

# Indicative solution of the case (EN)

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## 1 The Slow Students Fine Case

One of the most recent cases –the ‘Slow Students Fine’ case– was too hot too last: the case was developed one day before the exam of 18 January 2011 (precisely because this hot issue was on every student’s mind), but was outdated less than two weeks later (when the strongly opposed policy proposal was partly abolished after mass demonstrations).

In 2010, the new Dutch cabinet Rutte-I launched plans to fine ‘slow students’ –students in higher education with more than one year delay– €3000 per extra year on top of their normal annual college fee (for Dutch students) of about €1900. The plans specified that the institutes for higher education needed to pass on the additional college fee of their slow students to the government, but also that these institutes for higher education needed to pay an additional annual fine of €3000 per slow student. These plans aroused serious opposition and protests, also from the institutes for higher education because these proposed policies were expected to seriously hurt those institutes for higher education –especially the three technical universities and other difficult studies– and to lead to undesired side-effects (eroding goals, massive lay-offs, et cetera). These plans were also argued to be damaging to the (future) Dutch knowledge economy, and running counter to the ambition to return in the top of the world of ‘knowledge and innovation countries’ by 2020 (Kennis and Innovatie Agenda 18/01/2011).

More than 80000 out of 550000 students in the Netherlands had –at that time– accumulated more than one year of study delay. Especially the technical studies have –because of the level of difficulty– a large fraction of slow students: 22.5% of the students need 4 years instead of 3 to finish their Bachelor of Science (BSc). At Delft University of Technology, the fraction was even higher because of the difficulty of the studies as well as the dazzling student life.

But such fines for slow students imposed upon the institutes of higher education would hurt all students since they would reduce the overall educational amount of money available (there is no subsidy for slow students) without providing the tools to speed them up or kick them out (no numerus clausus, no binding targets, et cetera). In the proposed form, it was simply a distributive code for the largest budget cuts in Dutch higher education in decades (€360+ million).

In the corresponding staged case, students first of all need to model the through-put of BSc students and make corresponding detailed and aggregated CLDs (see Figure 1). They need to extend the description with a submodel about the through-put of MSc students (copy-past with changes), and a simplified submodel about the functioning of the faculty (finances and personnel) (see Figure 1(d) for the full SFD). Then they need to simulate the evolution of the faculty without the fine system (Figures 2(a) and 2(b)) and with the fine system (Figures 2(c) and 2(d)), perform several what-if analyses, make/discuss two proposed corrections and propose other adaptations/changes.

Building blocks addressed in this case include stock-flow modelling and detailed and aggregated causal loop diagramming of aging chains, formulating special functions (lookup functions and time series), and exploring plausible model behaviour.



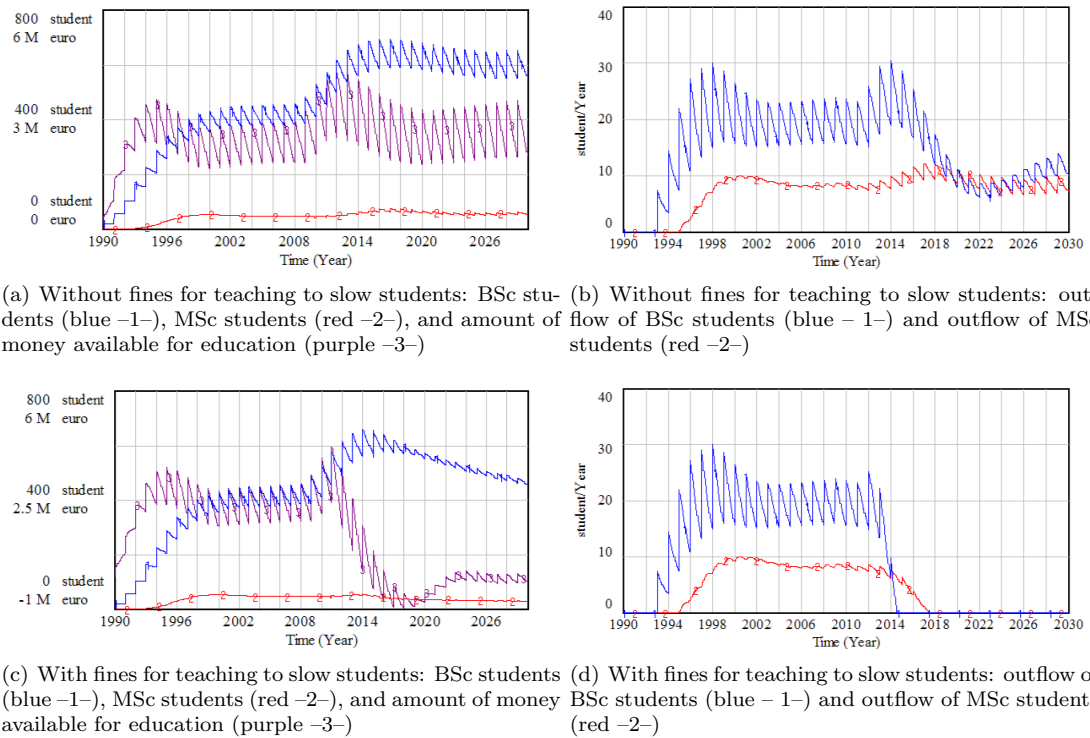


Figure 2: Left hand side: BSc students (blue -1-), MSc students (red -2-), and amount of money available for education (purple -3-); Right hand side: outflow of BSc students (blue -1-) and outflow of MSc students (red -2-)

This case may have been too hot. Several things happened in the days and weeks after using this exam question which made the question obsolete. Three days after the exam, mass demonstrations took place in the Netherlands against these proposals. However, the cabinet refused to make any changes. But on 1 February, the ‘*Raad of State*’ (the legal advisor of the state and highest administrative/legal court) published its negative advice against the fines imposed upon the universities based on their number of slow students. After this negative advice, the cabinet turned the fines for slow students into a lower contribution to the universities of exactly the amount those fines were projected to generate... The introduction of fines imposed upon students was postponed, not abolished.