MLDS Center
Maryland Longitudinal Data System

Address 550 West Baltimore Street
Baltimore, MD 21201
Phone 410-706-2085
Email mlds.center@maryland.gov
Website www.MLDSCenter.org

Memorandum

TO: MLDS Governing Board

FROM: Ross Goldstein

DATE: September 13, 2019

SUBJECT: External Researcher and Grant Funded Projects

Purpose
The MLDS Center received two external research applications to utilize MLDS data in grant funded projects. Under the *Policies and Procedures for External Researcher and Grant Funded Projects*, those applications were reviewed by Center staff, the Research and Policy Advisory Board and were approved by the MLDS Governing Board Chairman and are on the agenda for Board notification and review.

In addition, there is a third proposal for Governing Board review and approval, updates on prior grants and notification of upcoming work.

Application 1
Project Title - *Postsecondary and Labor Market Effects of Career and Technical Education (CTE) in Baltimore City Public Schools*

Summary
The application was submitted by Dr. Rachel Durham, Director of Evaluation for the Baltimore Education Research Consortium (BERC) and Assistant Research Scientist at Johns Hopkins University. The grant application was submitted to the Institute for Education Sciences.

Previous research has linked CTE participation with benefits related to secondary and postsecondary education as well as labor market outcomes. However, very little is understood about the specific mechanisms by which CTE relates to the wide array of outcomes. This study would be the first to rigorously estimate CTE impacts on student outcomes among Baltimore City Public School students by using a quasi-experimental research method. Outcomes to be examined include completion of CTE pathways, graduation/dropout, college enrollment, and workforce participation and earnings after high school. Further, the study will explore the mechanisms of CTE effects, including skill development, skill complementation, and employability skills. Finally, the research will examine subgroup differences in the effects of CTE on outcomes.

Review Process
The project was favorably reviewed by Center staff and the Research and Policy Advisory Board. Notification was sent to the partner agencies. Chairman Fielder gave final approval to the application and provided a signed letter of support for the grant application and its proposed use of Center data.

Application 2
Project Title - *Understanding How Modern Methods in Data Science Should be Used in Education*

Summary

The application was submitted by Dr. Tracy Sweet, Assistant Professor, Department of Human Development and Quantitative Methodology, University of Maryland, College Park. The grant application was submitted to the Institute of Education Science.

Data science methods have become increasingly popular in education research but are still relatively new. Most of the data science work in education research are applications of machine learning (ML) algorithms on educational data. Less research has been done comparing machine learning algorithms with traditional statistical methods and virtually no work has been done on the performance of machine learning algorithms on the types of nested data common in education. This study proposes a methodological investigation of the extent to which machine learning algorithms can and should be applied to multilevel education data, the conditions under which certain algorithms or models are superior, and how new methods in data science can address substantive research questions in education. Our goals include studying ML methods for prediction and classification, exploratory data science methods, and new data science methods for causal inference to provide broad recommendations for education researchers.

Review Process

The project was favorably reviewed by Center staff and the Research and Policy Advisory Board. Notification was sent to the partner agencies. Chairman Fielder gave final approval to the application and provided a signed letter of support for the grant application and its proposed use of Center data.

Application 3

Project Title - 2019 Statewide Longitudinal Data Systems Grant, Institute for Education Sciences

Summary

The Maryland State Department of Education (MSDE) has applied for and received funding under the SLDS Grant program in 2006, 2009, 2012 and 2015. MSDE plans to submit a proposal under the new round of funding this year. As in past years, MLDS Center has been asked to partner on the grant and provide research proposals relative to the requirements and funding priorities announced in the grant. As of the writing of this memorandum, MSDE is still determining which research projects to pursue and the level of funding that will be available to the Center. However, since the grant is required to be submitted on September 19th, notification is being provided and Board approval for the Center's participation will be requested.

Updates

1. The NSF Grant Application submitted by Dr. Nancy Shapiro entitled, *Expanding the Capacity of Statewide Education, Human Capital and Workforce Development Research: Building a Community Around Data Quality, Governance, and Privacy*, was not approved. However, the feedback from the program officer was very positive and the team will discuss plans to make changes and resubmit a new proposal.
2. The NSF Grant Application submitted by Dr. Jane Lincove entitled, *High School Determinants of STEM College and Career Outcomes,* was not approved. This proposal received positive feedback from the review committee and Dr. Lincove plans to make revisions and resubmit the proposal for the October 2019 deadline.
3. The University of Maryland, School of Pharmacy's Pharmaceutical Research Computing (PRC) center invited principal investigators with an interest in data analysis services to submit proposals for pilot project funding. Services include data cleaning, data set creation, statistical analysis,

project coordination, and programming assistance. Dr. Henneberger proposed a project on "Effects of Classroom Peer Groups on Long-Term Academic and Career Outcomes for At-Risk Students." PRC will provide $12,000 of effort (technical data analysis assistance) for the project. While this was not considered an External Research project because access to data will only be provided for UMB faculty, notification of this program and the Center's participation is being provided.