercise.
- PeerWise itself received neither positive nor negative reviews. Students felt their use of PeerWise had little influence on how well they cooperated, gave and received feedback and prepared for and understood their lectures.
- A more positive review does correlate with higher PeerWise scores and a better grade on the exam.

### *Important footnotes*

Survey data and their connection with exam results should be analysed with great care. It is not clear how representative the data is: only data from students who consented to their data being used in this way was included in the analyses. That means the number of students in the

analyses of the survey data is lower than the number of students who took part in the Macroeconomics course and the number of students who used PeerWise.

Tweet (280 character limit): Research at Law, Economics and Governance reveals that using PeerWise, and especially developing exam questions in PeerWise, has a positive effect on learning outcomes.

The course evaluation follows.