Seminar Applied Economic Policy:

ChatGPT vs. Science

This seminar deals with the role of artificial intelligence (AI) in science. Students use ChatGPT (or a different AI-based bot) to write an essay about a complex topic in economics. Participants then use their own independent (human) thinking to assess the information obtained from the bot and write their own essay about the topic. This essay is based on a review of academic literature on the assigned topic and tries to correct or improve the information obtained from the bot where necessary.

The seminar has two consecutive parts. **In the first part, students write a thesis** under the guidance of their advisor. The thesis documents the ChatGPT-written essay and the students' essay (based on academic literature). While writing their thesis, students are expected to search for literature and work independently on their topic. Advisors provide close guidance during this process. **The second part consists of a blocked seminar in January 2024 (date to be determined) of students' presentations.** Before preparing their presentations, supervisors will provide students with detailed feedback on their thesis.

To express your interest, please submit the registration form to *celina.hoegn@fau.de* until October 20, 2023. Please note that the maximum number of participants is 9 students. The deadline for submitting the seminar theses is January 7, 2024. We will have a short introduction over Zoom on October 23, 2023, at 4 pm.

List of Topics

1. **Educational Choices of Immigrant Children**
   Let ChatGPT explain the extent and consequences of educational segregation among immigrant students. Can interventions providing tutoring and career counseling reduce differences in educational choices? Are there children who benefit more from the treatment? Given the answers ChatGPT provides, try to do better as a human being.
   – Literature: Carlana, M., La Ferrara, E., & Pinotti, P. (2022). Goals and Gaps: Educational Careers of Immigrant Children. *Econometrica*, 90(1), 1-29.

2. **Stereotypes and Grading**
   Ask ChatGPT about anti-immigrant stereotypes and grading behavior. Questions to be asked include the following: Do immigrant students receive lower grades in comparison to natives if teachers hold stereotypes? Does it make a difference if individuals become aware of their stereotypes? Are there contexts where revealing stereotypes can have negative effects for immigrant children?
   – Literature: Alesina, A., Carlana, M., La Ferrara, E., & Pinotti, P. (2018). Revealing Stereotypes: Evidence From Immigrants in Schools, NBER Working Paper No. 25333.

3. **Gender Bias in Evaluations**
   You compete with ChatGPT in explaining gender bias in student evaluations of teaching. For instance, you could ask questions like the following: Is there gender discrimination in evaluations of teaching? If gender bias is present, can awareness-raising campaigns reduce discrimination? Does the effectiveness of the campaign depend on the type of intervention?
   – Literature: Boring, A., & Philippe, A. (2021). Reducing Discrimination in the Field: Evidence From an Awareness Raising Intervention Targeting Gender Biases in Student Evaluations of Teaching. *Journal of Public Economics*, 193, 104323.

4. **Gender and High-Performing Peers**
   You compete with ChatGPT in explaining the effect of high-achieving students on their peers with regard to their gender. For instance, you could ask questions like the following: Do high performing male students have a different influence on others than female students? In what way can such influence reflect on other students' performance? What implications can be drawn from such findings?
   – Literature: Modena, F., Rettore, E. & Tanzi, G. M. (2022): Asymmetries in the gender effect of high-performing peers: Evidence from tertiary education, *Labour Economics*, 78, 102225.

5. **Motivation and Educational Success**
   Let ChatGPT explain how own motivation and the motivation of others could influence educational outcomes, and then try to do better. Questions to be asked include the following: Does being motivated have an influence on academic success? Does it matter who is motivated? If yes, why is this, and how does it display in regards to academic performance? If effects emerge, can long-run effects be observed, or are the effects rather of a short-run nature?
   – Literature: Bietenbeck, J. (2020): Own Motivation, Peer Motivation, and Educational Success, CESifo Working Paper No. 8696.

6. **Gender, Diversity and Occupational Outcomes**
   Ask ChatGPT about gender differences in hiring. For instance, is it true that the likelihood of hiring a female increases when the person making the hiring decision is exposed to more gender diversity? What is the effect of peers on the hiring process? What are potential implications on occupational outcomes? Why should we care about gender diversity when hiring? Given the answers ChatGPT provides, try to do better as a human being.
   – Literature: Battaglini, M., Harris, J. M., & Patacchini, E. (2023): Interactions with Power-

ful Female Colleagues Promote Diversity in Hiring, *Journal of Labor Economics* 41, 589-614.

7. **Gender Differences in the Willingness to Speak in Public**
You try to beat ChatGPT in explaining whether gender plays a role for the willingness to speak in public. Questions to be asked include the following: Is it true that females are more averse than males to speak in public? If yes, why is this? Does a possible gender gap in this respect have real consequences that matter economically?
– Literature: De Paola, M., R. Lombardo, V. Pupo, and V. Scoppa (2021): Do Women Shy Away from Public Speaking? A Field Experiment, IZA Working Paper No. 12959.

8. **Gender Composition in STEM**
Ask ChatGPT about gender peer effects in higher education. For instance, can gender composition of doctoral programs influence the duration, rate of completion and dropout rates of female PhD students? If so, why could that be? Why should one care about female representation in science?
– Literature: Bostwick, V. K., and Weinberg, B. A. (2022): Nevertheless she Persisted? Gender Peer Effects in Doctoral STEM Programs. *Journal of Labor Economics*, 40, 397-436.

9. **Gender Differences in Social Networks**
You try to beat ChatGPT in explaining gender differences in social interactions and their origins. Questions to be asked include the following: Is it true that female networks have different structures? If so, why can this be observed? What is homophily and what are the economic consequences of this pattern?
– Literature: Friebel, G., Lalanne, M., Richter, B., Schwardmann, P., and Seabright, P. (2021): Gender Differences in Social Interactions. *Journal of Economic Behavior & Organization*, 186, 33-45.