



MLDS CENTER

Maryland Longitudinal  
Data System

Better Data • Informed Choices • Improved Results

# Data Gap Analysis

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## **Introduction**

In 2016, the P-20 Leadership Council of Maryland formed seven workgroups to focus on ways to improve education, and advance workforce creation. One of the seven workgroups includes one designated to the Maryland Longitudinal Data System.

In May 2016, the MLDS Center Staff and the MLDS P-20 Workgroup met to discuss ways the P-20 Workgroup could support the Center's valuable work. This document was created as a result of that meeting at the request of the P-20 Leadership Council of Maryland, MLDS Workgroup.

This document catalogs the gaps in the data contained in the Maryland Longitudinal Data System and identifies the reasons, impacts, and resolution of those gaps. Some of these data gaps relate to data that may be available to the MLDS with the required agreements, while other data may not be collected by the MLDS or its partner agencies.

While the MLDS contains a wealth of valuable information for reporting and analyses, closing these gaps in the data will greatly improve the reporting and research capacity of the Center.

## A. Workforce Data

### 1. Required 5-year de-linking of student and workforce records

GAP	A student record must be de-linked from a workforce record five years after the student’s last enrollment in a Maryland educational institution.
REASON	Ed. Art., § 24-702(c), Annotated Code of Maryland: The linkage of student data and workforce data for the purposes of the Maryland Longitudinal Data System shall be limited to no longer than 5 years from the date of latest attendance in any educational institution in the State.
IMPACTS	<ul style="list-style-type: none"> <li>• Only analyzing five years of workforce data is insufficient to provide a meaningful understanding of a student’s workforce outcome.</li> <li>• The first five years of work for many college graduates may show low wages due to entry level jobs that are necessary to gain experience. More time would provide better information about the student's career trajectory and provide a more complete picture of the student’s workforce outcomes.</li> <li>• The MLDS dashboard <a href="#">Students Who Initially Enroll in a Maryland Community College - Wages Over Time</a>, also illustrates one of the problems with only looking at a few years of wage data. The highest wage earners for the period being studied - 2009 through 2015 - is students who stopped attending and did not complete a degree or certificate at a Community College. This is mostly likely due to the fact that once they leave school they are working full time versus the students who are completing a degree. By 2015, the completers have caught up to or slightly surpassed the non-completers. Nonetheless, without more years of workforce analysis, the true value of a postsecondary degree cannot be fully understood.</li> <li>• Finally, the five year delinking requirement will make comparing in-state vs. out-of-state postsecondary educational outcomes difficult. For example, two students graduate from a Maryland Public High School in June 2008. Student A enrolls in an out-of-state 4-year college in Fall 2008 and graduates with a Bachelor’s degree in Spring 2012. The student is employed in the state of Maryland in 2013, Quarter 4. The Center will record the out-of-state postsecondary enrollment. However, since the student’s last attendance in any educational institution in the <u>state</u> will be the date of high school graduation in June 2008 (year 4), state law does not allow the linkage of the 2013 Quarter 4 wages, which occur five years later. In comparison, Student B stays in Maryland for his or her postsecondary education and therefore the workforce data can be linked and wages can be reported for five years after completion.</li> </ul>
RESOLUTION	Revisions to state statute

**2. Removal of workforce records that are not matched to a student record**

GAP	MLDS must remove all workforce records that are not matched to a student record within 90 days after receiving the workforce record from DLLR.
REASON	Data Sharing Agreement Between the Maryland Department of Labor, Licensing & Regulation and Maryland Longitudinal Data System Center, 5.c. Disposal and Destruction of Transferred Student and Workforce (TSWF) Data, Signed August 6, 2014 <ul style="list-style-type: none"> <li>i. TSWF Data must not be retained with personal identifiers for longer than such period of time as is necessary to match and/or de-identify data sets.</li> <li>ii. Unmatched Confidential UI Data will be not be kept for more than 90 days, at which point it will be returned to DLLR or destroyed, as directed by DLLR.</li> </ul>
IMPACTS	<ul style="list-style-type: none"> <li>• Removing workforce records that are not matched to a student record makes it impossible to determine the percentage of the Maryland workforce population that is educated in Maryland postsecondary institutions. It also makes it impossible to compare the wages of recent graduates to the population of wage earners in Maryland. For example, the Center is unable to answer research questions such as <i>“Do recent Maryland STEM degree earners disproportionately account for higher wage earnings in a certain industry compared to all workers in the industry?”</i></li> </ul>
RESOLUTION	Revise data sharing agreement with DLLR to allow retention of unmatched workforce data.

**3. North American Industry Codes (NAIC)**

GAP	NAIC (North American Industry Codes) used to determine the industry of each employer in the UI database, are missing or inconsistent in the MLDS.
REASON	NAIC codes are self-reported by the employer, are often incomplete or missing, and have been found not to accurately represent the industry of the employer.
IMPACTS	<ul style="list-style-type: none"> <li>• Understanding not only that a student is working, but also whether the work is in a field that he or she has been trained for is important to understanding workforce outcomes. Currently, industry classification is the only data available in the System that provides an indication of the type of work. Inaccuracies or incompleteness makes the analysis more difficult and less accurate.</li> </ul>
RESOLUTION	

#### 4. Standard Occupation Classification (SOC) Codes

GAP MLDS does not receive SOC (Standard Occupation Classification) codes from any source. SOC codes are preferable to NAIC codes because they indicate the employee’s occupation whereas NAIC only provides the industry of the company for which the employee is working.

REASON	SOC codes are not currently collected by DLLR.
IMPACTS	<ul style="list-style-type: none"> <li>To understand workforce outcomes for students, researchers need to know the student’s occupation. Without SOC codes, researchers are left to make assumptions. For example, a computer science major working for a restaurant chain is assumed not to be working in an occupation for which he or she trained. However, that student could be the IT manager for the restaurant chain, in charge of supporting and maintaining its IT infrastructure. Similarly, it is assumed that a computer science major working for a large IT Tech firm is employed in his or her field of training when in fact the student could be an administrative assistant.</li> </ul>
RESOLUTION	

#### 5. Federal or Military Employees, Independent Contractors, Self-Employed Workers

GAP The workforce data does not include federal employees, military employees, or independent contractors.

REASON	Federal employees and independent contractors do not participate in the UI system and are therefore not part of the data.
IMPACTS	<ul style="list-style-type: none"> <li>According to a <a href="#">2010 Department of Legislative Services report</a>, federal (military and civilian) jobs make up 7.4% of the Maryland job base - making the federal government the fifth largest employer in the state.<sup>1</sup> The lack of federal wage information leaves an incomplete picture of employment - especially considering that government jobs are often STEM and/or higher salary jobs.</li> </ul>
RESOLUTION	Explore the possibility of receiving data from the <a href="#">Federal Employment Data Exchange System</a> . Explore the possibility of receiving Maryland income tax data from the Maryland Comptroller. Maryland income tax is collected for all workers, including federal employees and independent contractors.

<sup>1</sup> The 2010 Impact of the Federal Government on Maryland’s Economy report provides an overview of federal employment in the state. The report is based on data from Bureau of Economic Analysis in the U.S. Department of Commerce. That source counts jobs in the State rather than employed persons. Across all industries in Maryland, Federal jobs were approximately 7.4%, and federal civilian jobs were 5.7%. Those percentages reflect the federal jobs located in Maryland. Those jobs may be filled by non-Marylanders and does not account for Marylanders working for the federal government out-of-state in D.C. or Virginia. Note this 2013, report in [Governing Magazine](#) using Bureau of Labor Statistics, data which indicates 5.5% of Maryland’s workforce is employed by the federal government, second in the Nation (excluding the District of Columbia) only to Hawaii (5.6%).

## 6. Apprenticeship Data

GAP Apprenticeship data is currently not in the system

REASON	DLLR has apprenticeship data but it is not yet collected by MLDS. Apprenticeship is not part of the Data Inventory and it is not specified in the data sharing agreement with DLLR.
IMPACTS	<ul style="list-style-type: none"> <li>• MLDS cannot report on the impact that apprenticeship programs have on student outcomes.</li> </ul>
RESOLUTION	Work with DLLR to revise the data sharing agreement to include apprenticeship data, and add the data elements to Data Inventory.

## 7. Licensure from DLLR and other license granting agencies (DHMH, etc)

GAP Professional licensure or credentials from DLLR or other license granting agencies would constitute an achievement by a student.

REASON	MLDS does not receive credential or licensure information from DLLR or <a href="#">MSDE</a> , nor is that data part of the Data Inventory or data sharing agreements. Other licensing information would include <a href="#">health professional licensing in Maryland</a> , or <a href="#">Maryland Department of Agriculture</a> . Additional research is needed to compile all the licensing and credentialing agencies in Maryland. MLDS does not have data sharing agreements with other agencies that issue licenses or credentials.
IMPACTS	<ul style="list-style-type: none"> <li>• License and credential attainment is considered by many sources to be an educational outcome especially for students engaged in Career and Technical education programs. For students leaving Maryland public high schools and postsecondary institutions, license and credential attainment are positive educational outcomes that can inform the workforce opportunities for Maryland students.</li> </ul>
RESOLUTION	Further research the agencies that administer credentials or licensure. Explore revising data sharing agreements with current partner agencies to include credentials and licensures. Explore the possibility of entering into data sharing agreements with other state agencies that administer credentials or licensure. Revise Data Inventory to include any new data elements.

## 8. Part-time or full-time employment and number of hours worked

GAP The wage information provided by UI data does not indicate the number of hours worked or whether the employee was employed full or part-time.

REASON	UI data only provides the wages earned for the entire quarter.
IMPACTS	<ul style="list-style-type: none"> <li>• Knowing whether wages are part-time or full-time would allow more meaningful comparison of workforce outcomes.</li> </ul>
RESOLUTION	Engage expertise from sources such as the <a href="#">Jacob France Institute</a> to provide recommendations on the best ways to report the differences in wage hours. Reach out to other SLDS's to explore ways to resolve this issue.



**9. Out-of-State workforce data**

GAP MLDS only receives wage data for students who are employed in Maryland.

REASON	MLDS only has access to Maryland UI records. There are interstate programs that are designed to exchange workforce data to allow states to continue to analyze student outcomes even if the student leaves the state. However, these interstate programs require re-disclosure of data which is prohibited by State law.
IMPACTS	<ul style="list-style-type: none"> <li>• Maryland is closely situated to other states and the District of Columbia. Movement across state lines is extremely commonplace. Information on the movement of students across state lines for employment can assist the Center in answering policy questions related to “brain-drain” and workforce retention.</li> </ul>
RESOLUTION	Explore ways the MLDS may receive data through DLLR via the <a href="#">Wage Record Interchange System</a> . The MLDS may also explore opportunities with other SLDS, such as the <a href="#">Multistate Longitudinal Data Exchange</a> . Either option would require changes to state statute, revised data sharing agreements, approval by the MLDS Governing Board, and inclusion of the data elements in the Data Inventory.

## B. Postsecondary Education Data

### 1. AccuPlacer Test Scores

GAP            AccuPlacer test scores are not available. Most Maryland community colleges and some other postsecondary institutions use AccuPlacer scores to determine eligibility requirement for placement in remedial courses.

REASON	AccuPlacer scores are maintained by the institution issuing the exam. MHEC and MSDE do not have established collections for the AccuPlacer data from educational institutions.
IMPACTS	<ul style="list-style-type: none"> <li>• Restricts MLDS ability to provide more in-depth analysis of remedial education</li> </ul>
RESOLUTION	<p>Beginning in the 2015-2016 school year, MSDE will begin collecting AccuPlacer scores from the LEAs in certain instances. This will not provide AccuPlacer scores for all students, but will provide scores for students who used the AccuPlacer to be designated as College and Career Ready.</p> <p>The Center should work with MHEC to determine if there is value for MHEC to collect AccuPlacer scores in any of their collections.</p>

### 2. Non-Credit Postsecondary Courses

GAP            Non-Credit Postsecondary Courses are not available in the MLDS

REASON	Non-credit courses are not collected by MHEC from any of their postsecondary institutions. Non-credit coursework includes remedial courses, technical education, <a href="#">occupational training</a> , <a href="#">courses for students with intellectual and developmental disabilities</a> , life enrichment, etc.
IMPACTS	<ul style="list-style-type: none"> <li>• People access educational opportunities throughout their lifetime for a variety of reasons. The absence of non-credit coursework limits MLDS ability to report on occupational training and retraining, technical education, and vulnerable populations such as students with intellectual and developmental disabilities.</li> </ul>
RESOLUTION	This is not part of MHEC’s current collections, though they are exploring the possibility of collecting this information.

## C. PK-12 Data

### 1. Student Discipline Data

GAP Student discipline data is not available in the MLDS

REASON	The MLDS is prohibited by law from including information on student discipline. Ed. Art. § 24-701(f)(3)(iv) specifically excludes discipline records as student data that the Center can include in the MLDS.
IMPACTS	<ul style="list-style-type: none"> <li>Student discipline information in K-12 is an important variable in understanding student outcomes. Furthermore, when modeling student outcomes, if discipline data are not included in the model, relationships between predictors of interest (e.g., course taking) and the outcome (e.g., achievement) may be less accurate than if discipline data were included in the model.</li> </ul>
RESOLUTION	Revisions to state statute

### 2. Career and Technical Education Data

GAP Career and Technical education data for Maryland’s K12 public school students is not currently included in the Data Inventory. This data includes CTE concentrator and completers.

REASON	Most of the data provided to the MLDS comes from the Division of Curriculum, Assessment, and Accountability at MSDE. The CTE data is collected and reported from the Division of College and Career Readiness.
IMPACTS	<ul style="list-style-type: none"> <li>Students engaged in CTE are prepared for a wide range of careers. These careers require varying levels of education- from high school and postsecondary certificates, to apprenticeships, or two- and four-year college degrees. Including this data in the MLDS provides an additional layer of analysis in understanding educational and workforce outcomes of Maryland students.</li> </ul>
RESOLUTION	Engage the Division of College and Career Readiness at MSDE in the submission of this data and work on including those data elements in an update of the MLDS Data Inventory.

### 3. Private School Students

GAP There is no data on private school students in the MLDS.

REASON	Maryland private schools voluntarily provide <a href="#">aggregate school enrollment counts</a> annually. No student level data is collected from private schools. Without student level data, there is no substantive data for the MLDS.
IMPACTS	<ul style="list-style-type: none"> <li>Having data on private schools students may provide a comparison point to Maryland public school student outcomes.</li> </ul>
RESOLUTION	Engage private school stakeholders in the value of the MLDS, and explore possibilities to include this data.

#### 4. Homeschooled Students

GAP There is no data on homeschooled students in the MLDS.

REASON	Homeschool students register with their local school system which verifies compliance and provides instructional supervision. This data is not collected at the student level by MSDE. Data is only reported aggregately by each LEA, which does not provide meaningful data for the MLDS.
IMPACTS	<ul style="list-style-type: none"> <li>• Having data homeschooled students may provide a comparison point to Maryland public school student outcomes.</li> </ul>
RESOLUTION	Engage homeschool stakeholders in the value of the MLDS, and explore possibilities to include this data.

#### 5. School Climate Data

GAP There is no school climate data included in the MLDS.

REASON	These data may be available from individual LEAs or schools, but these data are not centrally collected by MSDE. Between 2010-2015 MSDE piloted the <a href="#">Maryland Safe and Supportive Schools (MDS<sup>3</sup>) Initiative</a> . This grant funded initiative piloted a sustainable statewide system to measure school climate, the school environment, student engagement, and school safety in high schools. Under the requirements of the Every Student Succeeds Act, state accountability programs may include a measure of school climate. MSDE is currently piloting an Accountability Workgroup to determine which measures may be used in the state accountability program.
IMPACTS	<ul style="list-style-type: none"> <li>• School climate provides important qualitative information from students, parents, and teachers about their schools. Much research has shown that differences in schools account for differences in student outcomes. Understanding the climate of a school can help explain the differences in student outcomes between schools.</li> </ul>
RESOLUTION	The Center should work with MSDE to determine if there is value for MSDE to collect school climate data in any of their collections. The Center can also consider direct collection of school climate data.

#### 6. Teacher Preparation and Employment Cycle

GAP Information on K12 public school teachers with the ability to link teacher data to the workforce record and the ability to link teachers to students.

REASON	MLDS includes information on all staff employed by all local education agencies in Maryland. This includes professional teaching staff, central office staff, and service staff. This information is considered workforce records rather than student records. Therefore it is subject to the de-linking issues addressed in 2a (Ed. Art. § 24-702(c)).
IMPACTS	<ul style="list-style-type: none"> <li>• The MLDS Research Agenda includes questions related to teacher preparation and retention. The 5 year de-linking requirement results in the Center's inability to fully analyze the outcomes for educators in Maryland public schools.</li> </ul>
RESOLUTION	Revisions to state statute

**7. Early Childhood Education Data**

GAP            The Division of Early Childhood Development (DECD) at MSDE collects limited student level data. With the retirement of MLDS’s contact in DECD we have had to re-establish relationships and understand the complexity of the data collected by this division.

REASON	The MLDS Data Inventory already includes the collection of childcare providers. This is organization and workforce data that related to licensed and certified childcare facilities operating in Maryland. With the implementation of the Kindergarten Readiness Assessment (KRA) in 2015, the MLDS will begin to receive student level assessment data. The KRA data elements will need to be included in updates to the MLDS Data Inventory.
IMPACTS	<ul style="list-style-type: none"> <li>• Early childhood education and readiness is a significant component of any SLDS. Extensive research nationally shows the connections between early childhood development and outcomes later in life. This data allows the MLDS to provide more in-depth and long-term analysis on the effectiveness of these programs.</li> </ul>
RESOLUTION	MLDS Staff have re-engaged staff in the Division of Early Childhood Development to implement the collection of the KRA student level data. Data elements related to the KRA will be included in revisions to the Data Inventory at the December 2016 MLDS Governing Board meeting.

## **D. Additional Considerations**

1. State law provides limitations (see Ed. Art. § 24-701(f)(3), Annotated Code) on what constitutes student data for purposes of inclusion in the MLDS. Juvenile delinquency records and foster care records are deemed not to be student data and therefore cannot be collected and included in the MLDS. Both the Departments of Juvenile Services (DJS) and Human Resources (DHR) have expressed an interest in providing data to the MLDS that would, at a minimum, provide an indicator to allow the Center to report on the educational and workforce outcomes of children served by those agencies.
2. There is limited information on Socioeconomic Status. The only indicator is FARMS (Free and Reduced Meals) eligibility. This indicator is less precise due to recent changes which allows for a district-wide determination.
3. Adult criminal justice data (part of outcomes of educational system).

## **E. Ranking**

After assembling this list, the research team was asked to rank the data gaps in order of importance. Specifically, the following list represents the gaps that pose the most significant obstacles to accurately analyzing and reporting on student progress and outcomes over time.

1. 5 year de linking (including teacher/student link with workforce data for all teachers)
2. Federal/military employees
3. Part time/full time wage information
4. Student discipline
5. SOC codes

Of the items listed, the 5-year de-linking issue is a critical limitation that can be directly overcome through a legislative change. Consideration should be given to seeking a legislative change during the upcoming legislative session.