NBER Digital Economics and AI Tutorial

Personal Information

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Graduate Status And Research Interests

I am a fourth year PhD candidate in Economics at University College Dublin (expected completion: mid-2026), where my research focuses on human capital formation and development throughout the life cycle, and its broader implications for society. My research interests lie at the intersection of econometrics, machine learning applications in economics, and human capital development, with a particular focus on educational outcomes and their broader implications for economic growth and human progress. I combine econometric methods like difference-in-differences and Oaxaca-Blinder decomposition with machine learning techniques to identify causal effects in education, with particular emphasis on understanding gender differences in academic achievement and the impact of educational policies.

Current Research Projects

In the first chapter of my dissertation, "Cognitive and Noncognitive Factors in Educational Production," I investigate how cognitive and noncognitive abilities jointly influence academic performance, with a focus on gender differences in Irish secondary education. Using the Growing Up in Ireland longitudinal study, I employ linear and translog production functions to model these relationships. The research reveals important insights about the complementarity between cognitive and noncognitive skills across different subjects and genders, with implications for educational policy design and intervention strategies.

In another project, "Shadow Education Policies and Outcomes in East Asia: A Comparative Analysis (2009-2023)," I examine how the regulation of private tutoring in East Asia has evolved with the rise of digital platforms. Using PISA and TIMSS data from 2009-2023, I

analyze how policies like South Korea's hagwon curfew and China's recent ban on for-profit tutoring have impacted educational outcomes across five countries. I pay particular attention to how the COVID-19-accelerated growth of online tutoring platforms has transformed traditional shadow education markets and potentially undermined the effectiveness of physical tutoring regulations. This project speaks directly to how digitalization reshapes educational markets and challenges conventional regulatory approaches.

Additionally, in "Decomposing the Gender Achievement Gap," as a complementary study to my first paper, I am using the Oaxaca-Blinder decomposition to analyze gender-based achievement gaps in Mathematics and English. Using the Growing Up in Ireland dataset, I investigate how socioeconomic factors interact with gender differences in academic performance and examine the relative contributions of cognitive and noncognitive skills to observed gender gaps.

My job market paper, "Shinsai Go: Educational and Economic Repercussions of the Great East Japan Earthquake," contributes to our understanding of how natural disasters affect human capital formation in developed economies by studying the medium-term educational and employment impacts of the 2011 Great East Japan Earthquake. Using a difference-in-differences approach and data from Japan's Ministry of Education (MEXT), I analyze how this catastrophic event influenced high school graduation rates, university enrollment patterns, and youth employment trends in the most severely impacted prefectures of the Tōhoku region.

Furthermore, in "Starting Behind to Get Ahead: A Critical Examination of Educational Redshirting Research," I am conducting a systematic review of academic redshirting literature where I analyze trends, outcomes, and socioeconomic implications of delayed school entry. Through this work, I aim to synthesize evidence to inform policy recommendations about school entry timing and its effects on educational outcomes.

Across these projects, I seek to combine rigorous empirical methods with novel datasets to address fundamental questions about human capital formation, educational equity, and the role of institutions in shaping educational outcomes. I am particularly interested in how machine learning and causal inference techniques can be applied to better understand and predict educational and economic outcomes.

Committee Members

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