PREPARING MICHIGAN’S TEACHERS:
HOW TEACHER TRAINING PREDICTS JOB PLACEMENT
AND MOBILITY

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Overview
This policy brief examines the early-career placement and retention rates for teachers graduating from Michigan’s educator preparation Institutions (EPIs). This report addresses three central research questions:

1) How can teacher education programs in Michigan be systematically understood through commonly shared institutional characteristics?
2) What is the relationship between the type of teacher education program a teacher attends and the school in which he or she later works?
3) To what extent does the type of teacher education program teachers attend predict later mobility and attrition rates?

Key findings include:
- Different EPIs share similar characteristics, and initial teacher placement and eventual retention rates vary significantly by EPI-type.
- We find that graduates of academically rigorous institutions are less likely to work in high-need schools and more likely to exit the profession.
- We find higher rates of exit and transfer associated with more racially diverse programs.
- Our results have implications for teacher preparation, particularly for high-performing programs and those preparing teachers of color.

Background
Across multiple states, education researchers have found that students do not have equal access to effective educators (Clotfelter, Ladd, & Vigdor, 2005; Goldhaber, Lavery, & Theobald, 2017; Lankford, Loeb, & Wyckoff, 2002) and that students of color are more likely to be taught by inexperienced teachers (U.S. Department of Education Office for Civil Rights, 2014).

Teacher mobility, including both transferring to a new position either within or outside of one’s district as well as exiting the profession entirely, also plays a role in students’ access to educators. Teacher turnover is disruptive for students and has

This policy brief is based on a working paper titled “Teacher Training, Teacher Placement, and Teacher Mobility: Evidence from Michigan 2011–2015” which can be found at http://education.msu.edu/epic/documents/White-Paper-2-Teacher-Training.pdf
a disproportionate impact on lower-achieving schools (Feng, 2009; Hanushek, Rivkin, & Schman, 2016; Ronfeldt, Loeb, & Wyckoff, 2013).

In recent years, there has been an increasing interest in holding educator preparation institutions (EPIs) accountable for the outcomes of their graduates, including where they work and how long they persist. While there has been some debate as to how the performance of EPIs ought to be measured, a growing body of literature has demonstrated that EPIs do play a role in teachers’ later performance and mobility (Goldhaber & Cowan, 2014; Goldhaber, Liddle, & Theobald, 2013; Ronfeldt & Campbell, 2016). We frame our study in this current era of increased accountability and it is against this backdrop that the questions we ask in this study stand out.

Michigan offers an ideal opportunity to study teacher training, placement, and mobility. Programs across the state vary in several ways, allowing us to study how different program types impact teachers. Although there are ways in which Michigan’s context is unique, recent events in the state mirror larger national trends. Michigan adopted multiple reform laws in July 2011, which led to a statewide teacher evaluation system and a significant reduction in tenure and collective bargaining protections (State of Michigan, 2011).

Michigan was also particularly hard hit by the recent economic recession (Yagan, 2017), and there has been a significant drop in teacher certification rates in the state (Stackhouse, 2017). Recognizing these challenges, the state has placed an increasing emphasis on improving educator quality in recent years. In addition to rating EPI performance, the state also adopted a goal of strengthening Michigan’s educator workforce as a part of the Top 10 in 10 initiative, which is designed to make Michigan a top-performing state in the coming years (Michigan Department of Education, 2016a; 2016b).

About Michigan’s Early-Career Teachers

In this study, we focused on all early-career K-12 teachers in their first five years of teaching in Michigan public schools between 2011-12 and 2015-16. We used data provided by the Michigan Department of Education (MDE) and Center for Educational Performance and Information (CEPI) to study the placement and mobility outcomes of approximately 23,000 teachers who attended the largest 19 largest EPIs in the state.

The early-career teachers we studied come from both traditional public schools (TPS) and charter schools. Approximately 70% of teachers work in TPS and 30% work in charter schools. Across both sectors, about one-quarter of teachers are male; the average teacher had 2-3 years of experience; and 28% of teachers are in either a math or science teaching position.

Teachers in the charter sector are more racially diverse – 10% of charter school teachers are African American as opposed to only 3% in TPS. Slightly more charter school teachers are Hispanic (2% vs. 1%) or another race (2% vs. 1%). Charter school teachers are more likely to hold an elementary-level teaching certificate (69%) than TPS teachers (57%).

For each of the 19 EPIs in our analysis, we also gathered data on institutional characteristics from the National Center for Statistics’ Integrated Postsecondary Education Data System (IPEDS) and EPI-specific characteristics from federal Title II reports. Other data sources include Educator Preparation Institution (EPI) scores and mission statements from institutions’ public websites.
How This Analysis Was Conducted
In this study, we used several different strategies to:
1) identify a systematic approach for classifying Michigan's teacher education programs; 2) determine the relationship between where teachers train and the types of schools they work in; and 3) establish the relationship between where teachers train and their later exit and transfer behaviors.

First, we used cluster analysis to classify Michigan's largest 19 EPIs into meaningful groups with commonly shared characteristics. These characteristics included, but were not limited to, the following: institution size and locale, academic rigor, student demographics, EPI performance, EPI program requirements, and mission statement themes.

After establishing a number of unique groupings that Michigan's EPIs fall into, we next examined how teaching placements vary by EPI cluster. In this study, we considered four different types of teaching placements commonly associated with at-risk students: Title I schools (a federal designation based on socioeconomic status), priority schools (a state-level designation for schools that have experienced chronic low academic performance), urban schools, and rural schools. We calculated the proportion of teacher-year observations associated with each EPI cluster for these four different teaching placements.

From here, we sought to understand the extent to which EPI cluster predicts a teacher's likelihood of transferring to a new position (either within or outside of her current district) or exiting the teaching profession entirely. We first took into account other confounding factors that might influence teacher mobility, such as a teacher's own personal characteristics, the type of school a teacher works in, and the region of the state in which she works. By taking these factors into consideration, we were able to essentially adjust EPI-specific placement and retention rates for pre-existing characteristics specific to each teacher candidate existing those programs.

Finally, we used statistical modeling to identify the specific characteristics of EPIs that most strongly relate to teacher transfer and exit. We considered both overall institutional characteristics, such as the location and size of the college or university, as well as EPI-specific characteristics, such as EPI program requirements and student demographics.

In all our analyses pertaining to teacher placement and mobility, we separated out our results by sector, looking at traditional public school (TPS) and charter school teachers separately due to their unique exit and transfer behaviors.

Classifying Michigan's Teacher Education Programs
In this study, we found that Michigan's largest EPIs fall into four unique groups, which we refer to as:
- Cluster 1: Small Private Religious Institutions with a Focus on Service,
- Cluster 2: Midsize Regional Programs with a Focus on Local Community,
- Cluster 3: Public Research Universities with Large Teaching Programs, and

Figure 1, shown below, provides a summary of the key distinctions among these four EPI types. For more detail about the specific characteristics used to cluster EPIs and a more detailed summary of their characteristics, please see our full working paper.
Teacher Training and Teacher Placement
Not only are Michigan’s EPIs different across institutional and EPI-specific characteristics, but the types of schools their graduates go on to work in also vary. Figures 2 and 3, shown below, depict the frequency with which graduates from each EPI cluster go on to work in various types of schools that commonly serve at-risk students. These rates are teacher-year observations, meaning that each teacher is counted once per year he or she was teaching as an early-career teacher between 2011-12 and 2015-16.

Figure 2 describes the job placements of those who go on to work in traditional public schools. As illustrated in the figure, teachers trained by a Cluster 2 EPI, a midsize regional program, are more likely to work in Title I schools than their peers, and teachers trained by a Cluster 4 EPI, an academic powerhouse, are less likely to work in a Title I school. Teachers trained at academic powerhouses are the most likely to teach in urban settings, and teachers trained at midsize regional programs frequently teach in rural settings. These differences in teacher placement rates are statistically significant across EPI clusters for all school types.

Like TPS teachers, charter school teachers also vary in where they work based on the type of EPI they attended (see figure 3). Teachers trained by a Cluster 1 EPI, a small private religious institution, are the least likely to place in a Title I School. Teachers from academic powerhouses are the most likely to teach in a school that has ever received a Priority designation (identified as being in the bottom 5% on the state’s accountability index) a or in an urban school. As with TPS teachers, charter school teachers trained at midsize regional programs are the most likely to teach in rural schools. These differences in charter school teacher placement rates are statistically significant across EPI clusters for all school types.
Note: Differences in teacher placement rates are statistically significant across EPI clusters for all school types.

**Figure 2. Traditional Public School (TPS) Teacher Placement Rates by School Type and TEP Cluster (2011-12 to 2015-16)**

- Cluster 1: Small Private Religious Institutions with a Focus on Service
- Cluster 2: Midsize Regional Programs with a Focus on Local Community
- Cluster 3: Public Research Universities with Large Teaching Programs
- Cluster 4: Academic Powerhouses with Affluent, High-Achieving Students
- All Clusters

**Figure 3. Charter School Teacher Placement Rates by School Type and TEP Cluster (2011-12 to 2015-16)**

- Cluster 1: Small Private Religious Institutions with a Focus on Service
- Cluster 2: Midsize Regional Programs with a Focus on Local Community
- Cluster 3: Public Research Universities with Large Teaching Programs
- Cluster 4: Academic Powerhouses with Affluent, High-Achieving Students
- All Clusters

Note: Differences in teacher placement rates are statistically significant across EPI clusters for all school types.
Teacher Training and Teacher Mobility

We found that there is significant variation in teacher exit and transfer behaviors by EPI cluster, even after accounting for potentially confounding factors, such as a teacher’s personal characteristics and the type of school she teaches in. Figure 4 contains a summary of these predicted exit and transfer rates by cluster.

Among TPS teachers, those trained in midsize regional programs have the highest exit, intra-district, and inter-district transfer rates. TPS teachers trained in small private religious institutions, on the other hand, have the lowest exit rates.

Among charter school teachers, those trained in academic powerhouses have the highest exit and inter-district transfer rates. Those same rates are lowest among charter school teachers trained in small private religious institutions.

Using regression analysis, we also identified specific institutional and EPI-specific characteristics that predict teacher exit and transfer (see figure 4). While more details about our statistical models and a full set of results can be found in our full working paper, here are a few highlights:

- Teachers from programs with higher graduation rates and higher GPAs tend to exit and transfer less frequently. However, higher ACT scores are associated with higher exit rates from charter schools.
• Teachers from programs with higher overall EPI performance scores and higher pre-licensure exam scores tend to exit and transfer less frequently.

• Institutions with the highest proportions of White students have the lowest exit and transfer rates.

• Institutions with higher proportions of low-SES students have higher exit rates from teaching.

• Programs that require greater numbers of student teaching hours have lower exit and transfer rates.

Conclusion

The findings from our work show that EPIs in Michigan are making varying contributions to the distribution of teachers across the state, both in terms of where teachers work and how long they persist. Perhaps most apparent are the higher rates of attrition from the profession that we observe among TPS teachers from regional midsize programs and charter school teachers from academic powerhouses. We also observe that public research universities with large teaching programs (Cluster 3) have higher than average attrition rates across both sectors. While our findings are not causal (meaning that we are unable to say definitely that attending a particular EPI was the only reason for teacher placement or later mobility), we speculate that one reason for these findings is that these larger programs may offer a less individualized post-secondary experience. It is also possible that teachers who graduate from these programs have other labor market opportunities outside of teaching. In any case, these results suggest that looking beyond initial placement but also to retention is an important step in determining EPI contributions to an equitable distribution of teachers.

We also note the fact that programs with more students of color tend to have poorer exit and transfer outcomes for their teachers. Given the benefits that all students experience when taught by teachers of color (Cherng & Halpin, 2016) and the overall lack of diversity in Michigan’s teacher workforce, this result implies that EPIs can do more to recruit, support, and retain teachers who better mirror Michigan’s student population.

We conclude with several potential policy implications for teacher education programs in Michigan:

• EPIs with lower placement rates in schools that serve at-risk students (such as: Title I, priority, urban and rural school) might develop strategies to encourage more of their graduates to teach in these settings.

• EPIs should carefully consider who they are recruiting into teaching and ensure that they have strategies in place to encourage their most talented graduates to persist in the profession.

• EPIs might look to university-based induction (Bastian & Marks, 2017) as a form of support to help reduce teacher turnover in more challenging school settings, especially among teachers of color.

The findings from this study suggest that EPIs vary in several ways, and that they have a significant role to play in improving teacher distribution, mobility, and diversity across Michigan.
References

DISCLAIMER: This research result used data collected and maintained by the Michigan Department of Education (MDE) and/or Michigan’s Center for Educational Performance and Information (CEPI). Results, information and opinions solely represent the analysis, information and opinions of the author(s) and are not endorsed by, or reflect the views or positions of, grantors, MDE and CEPI or any employee thereof.