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Labor Economics
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Labor Economics
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2020 (Oral): Labor Economics, Public Economics
2019 (Written): Microeconomics, Macroeconomics

Dissertation Title: *Essays on Human Capital Development*

Committee:
Professor Orazio Attanasio (Chair)
Professor Costas Meghir
Professor Joseph Altonji

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Education:
Ph.D., Economics, Yale University, 2024 (expected)
Visiting Student, University College London & Institute for Fiscal Studies, 2021 - 2022
M.Phil., Economics, Yale University, 2021
M.A., Economics, Yale University, 2020
B.A., Economics (*First Class Honours and University Medal*), University of Sydney, 2017

Fellowships, Honors and Awards:

Yale University Dissertation Fellowship, 2023 - 2024
Yale University Graduate Fellowship, 2018 - 2023
Cowles Foundation Fellowship, Yale University, 2018 - 2022
University of Sydney Honours Scholarship, 2017
Frank Albert Prize, University of Sydney, 2016
Dr Mary Booth Scholarship, University of Sydney, 2015
University of Sydney Academic Merit Prize, University of Sydney, 2014 – 2016

Research Grants:

MacMillan International Dissertation Research Fellowship ($15,000), 2021- 2022
Cowles Labor/Public Funds ($21,500), 2021- 2022

Teaching Experience:

Spring 2021 & Fall 2022, Teaching Assistant to Dr. Evangelia Chalioti,
Intermediate Microeconomics, Yale College
Fall 2020, Teaching Assistant to Prof. Steven Berry,
Introductory Microeconomics, Yale College
Spring 2017, Teaching Assistant to Prof. Samuel Wills and Prof. Jordi Vidal-Robert,
Introductory Macroeconomics, University of Sydney
Fall 2017, Teaching Assistant to Prof. Mark Melatos,
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Research and Work Experience:

Research Assistant, to Prof. Ebonya Washington, Yale University, Summer 2020
Research Assistant, to Prof. Stephen Cheung, University of Sydney, Summer 2016

Working Papers:

"Child Development, Parental Investments, and Social Capital", *Job Market Paper*

"Middle Childhood Development: Parental Investments, School Quality, and Genetic Influences", with Sarah Cattan

Work In Progress:

"Adapting to Climate Change with Migration: Tropical Cyclones and Human Capital Accumulation", with Siu Yuat Wong

"Gene-environment Interaction Effects: Evidence from Early Childhood Programs", with Sarah Cattan

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Dissertation Abstract

Child Development, Parental Investments, and Social Capital [Job Market Paper]

Child development plays a critical role in shaping lifetime outcomes, and it is influenced by both home and neighborhood environments. While the effects of the home environment on child development through parental investments are well understood, the mechanisms underlying neighborhood impacts remain understudied. In this paper, I investigate a novel channel of neighborhood effects: social capital. Social capital refers to the connections, trust, and norms that enable collective action. I explore the roles of social capital and parental investments in child development within a unified framework by estimating the skill production function that incorporates both inputs for children aged 6 to 15.

The first contribution of this paper is to measure social capital at the individual level. Social capital shares measurement challenges with parental investments and skills, given their inherent unobservability and complexity. Even when measurements are available, they are imperfect proxies that often contain measurement errors. I overcome this challenge by combining a novel dataset with a latent factor model. I use data from the Project on Human Development in Chicago Neighborhoods, which provides comprehensive measures of neighborhood environment, home environment, and skills development. Subsequently, I estimate a latent factor model for social capital, parental investments, and skills to efficiently utilize all available measurements and account for measurement errors. Furthermore, since social capital displays substantial variation *within* a neighborhood, it is crucial to account for these individual-level variations to precisely estimate its impacts. This paper is innovative in constructing an individual-level social capital measure that varies with each respondent's demographic information.

The second contribution is to identify social capital's causal effects on child development and compare them to those of parental investments. The identification challenge arises because social capital and parental investments might be correlated with unobserved inputs in the skill production function. To address this challenge, I employ an instrumental variable approach. I leverage a natural experiment resulting from public housing demolition in Chicago and focus on children whose houses were not demolished but close to the demolished ones. In particular, I exploit the timing of demolition across neighborhoods to generate plausibly exogenous variations in social capital due to disrupted social ties. To identify the impacts of parental investments, I use household

resources and female labor market shocks as instruments, which reflect the impacts of budget constraints on investments.

I find that social capital is important for both cognitive skills and socio-emotional skills. Specifically, a one standard deviation increase in social capital improves cognitive skills and socio-emotional skills by 0.16 and 0.19 standard deviations, respectively. Conversely, parental investments are effective in developing cognitive skills, with an effect size of a 0.4 standard deviation increase. Counterfactual experiments suggest that by equating the social capital level in low socioeconomic status (SES) neighborhoods to that in high SES neighborhoods, we can reduce the skill gap between high and low SES children by 25% for cognitive skills and 80% for socio-emotional skills. Initiatives aimed at building social capital in disadvantaged communities could be vital in reducing inequality.

Middle Childhood Development: Parental Investments, School Quality, and Genetic Influences, with Sarah Cattan

In this paper, we examine how parental investments, school quality, genetics, and their interactions influence child development. Specifically, we estimate the skill production functions for both cognitive and socio-emotional skills. We implement an instrumental variable approach and leverage information from school application portfolios to address the potential endogeneity of parental investments and school quality. We use polygenic scores to capture an individual's genetic propensity for educational attainment. Using data from the Millennium Cohort Study in the UK, we find distinct patterns for cognitive skills and socio-emotional skills. Cognitive skills at age 7 are significantly influenced by parental investments, school quality, genetics, and lagged skills at age 5. Notably, school quality and polygenic scores are substitutes, indicating that better schools can mitigate skill disparities related to genetic predisposition for educational attainment. In contrast, socio-emotional skills at this stage are predominantly affected by previous skills and are less sensitive to investments.

Adapting to Climate Change with Migration: Tropical Cyclones and Human Capital Accumulation, with Siu Yuat Wong

The Philippines faces an annual average of ten tropical cyclones, five of which cause significant destruction. Climate change intensifies cyclones due to warmer waters. This paper identifies the impacts of tropical cyclones on children's human capital accumulation and studies whether parental migration, acting as a form of insurance, can alleviate the negative impacts of cyclones in the Philippines. Using a panel dataset on migrant households, we estimate a dynamic model of parental migration and education investment, with an embedded education production function for children. We incorporate four mechanisms through which cyclones may impact a child's educational outcomes into the model: income loss, changes in parents' time inputs due to local employment loss or temporary out-migration, school disruptions, and health-related consequences. This approach allows us to disentangle and quantify the effects of each mechanism, as well as assess the potential of migration as a buffer. We aim to offer insights for policy recommendations to improve children's education outcomes amid cyclones.