Bridging Economics and Artificial Intelligence:
Transforming Policy Information into Economic Insights

Application for the NBER Digital Economics and AI Tutorial
January 20–21, 2027 | Stanford University

Applicant: Tzsche Wen Andrea Chu
Institution: American University
Email: tc1355aamerican.edu
GitHub (Latest Project): `https://github.com/andreachu-research/entrytags`
Relevant Graduate Coursework: Monetary Economics; Advanced Econometric Methods; Economic History: Macroeconomic Aspects; International Economics (Trade and Finance).
Expected Graduation: May 2027

1. Academic and Professional Background

I am a PhD candidate in Economics at American University. My graduate studies focus on international economics and international trade, with particular emphasis on small open economies.

My professional career is rooted in computer programming, following the completion of my undergraduate degree in Computer Science in Hong Kong University of Science and Technology. In 2019, I transitioned into data and business analyst roles, which I have continued to pursue alongside my doctoral studies. My academic and professional background has shaped my interest in applying artificial intelligence and computational methods to economic research.

2. Research Interests and Motivation

My dissertation, provisionally titled *Anticipation and Implementation of Sanctions on Russian Oil: Spillover Effects on the Real Exchange Rates of Oil-Importing Economies*, examines the international transmission of U.S. economic sanctions, particularly the distinction between anticipation and implementation effects on exchange rates.

A central component of my research is the development of a U.S. Sanctions Policy Database. I have developed an initial prototype that organizes policy announcements, implementation dates, and transmission channels. This project offers opportunities to apply artificial intelligence and natural language processing to transform complex policy documents into research-ready economic data.

My goal is to automate the workflow, from retrieving official U.S. government documents to extracting, reconciling, and packaging structured data for empirical research. An initial prototype of this workflow was implemented and presented at the Stata Conference in Boston in October 2026. The GitHub project linked at the top of this application is part of the conference presentation materials and demonstrates the implemented workflow.

Preliminary empirical results using this new data structure demonstrate its potential to identify traceable anticipation effects of U.S. sanctions and examine heterogeneous exchange rate responses to sanctions exposure. As the research progresses, I am interested in exploring more efficient and reproducible approaches to policy information extraction, data construction, and empirical analysis.

The NBER Digital Economics and AI Tutorial would provide a valuable opportunity to learn about emerging AI applications in economics, exchange ideas with leading researchers, and identify methodological improvements relevant to my dissertation. I would also welcome the opportunity to participate in the accompanying NBER research meetings and engage with the broader research community.

3. Dissertation Committee

- Kara Reynolds
  Department of Economics, American University
- Gabriel Mathy
  Department of Economics, American University
- Evan Kraft
  Department of Economics, American University