MLDS Center
Maryland Longitudinal Data System

Better Data • Informed Choices • Improved Results

December 2016

2016 Annual Report on the Maryland Longitudinal Data System and Center

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Highlights

The Maryland Longitudinal Data System (MLDS) Center is pleased to report on the significant progress it has made over the past year to refine and improve the system and increase output.

❖ Significantly increased system output including creating **23** new dashboards and **3** new policy reports, fulfilling **8** data requests, and submitting a more comprehensive Annual Report on Dual Enrollment, which includes course taking information.

❖ With the inclusion of demographic data from the Motor Vehicle Administration, the Center improved its cross sector match rate. Specifically, for Maryland public high school 12th graders, the Center is able to match 92% of them to a higher education record, a workforce record, or both.

❖ Received recognition from the Workforce Data Quality Campaign (WDQC) for its dashboards on *Wages by High School Outcome and Postsecondary Enrollment Status.* The WDQC noted the dashboards "help policy makers evaluate education and training programs and create informed policies that promote strong outcomes."

❖ Partnered with the University of Maryland, School of Social Work on a proposal for a federal Promise Neighborhood Implementation Grant. If awarded, the $30 million grant will serve West Baltimore neighborhoods, schools, and students over a five-year period. The Center will receive funding to examine the postsecondary and workforce outcomes associated with participation in the Promise Heights programs.

❖ Increased engagement with stakeholders to better understand their needs and ensure the Center issues reporting and dashboards that provide actionable information to help guide their decision making.

❖ Demonstrating the Center's ongoing commitment to achieving the highest standards of security, engaged a cyber security firm to conduct an independent information technology security audit of the MLDS Center system.

Introduction

The Maryland Longitudinal Data System (MLDS) is a statewide data system that contains individual student and worker data from all levels of education and the State's workforce. The goal of the system is to allow policy makers to examine student progress and outcomes over time, including preparation for postsecondary education and workforce.

The MLDS Center is responsible for the development, maintenance, and security of the system as well as providing research and reporting to help guide decision making by State and local governments, educational agencies, institutions, teachers and other educational professionals. To accomplish this task the system has partnerships with various state entities.

State Agencies. In addition to providing the vast majority of the student and workforce data comprising the data system, Maryland Higher Education Commission (MHEC), the Department of Labor, Licensing and Regulation (DLLR), and the Maryland State Department of Education (MSDE) each share a staff person with the Center. The shared employees spend half their time on MLDS duties and the other half of their time on duties related to the partner agencies. This model was developed to help the agencies build capacity to support the Center's work on an ongoing basis and ensure efficient communication and cooperation. In addition, MSDE provides additional in-kind support by providing office space, fiscal and personnel management, and hosting of the system within its data center.

University of Maryland. The Center's other critical partners are the University of Maryland School of Social Work (at the University of Maryland, Baltimore) and College of Education (at the University of Maryland, College Park). These two institutions comprise the Research Services Branch of the Center. These schools are both national leaders in research and evaluation and have compiled a team that will ensure in-depth, scholarly analysis of the Center's research questions. The schools are also committed to training new scholars in the use of data and both have engaged various graduate students and doctoral candidates to work on Center related research. The School of Social Work provides additional in-kind support by providing fully equipped office space for the MLDS Center headquarters.

The MLDS Center is overseen by a 12 member Governing Board (Attachment A). Seven of those members are designated by statute, including the Chancellor of the University System, the State Superintendent of Schools, the Secretary of Higher Education, the Secretary of the Department of Labor, Licensing, and Regulation, the President of Morgan State University, the Executive Director of the Maryland Association of Community Colleges, and the President of the Maryland Independent Colleges and Universities Association. The other five members are appointed by the Governor with the advice and consent of the Senate. One appointee must be a representative of local superintendents of schools and another must have expertise in large data systems and data security. The chair of the Governing Board is appointed by the Governor.

This Annual Report is a requirement under Education Article, §24-705, Annotated Code of Maryland. The Governing Board must provide information to the Governor and General Assembly annually on the following:
1. An update on the implementation of the MLDS and activities of the MLDS Center;
2. List of all studies performed by the Center during the reporting period;

3. List of all currently warehoused data that are determined to be no longer necessary to carry out the mission of the Center;
4. Any proposed or planned expansion of data maintained in the database; and
5. Any other recommendation made by the Governing Board.

The following sections of the report will address of each of the five statutorily required topics.

Section 1. Implementation of the MLDS

System Development

The focus of the system management team over the past year has been to refine and improve various aspects of system security, system design, and refining identity resolution.

System Security

The MLDS Center spent considerable time and resources in 2016 on a voluntary, independent information technology (IT) security audit. The purpose of the audit was to proactively work with security professionals to identify areas where the Center's security can be improved to ensure the highest level of protection for the data entrusted to the Center.

The Center staff consulted with Charles Ames, Director of Statewide Security Services for the Department of Information Technology (DoIT) to find a qualified IT Security audit firm and develop the audit scope of work. Mr. Ames praised the Center for being the first agency to engage in this type of intensive independent security audit.

The Center engaged Cyber Engineering Services through DoIT's master IT contract. The audit was conducted in two phases. The first phase included a threat assessment, vulnerability assessment, automated scans and assessments, and a code review. The second phase of the audit primarily involved a penetration test in which the auditor attempted to gain access to the system both as an outside attacker and as an authorized system user, but with limited access to system data. The following is a brief summary of the phases and findings:

1. Physical Assessment - The auditor reviewed the physical security of the system, including the server room, location of cables, door locks and security monitoring. The auditor determined that the physical security for the system is above average.
2. Threat Assessment - The auditor determined that the MLDS data is a valuable target for an attacker and therefore estimated that the likelihood of an attempted attack is high.
3. Automated Scans and Assessments - The auditor determined that the security posture of production systems is very high, but noted several improvements the Center should make, including requiring updated passwords, monitoring failed login attempts, and implementing limitations/policies on certain outbound sites.
4. Code Review - The auditor examined file transfer software, data use software, and backup and restore schema and generally found no issues. However, the auditor did have recommendations for certain improvements such as updating system software and installing patches.

5. Penetration Test
   a. The auditor used a phishing attack to attempt to gain access to the system as an outsider. Phishing involves sending emails to targeted members of an organization in an effort to deliver a virus that could allow an attacker to infect a computer and gain valuable information including usernames and passwords. The phishing attack did indicate potential vulnerabilities. The auditor recommended actions to enhance security through awareness, monitoring and other strategies.
   b. The auditor's insider attack (for which the Center authorized system access) was successful in gaining access to other researchers' data and certain de-identified unit record data. There are several corrective actions indicated by this finding to limit an authorized user's access.

Database Design

After much consideration and discussion with the Center, staff implemented changes to the database design. The new design greatly simplifies the database model by significantly reducing the number of tables and reorganizing the structure so that data are more intuitively located. These changes allow for easier data loading and facilitate an end-to-end data quality assurance process. Further, the new design is easier for researchers to understand, use, and analyze. A revised and enhanced data dictionary of the new database schema is available to all users for development of research and dashboards.

Identity Resolution

During this past year, the MLDS Center began receiving demographic data from the Maryland Motor Vehicle Administration (MVA), including name, address, date of birth, Social Security Number, and race and ethnicity. The MVA data is a highly reliable source of personally identifiable information which has led to improvements in the Center's ability to match K-12 student data to higher education and workforce data. There has been a four percent increase in the Center's ability to establish at least 1 cross-sector match for 12th grade cohorts.

Maryland Public School 12th-graders	Total for all eight 12th-grade cohorts	Totals by year of 12th-grade attendance							
		2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
Total count for 12th-grade cohorts	493,640	66,327	64,406	64,654	64,531	64,022	63,679	62,820	63,534
K12 only (no links to other sectors)	41,630	8,633	5,141	4,379	4,643	4,761	5,255	6,256	9,347
K12 and College (no Workforce)	58,840	8,560	5,137	4,994	5,179	5,886	6,935	9,090	13,669
K12 and Workforce (no College)	96,613	10,012	12,081	13,098	14,052	14,346	14,395	14,351	13,973
K12 and College and Workforce	296,557	39,122	42,047	42,183	40,657	39,029	37,094	33,123	26,545
Percent matching across all 3 sectors	60%	59%	65%	65%	63%	61%	58%	53%	42%

Percent of 12-graders with one or more cross-sector matches									
	Total for all seven 12th-grade cohorts	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
2016	92%	87%	92%	93%	93%	93%	92%	90%	85%
2015	88%	87%	91%	91%	90%	89%	87%	82%	88%
Difference	↑ 4%	↔ 0%	↑ 1%	↑ 2%	↑ 3%	↑ 4%	↑ 5%	↑ 8%	↑ 3%

Workforce Data

Unmatched Workforce Records

The Center's data sharing agreement with DLLR states that an unmatched workforce record (from the Unemployment Insurance program) that does not match a student record must be purged or returned to DLLR within 90 days of receipt. However, during the ongoing work of data matching and identity resolution, it was necessary to keep all of the workforce data in order to be assured that matchable records were not being prematurely purged. As of June of this year, the data matching matured to a point that staff implemented procedures to purge all unmatched workforce data. Specifically, staff have purged and destroyed all identities within the system that did not have an education record. Overall 73% of the DLLR records in the system were deleted. Staff have created a separate table to log the individual counts by term and year of all the purged records which will be maintained and updated on a regular basis. Below are the overall counts currently in the System:

Data Source	Count 12/1/2015	Count 6/29/2016	Percent Change
K-12 (includes teachers)	1,632,686	1,673,949	3%
MHEC	1,115,425	1,203,673	8%
DLLR	4,844,230	1,074,724	-78%
Net Total	6,366,937	2,559,477	-60%

Five-Year De-linking Requirement

Education Article, § 24-702(c) Annotated Code of Maryland, limits the linkage of student data and workforce data to five years from the date of the student's last attendance in any educational institution in the State. Accordingly, after five years from the date of last attendance in a Maryland educational institution, the Center does not continue to link workforce data and student data. Specifically, each quarter after receipt and loading of workforce data, Center staff identifies all students who have not been enrolled in a Maryland educational institution within the last 5 years. The wage records linked to those students are removed from the wage table in the de-identified data set used for research and analysis purposes.

The Center developed a detailed procedure (Attachment B) that specifies how the Center will handle unmatched workforce records and fulfill the requirement to de-link student and workforce records after five years.

Enterprise Management

Part of DoIT's Statewide IT Master Plan is to move the State away from the current distributed model of information technology to an enterprise model. With the current distributed model, each agency develops and implements its own internal IT operations to support the needs of the agency. The enterprise model will establish consistent, high quality baseline operations that will allow agencies to focus on their missions. Investments will be made in a way that maximizes value for multiple state agencies.

The MLDS Center has implemented two aspects of the enterprise model. First the Center has adopted the firewall solution provided and managed by DoIT. Second, the Center has migrated to the enterprise data center backup solution.

Activities of the Center

Engaging Stakeholders

The Center has been working to engage its stakeholders by meeting with them to understand the types of reports and dashboards that would provide actionable information to help guide their decision making.

Higher Education Commission

The Center Research Team participated in a meeting with the Maryland Higher Education Commission's Institutional Research Group to discuss the creation of a post-college employment dashboard. Currently, colleges and universities rely on surveys to obtain information on post-college employment. The MLDS Center can provide a more comprehensive post-college employment picture by matching student records to workforce records. Creating this type of information in a dashboard would provide meaningful information for the colleges to understand their students' outcomes. Also discussed were the Center's capabilities to report outcomes for financial aid recipients.

State Department of Education

The MLDS Center is assisting MSDE by providing data for federal reporting requirements on Career and Technical Education (CTE). The MSDE CTE Office is required to submit two aggregate data files to the U.S Department of Education, EDFacts. Both of these federal reporting requirements relate to the outcomes of CTE students after they leave high school, which also aligns to Research Agenda Question 19:

> "*What are the workforce outcomes for Maryland high school students who complete CTE coursework, who either enter the workforce directly or also obtain postsecondary education or training?*"

Center Staff duplicated the federal reporting done in 2014 by CTE to ensure this reporting could be done from the MLDS and aligns with reports previously produced by the CTE Office. To complete the 2015

federal reporting, a member of the MSDE staff will be designated as authorized staff of the Center andcomplete the analysis using Center data.

Center staff also took an active role in the inaugural MSDE Data Summit. The MSDE Data Summit was a collaboration between the Maryland State Department of Education (MSDE) and Regional Educational Laboratory (REL) Mid-Atlantic. The goal of the Data Summit was to connect education professionals from across Maryland to share implementation experiences, latest research and local initiatives that lead to positive student outcomes. Presentations by Center staff were well attended by education professionals from across the state who were very positive about the work presented. Participants provided excellent recommendations and suggestions to enhance the work done by Center staff.

The Center's presentations were:
- *"Get to know the Maryland Longitudinal Data System"*
- *"The Correlates and Consequences of On-Time Graduation"*
- *"Workforce Outcomes in Maryland: Patterns among Students who earn a High School Diploma, Certificate of Completion, GED, and High School Non-Completers"*
- *"Characteristics and Employment Outcomes of Post-secondary STEM graduates in Maryland"*
- *"High School Predictors of Needing Remedial Coursework in College"*

Department of Labor, Licensing, and Regulation

Center staff met with the program specialists at the Office of Adult Education and Literacy Services at DLLR to better understand the programs administered by this Office, the best ways to store and use the data provided, and determine reporting services that the Center can provide back to the Office. One area of interest is to utilize the Center's research capabilities to better understand student progress and outcomes over time.

Staffing

Currently 11 of the 13 budgeted positions have been filled (the Center started with 15 positions of which one was eliminated and one was moved to MHEC). The Center is in the process of recruiting for the last two positions. The Center intentionally had not taken steps to fill these positions until this time in order to better understand the staffing needs once the Center became fully operational. One position is for a data analyst to increase capacity to load and model data and provide continuity of operations where the Center currently has no redundancy. The second position is for a business analyst to provide oversight and management of the dashboard creation process and ensure all Center output meets the high data quality standards set by the Governing Board. Finally, the Center is utilizing the services of only one contractor. The Center expects to fully achieve the goal of managing and maintaining the system with in-house resources within the next year.

Grants

Promise Heights

The Center is partnering with University of Maryland, School of Social Work to examine the postsecondary and workforce outcomes associated with participation in the Promise Heights Initiative. The School of Social Work submitted a proposal to the U.S. Department of Education, Office of Innovation and Improvement for a 2016 Promise Neighborhood Implementation Grant which would bring

as much as 30 million dollars to West Baltimore neighborhoods, schools, and students over a five year period.   The grant recipients must utilize both postsecondary and workforce outcome indicators to demonstrate program effectiveness. Use of the MLDS will allow authorized staff of the Center to conduct a rigorous comparison of outcomes between program participants and nonparticipants. The findings will have direct implications for students, schools, and programs in the State.

This grant greatly benefits both the School of Social Work and the Center and will serve as a model for future program evaluations done by the Center. The Center's participation strengthens the grant application by establishing a clear means for providing comprehensive analysis of the applicable student outcomes. The use of the MLDS diminishes the expense and effort SSW would otherwise incur if it had to form multiple partnerships to obtain data on the students and establish its own database to link the students and analyze their outcomes.

This grant will help the Center develop its capacity to conduct rigorous program evaluations as contemplated by the chartering legislation for the MLDS (see Education Article § 24-703(f)(5), Annotated Code of Maryland, requiring the Center to "*conduct research relating to the impact of state and federal education programs.*") Specifically, the grant will provide approximately $40,000 per year to the MLDS Systems Management team and Research budget. With support from this grant, the MLDS Systems Management team will create an infrastructure for adding program indicators to the MLDS. Additionally, with support from this grant, the Research team will develop and test analytic models of outcomes associated with program participation at the student and school levels. These analytic models could then be used as the framework for future analyses on state and federal education programs in other jurisdictions or programs implemented statewide. These analyses will begin to offer information on the programs that could be more widely disseminated across the state in order to improve student educational outcomes.

Synthetic Data Project

Last year the Center was one of several agencies to partner with MSDE on a successful application to the United States Department of Education, Institute of Education Sciences for a grant under the Statewide Longitudinal Data Systems program. The Center's project, which is being conducted by the Research Branch, involves evaluating the feasibility of developing synthetic data from the Center's actual data. If successful, synthetic data will serve as a tool that will facilitate efficient research for decision making. This tool comes in the form of a set (or multiple sets) of hypothetical students that help people test research questions with regard to actual students, because the results for the groups of hypothetical students mimic the results for groups of actual students. Accordingly, it will allow Maryland and states to do more research and evaluation on longitudinal data with greater security. The project received $2.6 million for four years.

Currently, the research project is fully underway. Additional researchers and a project manager have been hired. The first phase of the project is to create the data sets to be synthesized.   The process of creating these data sets is very beneficial to the Center since it deepens the researchers' understanding of the data and it creates data sets that are ready for analysis and reporting.

Research Series

The Research Branch of the Center conducts a monthly Research Series during the academic year on a topic about or related to the Center's research. This year the following topics were presented:

Date	Topic	Presenter
February 5th	Dual Enrollment in Maryland: Using Data from the MLDS to Examine Trends, Demographics, and Outcomes	Dr. Angela Henneberger, MLDS Director of Research
April 8th	High School Graduation in Context: An Investigation into the Individual and School-level Factors Related to On-Time Graduation in Baltimore City	Dr. Mathew Uretsky, MLDS Research Branch
May 6th	STEM Workforce Preparation and Retention in Maryland	MS. Xiaying Zheng, Dr. Michael E. Woolley, and Dr. Laura M. Stapleton, MLDS Research Branch
October 6th	Remedial Coursework in Maryland Colleges: Examining High School Predictors and College Outcomes	Dr. Angela K. Henneberger, MLDS Research Director
November 3rd	Postsecondary College and Workforce Outcomes for Baltimore City Graduates	Dr. Rachel E. Durham and Dr. Faith Connolly, Baltimore Education Research Consortium
December 1st	Workforce Outcomes in Maryland: Patterns among Students who Earned a High School Diploma, Certificate of Completion, GED, and High School Non-Completers	Dr. Terry Shaw, MLDS Principal Investigator and Ms. Susan Klumpner

Public Information Act Requests

The MLDS Center received 11 public information act requests in the 2016 calendar year. Eight of the requests were longitudinal data requests that were fulfilled by providing the requester with aggregate data. One request was for information about the Center and the remaining two requests were not longitudinal data requests and therefore the requesters were referred to the appropriate agency data source.

PIA Requesters - 2016	
Organization/Affiliation	**Count**
Bowie State University	1
Education Commission of the States	1
Haverford College	1
Member of House of Delegates	1
Morgan State University	1
Notre Dame of Maryland	1
Salisbury University	1
Towson University	1
University of Maryland, School of Social Work	1
University System of Maryland	2
TOTAL	*11*

The Center's first longitudinal data request was from the institutional research office at Morgan State University (MSU). MSU requested the following data for their Fall 2014 enrolled students:

1. The number employed[1] (based on wages reported in the 3rd and 4th quarters of 2014);
2. The industry in which they were employed (based on NAICS Code[2]); and
3. The academic program in which they were enrolled at MSU.

This request was repeated by several other colleges and provides a good example (see chart below) of the unique information the MLDS can generate to assist stakeholders.

The following chart shows the top three programs at MSU with working students and the industry in which they are employed. (Note "-" represents cell sizes of <10).

NAICS Group Code	NAICS Group Name	Program Name		
		Electrical Engineering	Business Admin.	Psychology
22	Utilities	-	0	0
23	Construction	-	0	0
31	Manufacturing	-	0	0
32	Manufacturing	-	0	0
33	Manufacturing	-	0	0
42	Wholesale Trade	-	-	-
44	Retail Trade - specialty retailers	37	57	35
45	Retail Trade - general merchandise & non-store	24	32	36
48	Transportation	-	-	-
49	Warehousing, courier & postal services	-	-	-
51	Information	-	-	0
52	Finance and Insurance	-	-	-
53	Real Estate and Rental and Leasing	-	-	-
54	Professional, Scientific, and Technical Services	16	-	-
55	Management of Companies and Enterprises	0	0	0
56	Administrative and Support and Waste Management and Remediation Services	18	13	-
61	Educational Services	13	17	16
62	Health Care and Social Assistance	22	13	20
71	Arts, Entertainment, and Recreation	-	-	-
72	Accommodation and Food Services	26	32	32
81	Other Services (except Public Administration)	-	-	-
92	Public Administration	-	-	0
99	Unknown- Employer NAICS not available	-	-	-
	Total	214	158	208

The PIA requests have also proven to be beneficial to the Center. For example, work done to fulfill a data request by the University System of Maryland (USM) for the number of graduates of USM institutions who work for Maryland public school systems will be used to create a public dashboard that provides similar information for all higher education institutions. Similarly, the Center received a request from a

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[1] Only one employer per student is reported in this chart - if a student had more than one employer, the employer with the highest wage total was used.

[2] NAICS - National Association of Industry Classification System

member of the General Assembly for initial college enrollments broken out by race and by county. That request led to the development of a public dashboard to provide this useful information.

Governor's P-20 Leadership Council's MLDS Workgroup - Data Gap Analysis

Center staff met with members of the Governor's P-20 Leadership Council's MLDS Workgroup. The meeting provided the members of the workgroup an opportunity to gain a more in depth understanding of the MLDS data and research capabilities. There was considerable interest in gaps in data or legal restrictions that may impact the research capabilities. The workgroup requested that the Center provide an in-depth analysis of the data gaps and legal restrictions and the impact they have on the Center's research capabilities. Also included in the analysis were possible resolutions to reported gaps. The analysis (Attachment C) was completed in August and presented to the Governor's P-20 Leadership Council workgroup and the MLDS Governing Board.

Examples of data gaps include:
- Workforce Data: 5 Year De-linking of student and workforce records; lack of federal employment data; lack of Standard Occupation Classification codes; and incomplete employer industry codes.
- PK-12 Data: Lack of student discipline data; lack of private school and homeschool data; and lack of school climate data.
- Higher Education Data: Lack of AccuPlacer test score and lack of non-credit courses.

Recognition by the Workforce Data Quality Campaign

The Workforce Data Quality Campaign (WDQC) recognized the Center's dashboards on *Wages by High School Outcome and Postsecondary Enrollment Status,* in an April 2016 article on its website. The article, Maryland Dashboards Answer Research Questions, notes that, "dashboards such as these can help policymakers evaluate education and training programs and create informed policies that promote strong outcomes."

The WDQC is, "a non-profit, non-partisan initiative that advocates for inclusive, aligned and market-relevant data systems used for advancing the nation's skilled workforce and helping U.S. industries compete in a changing economy." WDQC also notes in the article that, "creating dashboards for policymakers is a key element of [its] 13-point state blueprint for an inclusive, aligned, and market relevant data system."

Section 2. List of all studies performed by the Center

Policy Reports

The following policy reports were developed and posted on the Center's website this year:

1. Remedial Coursework in Maryland: Examining Trends, High School Predictors and College Outcomes. This report was prepared by the Research Branch of the Maryland Longitudinal Data System Center. The report examines the trends in needing remedial coursework, the high school predictors of needing remedial coursework, and the college outcomes associated with needing remedial coursework.
2. High School Persisters: An Examination of College and Workforce Outcomes. This report was prepared by the Research Branch of the Maryland Longitudinal Data System Center. The report examines the college and workforce outcomes of high school persisters. High school persisters are students who did not formally withdraw from high school, nor earn a regular high school diploma, four years after entering high school as a first-time ninth grader. The report is responsive to the MLDS Research Agenda Question 20: What are the workforce outcomes of Maryland high school non-completers?
3. Preparation and Retention of the Early Childhood Care and Education Workforce in Maryland. This report was prepared by the Research Branch of the Maryland Longitudinal Data System Center. This report was developed under a grant from the Department of Education in fulfillment of the Maryland State Department of Education 2012 SLDS Grant (Project 5.3. Assessing the training and retention of the early childhood workforce in Maryland)
4. Assessing the Workforce Outcomes of Maryland Science, Technology, Engineering, and Math (STEM) Postsecondary Graduates. This report was prepared by the Research Branch of the Maryland Longitudinal Data System Center. This report was developed under a grant from the Department of Education in fulfillment of the Maryland State Department of Education 2012 SLDS Grant (Project 5.1. Assess STEM post-graduate student regional job acceptance and work retention).

Dashboards

The Center added 23 new dashboards to website this year. The first six dashboards added to existing dashboards on high school graduates and postsecondary enrollment:

1. High School Graduates - Initial Postsecondary Enrollments by Year
2. High School Graduates - Initial Postsecondary Enrollments by FARMS Status
3. Initial Postsecondary Enrollments - In-State vs. Out-of-State by FARMS Status
4. Initial Postsecondary Enrollments - Type of Institution by Gender
5. Initial Postsecondary Enrollments - Type of Institution by Race/Ethnicity
6. Initial Postsecondary Enrollments - Type of Institution by FARMS Status

The next three dashboards provide users with a tool to compare the initial postsecondary enrollments of a county's high school graduates against two or more counties or the state as a whole:

7. High School Graduates with Initial Postsecondary Enrollments
8. High School Graduates Highest Enrollment by In-State Institution
9. High School Graduates Highest Enrollment by Out-of-State Institution

The next three dashboards provide information on the education and workforce outcomes for students who enroll in Maryland Community Colleges:

10. Students Who Initially Enroll in a Maryland Community College - Outcomes
11. Students Who Initially Enroll in a Maryland Community College - Wage Visibility
12. Students Who Initially Enroll in a Maryland Community College - Wage Summary Over Time

The next four dashboards provide information on workforce outcomes for students based on their high school outcome and postsecondary enrollment status in a given academic year:

13. High School Outcomes - Overview
14. High School Outcomes and Postsecondary Enrollment Status - Overview
15. High School Outcomes and Postsecondary Enrollment Status - Visibility in Workforce
16. High School Outcomes and Postsecondary Enrollment Status - Annualized Wages Over Time

This series of dashboards examines the workforce outcomes of Maryland high school non-completers. Non-completers include students who dropout or students who persist in high school beyond the expected 4 years. High school graduates are included in these dashboards as a point of comparison:

17. Overview of High School Outcomes
18. Workforce Participation by High School Outcomes
19. Median 4-Quarter Wages by High School Outcomes
20. High School Outcomes by Industry
21. Industry by High School Outcomes
22. High School Outcomes by Industry and Median Wages
23. Industry by High School Outcomes and Median Wages

Dual Enrollment Report

The Center is required under Education Article, § 24-703.1 of the Annotated Code of Maryland, to provide a report to the Governor and General Assembly on the number of students who are dually enrolled and the number and course name of the courses in which the students dually enroll.   The Dual Enrollment Report has been submitted each year starting in 2013. The 2015 report was the first report written using cross sector data from the MLDS. This year's report is the first to include high school course information.

Data Briefs

Recognizing that the policy reports and data dashboards use technical terms and present complicated sets of data, the Center has begun to release Data Briefs that provide an easy to understand explanation of key findings and information from the dashboards and reports.   The goal is to use these data briefs and other strategies to ensure that the information produced by the Center is usable by a wider audience than just education policy experts.

Planned Research and Reporting

The following research projects that are currently being worked on by the Research Team for release later this year.

1. Does "brain-drain" exist? Specifically, are individuals who attend postsecondary institutions outside of Maryland less likely to seek employment in Maryland than those who stay in Maryland

for postsecondary education? If so, which individuals are most likely to not return to the state for employment?

2. What are the long-term education and workforce outcomes for student who take Career Technical Education (CTE) coursework and who complete CTE programs. The report will describe the rates at which CTE completers graduate high school, enroll in postsecondary education, and enter directly into the workforce. CTE programs represent a diverse group of occupations and career paths, and therefore the report will also look at the different program types and whether students who complete CTE programs end up employed in sectors consistent with their CTE coursework. Lastly, this project examines the feasibility of methods to generate a causal estimate of the effect of the programs on long-run education and workforce outcomes.

3. An examination of how the Maryland Educational Assistance (EA) and Guaranteed Access (GA) grants affect enrollment, long-term postsecondary outcomes (retention, graduation, academic performance, choice of major, etc.), and workforce outcomes (employment and earnings). The report will describe the average outcomes for recipients of each grant both for the recipient population overall and by important subgroups, such as race/ethnicity and gender. The project will then examine the feasibility of methods to generate a causal estimate of the effect of the grant on long-run outcomes based on using the strict cutoff in eligibility due to the financial need formula.

4. Creation of a Maryland bachelor and associate degree earners' employment status report. This research report will examine the employment condition of Maryland bachelor and associate degree earners one year after their graduation. The results will be compared with the follow-up survey analysis by Maryland Higher Education Commission (MHEC) to see if supplemental information can be provided. Iterative changes to the report will be made in consultation with the MHEC data advisory group and interested stakeholders.

Section 3. Data Determined to be Unnecessary

At this time, no data received by the MLDS Center and loaded into the System has been determined to be unnecessary.

Section 4. Proposed or Planned Expansion of Data

Data Inventory

Md. Ed. Art. §24-701(f) defines the permissible types of student and workforce data that the MLDS may collect. Data that falls under that definition and are determined to be necessary to carry out the mission of the Center are presented to the Governing Board for approval to be included in the inventory. The Data Inventory represents the complete list of data that the MLDS Center collects.

Additions to the Data Inventory

Laia

Section 5. Recommendations of Governing Board

Recommendation #1 - Support legislation amending Education Article § 24-702(c), Annotated Code of Maryland to increases the amount of time a student record may remain linked to a workforce record in the Maryland Longitudinal Data System. Specifically, the legislation increases, from 5 years to 20 years, the amount of time that a student record may remain linked to a workforce record after the student's last enrollment in a Maryland educational institution. Having only five years of workforce data is insufficient to provide a meaningful understanding of student workforce outcomes. Increasing the linkage to 20 years will provide a more meaningful period of time to assess a student's workforce history and provide a more complete understanding of that student's workforce outcomes; resulting in better policy analysis and insights.

Recommendation #2 – The MLDS Center should develop and implement a communication plan that creates awareness of MLDS output and information, establishes a better understanding of how longitudinal data can be used to help drive decision making, and generally provides a systematic approach to engaging stakeholders.

Recommendation #3 – In recognition of the important role of apprenticeship programs as a strategy for improving workforce outcomes of Maryland students and the interest in the topic expressed by the Governor's P20 Leadership Council, the MLDS Center should establish or modify data sharing agreements with partner agencies as necessary to receive and include apprenticeship data in the MLDS data system.

Attachments

Attachment A – Roster of Governing Board Members

Attachment B – MLDS Center Procedures for De-linking and Purging Workforce Data

Attachment C - MLDS Center Data Gap Analysis