Dr. Jeffrey Grigg, *School of Education*

Trained in sociology, Dr. Jeffrey Grigg's research interests are broadly situated within the social stratification and sociology of education literature. Working closely with the Center for the Social Organization of Schools as well as the Baltimore Education Research Consortium (BERC), Dr. Grigg's recent work centers upon student mobility and transitions as he examines the impact of multiple transitions on the educational outcomes of students. As the ripple effect of unstable schooling expands across other aspects of their lives, his research delves into the nature of these transitions, understanding them in concert with their home lives.

Baltimore Birth Cohorts: Understanding Children's School Experiences from Birth

Like those in many other cities in the US, Baltimore's low income students oftentimes do not experience early childhood education until the beginning of formal schooling despite the multitude of federal, state, and local programs aimed at disadvantaged children. Responding to the uncoordinated roll out of policies, Dr. Grigg and his collaborators are currently working on a project focused upon the process of health care, literacy acquisition, and school readiness with public services received from birth. Using administrative data collected by the school system as well as hospitals, criminal justice agencies and others, Dr. Grigg and his colleagues form the Early Education Data Collective (EEDC), which partners with organizations providing all-rounded pre-formal schooling services for students.

In order to better understand the many potential paths of Baltimore students, it is necessary to start at the beginning and focus on how low-income families are taking advantage of these activities. Currently, Dr. Grigg's project contains 4 birth cohorts of children with the longest follow-up to third grade. Once they complete data collection, they will have linked 25,000 Kindergartners to their school lives, distinguishing between the types of services that they received pre- and post-formal education.

A Deeper Look at Baltimore Student Commutes

In concert with BERC, Dr. Grigg with Dr. Marc Stein have set out to investigate the state of school transportation in Baltimore. Starting in 2015, they began to investigate a potential connection between student attendance and routes to school. With the open enrollment system of Baltimore high schools as well as the school system's reliance on public transportation, students could be traveling across the entire city in order to get to school, a reality made starkly somber with findings that the average commute for a Baltimore high school student is almost 40 minutes.

Funded by local Baltimore foundations. Dr. Grigg and Dr. Stein have embarked upon a multi-year project examining the linkages between students commuting to school through public transport and their attendance records. Using administrative school data as well as the Maryland Transit Administration (MTA) OneCard data, they will be able to better understand how commutes affect achievement. As the MTA system will be significantly overhauled during the summer of 2017, they plan to investigate how students are impacted before and after the changes.

Future Directions

Dr. Grigg plans to continue to develop these two projects in order to understand how Baltimore's children fare within and outside of the school system. With EEDC, he will investigate the decision-making processes that low-income families go through with the educational opportunities they are presented with. Furthermore, he will continue research projects in the area of school transitions on the relationship between student commutes and completing the academic year. He and his team in multiple projects will expand the outcomes from school-related behavior and academic achievement to multiple aspects of child health.

Dr. Yingyao Hu, *Department of Economics*

Trained in economics as well as mathematics and statistics, Dr. Yingyao Hu's expertise in econometric modeling and quantitative methodology allows him to conduct interdisciplinary research across a range of areas. Contributing to the literature of measurement errors, Dr. Hu helps broaden the applications of measurement models to research on social inequality.

Specifically, in their award-winning article, Dr. Hu with his colleagues investigate whether or not fertility increases in areas exposed to catastrophic events. Using storm advisory data matched with fertility data for the Atlantic and Gulf Coast counties, they provide the causal inference that while low severity storms increased fertility, areas with highly severe storms actually showed decreased fertility nine months later. Dr. Hu's broader research challenges commonly held assumptions using innovative research design and methodology, allowing for a deeper understanding of social realities.

Subjective Beliefs in Dynamic Discrete Choice (DDC) Models

In the research on choice-making, Dr. Hu and his colleagues are interested in how to isolate the economic agent's subjective beliefs from her dynamic optimal choices. Specifically, because an individual's subjective beliefs are unknown, it is necessary to distinguish these beliefs through the observed choices. With the nonparametric identification of DDC models, Dr. Hu estimates subjective beliefs separately from the conditional observed choice probabilities.

This specific model applies to a variety of empirical areas. For example, when deciding whether or not to drop out of school, graduate from high school, or go to college, students form subjective beliefs about potential employment or the benefits of education continuation.

New Insights into Unemployment through Measurement Error Models

Using the official unemployment statistics from the Current Population Survey (CPS), Dr. Hu and Dr. Shuaizhang Feng find that unemployment rates have been greatly underestimated as a result of classification errors. Departing from the literature, Dr. Hu identifies classification errors through measurement error modeling.

Furthermore, Dr. Hu's expertise in measurement error modeling has focused on nonparametric identification in applied microeconomics. His work makes use of recent developments in measurement error models to map out the observed distribution and the latent measurement error distribution. Examining the impact of income on consumption, Dr. Hu continues to apply these methods to correct the misreporting income in surveys.

Future Work on Incentivizing Students

Projected to begin in the Spring of 2017, Dr. Hu and his team will conduct field experiments in underdeveloped areas in China to examine how particular incentives affects the academic performance of elementary and middle school students. Focusing specifically on middle-school students, the team will survey several hundred students per school along with their parents, teachers, and school administrators. While following these students for several years through their secondary and higher education, the team will provide academic incentives with an experimental design in one semester and analyze outcomes in the following semester.