

## Report on Dissertation by Gega Todua

### Chapter 1

The first chapter collects novel data on how developing countries finance the education of their students in other countries. Governments offer loans and scholarships, where scholarships more often have academic merit requirements and have requirements that the students return to their home country after their studies. The chapter then builds a model where students are uncertain about their ability. Ability is an important predictor of whether students are successful in completing their education and have success in the labor market. Intuitively, the government offers scholarships with a return requirement for high ability students (the low-risk and high-return group) and offers loans to the low-ability students (high-risk low-return group).

I liked this chapter and the way it considers private and social welfare. I only have a few minor comments:

-There is no mention of remittances. This may be an important motivation for developing countries to send high-ability individuals to high-income countries. For some developing countries, remittances are a significant portion of the GDP. How would remittances change the problem that the countries are solving?

-The specification of  $\phi$  looks strange to me. The scale and location of  $\phi$  shouldn't matter, but if  $\theta$  lower bar is close to zero then  $\phi$  will blow up. Perhaps some additional explanation or justification for this specification would be helpful.

-Is it realistic that students do not know anything about their own ability and about  $\mu$  before making a migration decision? Would it change anything in the model to have two components of ability. One that is observable and allows for heterogeneity across students and a second component that is unobserved until later?

### Chapter 2

The second chapter studies the market for attracting international students to the EU. It provides some nice stylized facts that, with some exceptions, countries with higher ranked universities also charge higher tuition fees. The chapter also shows that there is not much of an empirical relationship between observables on the universities and immigration policies of a country. The chapter then continues to build a model to explain these stylized facts. A number of different equilibria are considered: Symmetric Nash Equilibria where the two countries have the same educational quality, Nash equilibria when the educational quality is different in the two countries, and finally Nash equilibria when one of the two countries has a constraint.

Some questions comments:

-It would help to add some discussion of the following mechanism: international students bring different sets of skills and preferences for specialization. If you look at STEM programs in the US for example, they have disproportionately more international students compared to other programs. I imagine it is similar in the EU. If these students

remain, they not only contribute in taxes, but may also be increasing the overall productivity of the host country by providing a higher supply of technical or innovative skills.

-Data is only collected for EU public universities. Is it possible that private universities may affect the equilibrium and stylized facts?

-Does the information collected about fees account for scholarships, fellowships, etc? In other words, are fees the “sticker price” or the effective price that an immigrant student would pay?

-I would also like to see some discussion/analysis about the decision to offer an English-language program. This may reduce the cost for international students to attend the university, but at the same time make it less likely for the students to stay in the host country. Do you have any stylized facts for how the fraction of programs offered in English by the different countries relates to other factors? How does this relate to the immigration policies offered by the countries?

-I appreciated and enjoyed the cultural and historical discussion of the institutions in the different countries.

-The model is nice, but focusing on only symmetric equilibria or constraining the behavior of one of the countries seems a bit artificial. A little discussion about why these constraints are needed theoretically would be interesting. Is it possible to get asymmetric equilibria even with symmetric qualities without imposing constraints? I don't think a completely new analysis is needed here, but a general discussion would be helpful to understand why constraints are used.

-One way to think about the constraints is in light of the cultural and historical norms discussed in the empirical sections. Is it possible to replace the constraints with different preferences on the country level and get similar results? Again, I think just a discussion of this idea would be helpful.

-I found the assumptions imposed a bit puzzling. For example, why should Assumption 2.3 be imposed and not a result of choices of the governments. It would help to have some explanation for why the assumptions are imposed.

Minor comment:

-At the end of the introduction, it says “We show that, for a certain range of parameter values, the constrained host country charges a lower tuition fee than the unconstrained one does in both scenarios.” But if one of the countries is constrained to set tuition fees to zero, then it just follows from the constraint?

### **Chapter 3:**

The third chapter describes a novel information provision experiment. Schools in Georgia were divided into control and treatment groups. Students in tenth and eleventh grade were asked about their beliefs about the average earnings and probability of

unemployment in different fields of study (i.e. college majors). Half of the students in treatment schools were later provided information about population averages of earnings and unemployment rates. A month later the students were surveyed again. Finally, data on college choices were collected one or two years later for the eleventh and tenth grade students, respectively. In summary, this is a nice experiment with two treatment arms: a set of students who were directly given information (direct information provision) and another set of students who were at schools with informed students.

Some questions:

-Most important comment: Actual major choice depends on the admissions and this may complicate the interpretation of the results. It may be that students did not adjust their preferences/beliefs, but they simply did not get into their preferred major. Or they anticipated that they could not do their preferred major at the university of their first choice. It would help if the author could discuss this issue further.

-How representative are these students compared to the population in Georgia? I see in table 3.4 that only about 3-6% have no university education. It appears that this is a highly selected group of students. Do they live in high-wage regions? The authors should provide summary statistics of some basic demographics compared to the population. This may help explain the baseline biases that the authors find. I'm not sure if providing information on population average earnings and unemployment are the relevant numbers for these students. The author should add some discussion of this.

-Are students more accurate if their parents have college degrees? Furthermore, do student's beliefs depend on parental education and their own ability? How do these students compare to the overall population in Georgia?

-Why is it easier and less costly for information to be passed on by other students? In order to replicate the results, the policy maker would have to randomly select students among the population of students. This requires an extra step rather than just providing information to the entire student body? It will depend on the marginal cost of informing an additional student vs the cost of selecting a fraction of students at random.

-Discussion of why the spillover effect becomes insignificant after controlling for covariates. Usually controlling for covariates makes estimates more precise.

Minor points:

-I found the third paragraph on p. 93 confusing. Maybe consider rewriting it in a clearer way? I'm not sure how to connect the 82 percent number with the following effects.

**In summary, I enjoyed reading Gega Todua's thesis and I learned a lot. I believe that this thesis is well above the bar for satisfying the formal and content requirements for a PhD thesis in Economics. I recommend the dissertation for a defense. I do not consider any of my recommendations binding per se. As you will**

**see they mostly ask Gega to add more discussion about certain aspects of the thesis and consider how additional mechanisms might influence the analysis.**