

Unstructured Assignments in Economics

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Summary

- Many graduates from economics report insufficient skills in writing, collaboration, and working with real world problems.
- In trying to address these deficiencies, I implement two unstructured assignments in my third year Public Finance course.
- The assignments asked students to combine theory and empirical methods from the lectures to solve a problem framed as a real-life task in e.g. the Ministry of Finance.
- Students were overall happy with the assignments and their learning outcomes, but felt frustrated by the lack of clear expectations about what they should deliver.

Motivation

The assignments that we put our students through in Economics are often very structured, in particular on the BA level. In theory-assignments, this typically implies asking students to show step-by-step derivations of a particular result stated in the assignment. In empirical-assignments, it typically implies asking them to run specific regressions.

While structured assignments may be good at hammering in basic tools and understandings, they cannot stand alone for two reasons.

First, relying solely on structured assignments create a gap between our teaching and what we expect students to do in their BA and MA theses. In BA and MA theses we expect students to ask and motivate their own questions and to identify and apply the relevant parts of the curriculum independently.

Second, structured assignments often appear more disconnected from the real world and make the tools we teach appear less applicable to real world problems.

These deficiencies have been identified in past research (Lynch, 1994; Bigelow, 2004; Goltz et al., 2008) and are also reflected in our graduates' assessment of the skills they have learned during their studies (see Figure 1). While graduates value their abilities to work independently, think critically and analyze complex problems, there are deficiencies in their abilities to communicate in writing, collaborate, and work with real-world problems.

TLHEP Project

In my TLHEP project, I tried to address some of the deficiencies identified by our graduates by implementing two unstructured assignments in my Public Finance class (N~100). Students are often on the 3rd year, but MA students also constitute a significant fraction.

The first new assignment asked students to estimate the elasticity of taxable income (a measure of how individuals respond to tax changes) and to use their estimate to evaluate the cost of taxation in Denmark. This assignment mirrors a project currently under way in the Ministry of Finance, which we link to in the assignment. Figure 2 shows the difference between old structured assignment and the corresponding new unstructured assignment.

The second assignment focused on unemployment benefits, which mirrors the work of the 2015 Unemployment Commission in Denmark.

The overall aim of the new assignments are the same as in the old ones, but I do not ask students to take our step-by-step route through the assignments, and there are multiple empirical strategies that students can use.

Hence, the assignments were small-scale implementations of a problem-based learning approach (Bigelow, 2004; Goltz et al., 2008), where students need to identify and apply the relevant tools from the curriculum to real-world problems.

The students could work on the assignments in groups, they had about two weeks to complete them, and they had to pass to get to the exam. In non-Covid times, I would have arranged a workshop for each assignment, but given the circumstances I experimented with a hybrid Padlet session, where students brainstormed on the assignment (first assignment), and individual guidance (second assignment).

After students had handed in the assignments, I gave each assignment a few individual comments and collective feedback at the lectures (after the first assignment) or as a video (after the second assignment).

Evaluation

After the first assignment, I asked students to evaluate it. The results are shown in Table 1. Overall students (N=41) were happy with the assignment (avg. score 3.68/5.00), which appear driven by a high assessment (3.78/5.00) of own learning (regression analysis suggests a weight of 25% on own learning).

Classic Assignment in Economics

Workshop 1: Empirical Measurement and the Elasticity of Taxable Income

Part 1: Theory

Imagine that the Minister of Finance in Denmark hires you to assess the behavioral response to taxation summarized by how individuals change their taxable income. As a first part of the assessment you want to go through the theoretical effect of taxation. To do this consider a number of individuals i at time t having preferences represented by the utility function

$$u_i = c_i - \frac{a_i}{1+\frac{1}{\epsilon}} \left(\frac{z_i}{a_i} \right)^{1+\frac{1}{\epsilon}}$$

(1A) Show that the optimum of the individual is characterized by

$$z_i^* = a_i(1 - m_i)^{\epsilon} \quad (1)$$

where $m_i = T'_i(z_i)$ is the marginal tax rate. What would be the earnings of the individual without taxation? Use this result to provide an interpretation of the parameter a_i (what does it represent?).

Figure 2 – Assignments in Public Finance pre- and post intervention

The picture to the left is part of a voluntary assignment in Public Finance, which I have used through a number of years before 2020. The picture to the right is part of the new assignment (Assignment 1) used in 2020.

How do you rate: (1=worst, 5=best)	1	2	3	4	5	Mean
- The assignment overall?	0%	7%	27%	54%	7%	3.68
- Your own learning from the assignment?	2%	7%	24%	34%	27%	3.78
- The guidance provided before handing in the assignment?	10%	28%	25%	25%	8%	3.00
- The feedback provided after handing in the assignment?	5%	20%	15%	38%	15%	3.50

Table 1 – Student Feedback

Feedback from an online questionnaire among students after the first assignment (N=41)

In contrast, students were less happy with the guidance (3.00/5.00) and feedback (3.50/5.00) provided before and after the assignment. This is also reflected in students' open text comments. Many students were frustrated by not known what was expected and did not themselves see the links to what we have talked about at the lectures. Some requested assignments that were more closely related to the final exam. In addition they would have liked more individual feedback.

The students' evaluations are well in line with my own view on the unstructured assignments. It is difficult to simultaneously leave an assignment open to interpretation while setting expectations for what students should hand in, and it is difficult to give individual level feedback to ~50 groups.

Overall Assessment

I overall still see the unstructured assignments as the right tool to get students to see the link between teaching and real-world applications. But I do see the need for providing a little more context and setting expectation before the assignments, in particular regarding the first. This is consistent with Dynan et al. (2008) and Dynan & Cate (2009), who find that many undergraduate students are unprepared for self-directed learning and learn more from a more structured approach.

I also need to highlight the link between the assignments and the final exam. Currently the exam is 3 hours closed book, but while this format is very different from the assignments, the content is similar. At the exam I will, e.g., ask students to evaluate an empirical strategy and suggest alternatives, which is very close to what they should do in the assignments.

Unstructured Assignment

Policy Report 1: The Elasticity of Taxable Income

The Danish Ministry of Finance needs a new up-to-date estimate of the elasticity of taxable income (ETI) and an assessment of what the new estimate implies for the marginal deadweight loss of taxation and Laffer rate in Denmark (FM, 2019). Imagine that you are hired for the job.

To answer these questions, the ministry provides you with a data set containing individual taxable incomes (measured in DKK) for a random sample of Danes over three years. In year 1, the tax system has two income brackets: A bottom income bracket for income below DKK 450,000, which is taxed at 25 percent, and a top income bracket for income above DKK 450,000, which is taxed at 50 percent. In year 2, the top tax is removed so that all income is taxed at 25 percent. Finally in year 3, the government runs a controlled experiment. In this year individuals are randomly assigned to two groups each facing a different tax rate. Group 1 is given a uniform tax rate of 25 percent, while group 2 is given a uniform tax rate of 50 percent.

Forskel mellem tilegnede og efterspurgte kompetencer

Sammenligning af tilegnede og efterspurgte kompetencer. Jo større afstand mellem de to cirkler, des større forskel i gennemsnitlig score.



Figure 1 – Differences Between Acquired and Demanded Competences

Source: Dimmittundersøgelsen for Økonomi (2020)