"Leaks" in the Educator Pipeline: Wisconsin Educator Preparation Program (EPP) Completers Working in Illinois and Minnesota Public Schools

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Executive Summary

This policy brief examines one type of “leak” in the Wisconsin educator pipeline, a leak in the number of recent graduates from one of the state’s 40+ educator preparation programs (EPPs) electing to work in Illinois or Minnesota public schools. While this group is numerically small, with just 38 Wisconsin 2017-18 EPP completers working in Illinois in 2018-19 and another 287 working in Minnesota, these subgroups combined represent almost 7% of all Wisconsin EPP completers from 2017-18. Additionally, nearly one-fifth (19.8%) of Wisconsin EPP completers were not working in Wisconsin public schools the following year. Available data only allow us to look at losses for a single cohort of Wisconsin EPP completers (from 2017-18); however, the trends uncovered warrant a deeper exploration of potential patterns from other years that could constitute a "leak" in the WI educator pipeline.

A substantial portion of the 2017-18 Wisconsin EPP completers working in Illinois and Minnesota work in either (a) hard-to-staff grade/subject areas of teacher licensure, such as Special Education, Math, and Science; and/or (b) rural and urban districts which have, faced the biggest challenges in recent years in terms of attracting and retaining educators. While all “leaks” in the educator pipeline are problematic, losses of teachers in low-supply/high-demand grades and subjects and hard-to-staff rural and urban districts, are especially troubling.

For reasons discussed herein, it may be that a portion of this annual loss of Wisconsin EPP completers to neighboring states is unavoidable, for example losses resulting from the longstanding Wisconsin-Minnesota tuition reciprocity agreement. There may be little that can be done policy-wise to prevent these losses from occurring on an annual basis. We also assume that there is a corresponding set of completers from Minnesota and Illinois EPPs who are “lost” each year to jobs in Wisconsin public schools, so it may be the case that losses of this nature from each state’s educator pipeline essentially cancel each other out. At a time when educator shortages are an important topic, any “leaks” in the pipeline are significant and merit further consideration.

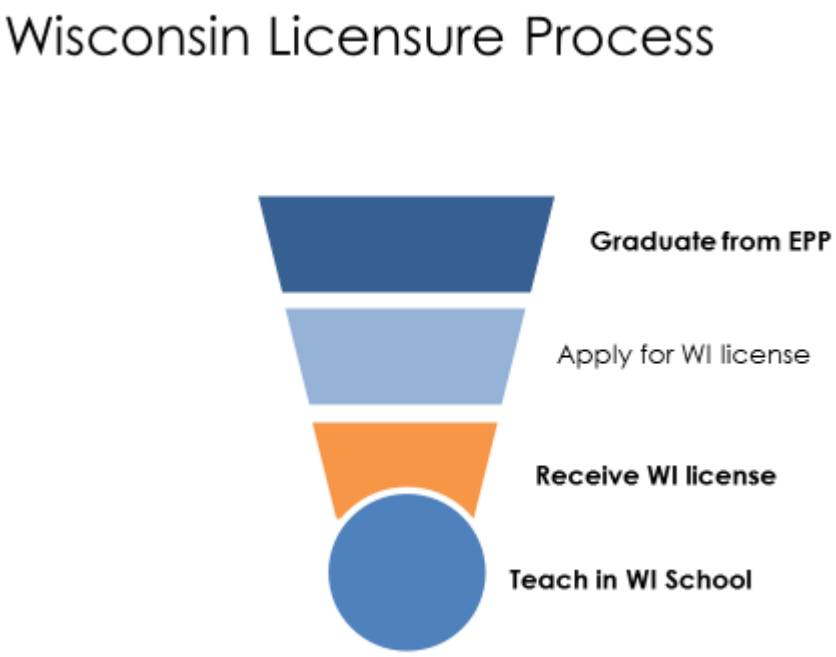
Introduction and Guiding Questions

Considerable attention has been devoted in recent years, both nationwide (Podolsky et al, 2016) and in Wisconsin (Goff, Carl, & Yang, 2018) to documenting trends in the supply and demand of educators, and in particular to educator shortages. While there is no consensus on which specific metrics and thresholds should be used to define educator shortages, commonly-cited statistics include decreasing numbers of students enrolling in (and graduating from) educator preparation programs (EPPs) and high rates of educators in their early years leaving the profession, along with surveys and anecdotal accounts of difficulties faced by districts in attracting teacher candidates (especially those in rural and urban areas, and in hard-to-staff areas of licensure).

One way that researchers and state education agencies (SEAs) have attempted to inform these discussions is by documenting trends in the supply side of educator labor markets through annual reports for educator preparation programs (EPPs). An example of this work is the Wisconsin Department of Public Instruction's (DPI) partnership with the Wisconsin Center for Education Research (WCER) at UW-Madison through the Region 10 Comprehensive Center to produce the EPP Annual Report Series (see https://dpi.wi.gov/licensing/epp). This series presents longitudinal data on EPP enrollees and completers, disaggregated by license type, across the state's 40+ public, private, and alternative route certification programs. Among the key findings from recent years (Goff, Carl, & Yang, 2018) is that there are noteworthy "leaks" in the educator pipeline at two key points in the process through which prospective educators become practicing educators in the state's public schools (Figure 1):

- Wisconsin EPP completers who do not apply for licensure from DPI to work in Wisconsin public schools
- Wisconsin EPP completers who apply for and obtain licensure from DPI, but elect not to work in Wisconsin public schools

Figure 1: Diagram of Wisconsin Educator Licensure Process



This policy brief, which is part of a larger series that builds upon the EPP Annual Reports by investigating selected trends in the Wisconsin educator workforce, examines one component of the first "leak" above by addressing the following questions:

- *Question 1: How many Wisconsin EPP completers in a recent year (2017-18) were "lost" from the state's potential educator workforce by electing to work in neighboring states (Illinois and Minnesota) the following year (2018-19)?*
- *Question 2: What do we know about Wisconsin EPP completers "lost" to Illinois and Minnesota in terms of which Wisconsin EPPs they graduated from and which types of Wisconsin licensure eligibility they held?*
- *Question 3: How do losses of recent Wisconsin EPP completers to Illinois and Minnesota compare to other "leaks" which impact the state's overall educator labor market?*

Recent research (National Academies of Sciences, Engineering, and Medicine 2020; Loeb & Beteille, 2008) suggests that educator labor markets tend to be regional in nature. Instances of both *cross-state* educator mobility and *within-state* mobility that occurs across longer distances tend to happen less often than educators moving around inside smaller geographic regions inside a state. Given this circumstance, as well as broad concern about educator shortages, it seems useful to know whether Wisconsin is experiencing noteworthy losses of potential

educators (EPP completers) to two of our neighboring states – and if so, which fields they work in. This question may be particularly interesting given the longstanding tuition reciprocity agreement between Wisconsin and Minnesota (under which residents of each state can attend public universities in the other at in-state tuition levels) and the enactment of Wisconsin's controversial Act 10 in 2011, which curtailed the ability of teachers' unions to bargain collectively with school districts. We lack the longitudinal data, at this time, to address the potential impact of Act 10 on losses of EPP completers to Minnesota and Illinois, but we can say something about the magnitude of recent losses of Wisconsin EPP completers to two of our neighboring states.

About the Data

We draw upon two main sources of data to inform this policy brief:

1. Endorsed Candidates for Licensure (ECLs)

In Wisconsin, DPI has statutory authority for approving and accrediting educator preparation programs (EPPs), as well as issuing licenses required under state law to work in public schools. As part of this role, DPI's Licensing, Educator Advancement and Development (LEAD) team receives data each year from the state's 40+ approved EPP programs (public, private, and alternative route) on how many candidates have completed all licensure requirements as specified under state law and by their respective programs. These individuals are known as Endorsed Candidates for Licensure (ECLs), and ECL data for a given year covers the number of completers from the prior academic year (e.g., 2017-18 ECL data include EPP completers from September 2017 through August 2018).

2. Public School Staff Data

The state education agencies in each of the three states included in this brief (DPI, the Illinois State Board of Education, and the Minnesota Department of Education) maintain public-facing lists of all licensed educators working within public schools. Available data generally include elements such as workplace assignment, type of license(s) held, years of experience, salary, and demographic characteristics (gender and race/ethnicity):

- Wisconsin: DPI Public All Staff report: https://publicstaffreports.dpi.wi.gov/PubStaffReport/Public/PublicReport/AllStaffReport
- Illinois: ISBE Employment Information System (EIS): https://www.isbe.net/Pages/EIS-Data-Elements.aspx
- Minnesota: Professional Educator Licensing and Standards Board (PELSB) Staff License Lookup: https://public.education.mn.gov/MDEAnalytics/PELSB.jsp?TOPICID=440

We first matched Wisconsin EPP completers from 2017-18 to staff working in Wisconsin public schools in 2018-19 and removed this group from the analysis. Then, we took the non-matched group and matched it separately to both ISBE EIS data and MDE PELSB data for 2018-19 using last name, first name, and middle name initial (since there is no unique cross-state employee ID). Then, we took a final step to safeguard against potential "false" matches with the Illinois data only. Since it seemed unlikely that any staff were both enrolled in a Wisconsin EPP and working in a public school in Illinois simultaneously, we removed any staff who were also in the ISBE data (working in Illinois public schools) during the 2017-18 school year. This final step was included as a way to filter out common names (Susan Smith, Robert Olson, etc.) which are likely to appear in any type of cross-year matching even if these aren't "true" matches. Including this step results in what is likely a conservative (low) estimate of the number of Wisconsin EPP completers who were working in Illinois the following year. Regretfully, we were not able to include this final matching step with Minnesota data, due to the lack of publicly-available 2017-18 educator licensing data from the Minnesota's PELSB. This data file has been requested and will be used to update this policy brief with new figures as soon as it is made available.

This type of "fuzzy match" (based on last name, first name, and middle initial) represents one obvious limitation of this brief. It would be preferable to do cross-state matching of educators using a unique employee ID. Since no such identifier currently exists, we used the next-best option. An additional limitation, as noted above, is that we have access to 20 years of DPI staffing files (1999-00 through 2019-20), yet ISBE and MDE data are only available for limited years (2018-19). While we can only look at a single cohort (2017-18) of Wisconsin EPP completers working in Illinois and Minnesota, it is possible that this single cohort of Wisconsin EPP completers we tracked is not representative of other cohorts from recent years.

Key Findings

Question 1: How many Wisconsin EPP completers in a recent year (2017-18) were "lost" from the state's potential educator workforce by electing to work in neighboring states (Illinois and Minnesota) the following year (2018-19)?

Wisconsin's EPPs collectively produced 5018 unduplicated completers (ECLs) in 2017-18 (based on program completion dates between 9-1-17 and 8-30-18). Approximately two-thirds (3,274 or 66.6%) of this group were working in a Wisconsin public school during the following school year (2018-19), leaving 1644 (33.7%) who were not employed in Wisconsin public schools. Among this subgroup of 1644, we found the following matches to Illinois and Minnesota public school staffing records:

- *Illinois*: 62 Wisconsin EPP completers from 2017-18 were matched to Illinois public school staffing data from 2018-19. From this group, we removed 24 educators who were also working in Illinois in 2017-18, as a hedge against "false" matches (likely due to common last names, as previously described). The remaining 38 Wisconsin EPP completers from 2017-18 (representing 0.7% of the state EPP completer total of 4918, and 2.3% of the 1644 EPP completers who elected not to work in Wisconsin) were "lost" to Illinois after being trained in Wisconsin EPPs.
- *Minnesota*: 287 Wisconsin EPP completers from 2017-18 were matched to Minnesota public school staffing data from 2018-19. This figure represents 5.8% of the state EPP completer total of 4918 from 2017-18, and 17.5% of the 1644 EPP completers from that year who did not work in Wisconsin public schools. Without being able to match to Minnesota educator licensing data from 2017-18 (as an additional safeguard against "false" matching) as we did with the Illinois data, the number of Wisconsin EPP completers "lost" to Minnesota is a bit less precise, and the matching process will be re-done when this information becomes available.

Question 2: What do we know about Wisconsin EPP completers "lost" to Illinois and Minnesota in terms of which Wisconsin EPPs they graduated from and which types of Wisconsin licensure eligibility they held?

When exploring the breakdown of which Wisconsin EPPs Wisconsin and Minnesota teachers graduated from in 2017-18 (Tables 1 and 2), a clear geographic proximity trend emerges. In the case of Wisconsin EPP completers working in Illinois (Table 1), 27 of the 38 (71.0%) graduated from a set of six Wisconsin EPPs (in italics) located on or near (e.g., within an hour of) the Illinois border.

Table 1: Wisconsin 2017-18 EPP Completers Working in **Illinois** Public Schools in 2018-19, by EPP of Graduation

Program Name	2017-18 WI EPP Completers Working in IL Public Schools 2018-19:	
	Count	% of Total
CARDINAL STRITCH UNIVERSITY	*1*	*2.6%*
CARTHAGE COLLEGE	*6*	*15.8%*
LAWRENCE UNIVERSITY	1	2.6%
MARQUETTE UNIVERSITY	*4*	*10.5%*
RIPON COLLEGE	2	5.3%
ST. NORBERT COLLEGE	2	5.3%
UW-EAU CLAIRE	1	2.6%
UW-LA CROSSE	2	5.3%
UW-MADISON	*4*	*10.5%*
UW-OSHKOSH	1	2.6%
UW-PLATTEVILLE	*6*	*15.8%*
UW-STEVENS POINT	2	5.3%
UW-WHITEWATER	*6*	*15.8%*
Total	38	100.0%

In the case of Wisconsin EPP completers working in Minnesota (Table 2), 171 of the 287 (59.6%) educators graduated from five of the UW System campuses (UW-River Falls, UW-Eau Claire, UW-Stout, UW-La Crosse, and UW-Superior, noted in italics), all of which are located within an hour or so of the Minnesota border. An additional six educators could be added if Viterbo University (a private Wisconsin EPP also located on the Wisconsin-Minnesota border) was included in these statistics.

When considering the longstanding tuition reciprocity agreement between public universities in Minnesota and Wisconsin, it may be the case that a substantial number of Wisconsin EPP completers who were "lost" to Minnesota were in fact Minnesota residents whose intention all along was to work in Minnesota public schools. While ECL data files maintained by DPI do not identify the home state of Wisconsin EPP completers, we can use other data sources to shed light on this issue. Using UW System enrollment data[1] and a recent Minnesota legislative report,[2] we include in Table 2 the Fall 2018 total undergraduate enrollment and number of undergrads who were Minnesota residents attending each of these five universities under the cross-state reciprocity agreement. This data was only included for the five UW System EPPs with the largest share of 2017-18 completers found working in Minnesota public schools in 2018-19. We then use this ratio (Minnesota undergrads/total undergrad enrollment) to estimate how many of the 2017-18 Wisconsin EPP completers at each of the five institutions were likely Minnesota residents, under the assumption that Minnesota residents comprise

[1] See https://www.wisconsin.edu/education-reports-statistics/enrollments/
[2] See https://www.leg.mn.gov/docs/2020/mandated/200328.pdf

approximately the same percentage of both groups (total undergrads and Wisconsin EPP completers who elected to work in Minnesota).

Using this methodology, we estimate that approximately 63 of the 287 Wisconsin EPP completers in 2017-18 who were working in Minnesota public schools in 2018-19 (22%) were likely Minnesota residents. We cannot know if any of these prospective educators may have been open to consider staying in Wisconsin, but one potential implication of this finding is that Wisconsin EPPs may wish to consider either (a) gathering information (perhaps through a survey) about out-state EPP enrollees' preferred post-graduation work destination and/or (b) creating a pilot financial incentive for these potential "leavers" to remain in Wisconsin after graduation, especially if they agree to work in high-needs schools and/or low-supply/hard-to-staff subjects.

The same situation clearly exists in reverse, in the form of Wisconsin residents who enroll in Minnesota EPPs under the reciprocity agreement but are "lost" from the Minnesota teacher labor market when they elect to work in Wisconsin public schools. Facing similar shortages of certain types of educators, Minnesota would likely have an interest (just as Wisconsin does) in reversing this outflow of human capital by creating incentives for this group of prospective educators to remain in-state for their careers. A cross-state "bidding war" for teachers, whether at a district level or organized and funded by state government, is clearly not a viable (nor desirable) long-term solution, but it may be worthwhile for Wisconsin EPPs to collect more data (and perhaps create a small pilot incentive program) to further inform the issue.

Table 2: Wisconsin 2017-18 EPP Completers Working in **Minnesota** Public Schools in 2018-19, by EPP of Graduation

Program Name	2017-18 WI EPP Completers Working in MN 2018-19:		Fall 2018 Selected Undergraduate Enrollment Data:		Estimated # of MN Residents among EPP Completers "Lost" to MN
	Count	% of Total	Total Enrollment	MN Residents	
ALVERNO COLLEGE	2	0.7%	n/a	n/a	n/a
BELOIT COLLEGE	1	0.4%	n/a	n/a	n/a
CARDINAL STRITCH UNIV.	8	2.8%	n/a	n/a	n/a
CARROLL UNIVERSITY	2	0.7%	n/a	n/a	n/a
CARTHAGE COLLEGE	3	1.1%	n/a	n/a	n/a
CONCORDIA UNIVERSITY	12	4.2%	n/a	n/a	n/a
EDGEWOOD COLLEGE	5	1.7%	n/a	n/a	n/a
EDUCATE-WI	4	1.4%	n/a	n/a	n/a
LAWRENCE UNIVERSITY	1	0.4%	n/a	n/a	n/a
MARANATHA BAPTIST UNIV.	1	0.4%	n/a	n/a	n/a
MARQUETTE UNIVERSITY	4	1.4%	n/a	n/a	n/a
NORTHLAND COLLEGE	1	0.4%	n/a	n/a	n/a
RIPON COLLEGE	1	0.4%	n/a	n/a	n/a
SILVER LAKE COLLEGE	1	0.4%	n/a	n/a	n/a
ST. NORBERT COLLEGE	4	1.4%	n/a	n/a	n/a
UW-EAU CLAIRE	*38*	*13.2%*	*10,189*	*2692*	*10*
UW-GREEN BAY	3	1.1%	n/a	n/a	n/a
UW-LA CROSSE	*19*	*6.6%*	*9708*	*1274*	*3*
UW-MADISON	14	4.9%	n/a	n/a	n/a
UW-MILWAUKEE	13	4.5%	n/a	n/a	n/a
UW-OSHKOSH	7	2.4%	n/a	n/a	n/a
UW-PARKSIDE	1	0.4%	n/a	n/a	n/a
UW-PLATTEVILLE	5	1.7%	n/a	n/a	n/a
UW-RIVER FALLS	*80*	*27.9%*	*5725*	*2694*	*38*
UW-STEVENS POINT	9	3.1%	n/a	n/a	n/a
UW-STOUT	*20*	*7.0%*	*7555*	*2006*	*6*
UW-SUPERIOR	*14*	*4.9%*	*2294*	*855*	*6*
UW-WHITEWATER	6	2.1%	n/a	n/a	n/a
VITERBO UNIVERSITY	6	2.1%	n/a	n/a	n/a
Total	287	100.0%	n/a	n/a	63

ECL data files also provide a sense of what is lost from the Wisconsin educator workforce in the form of the different types of licensure endorsements held by prospective educators who graduate from Wisconsin EPPs but elect instead to work in Illinois and Minnesota. This information is useful for several reasons, perhaps most notably for assessing the extent to

which Wisconsin public schools are deprived of opportunities to hire educators who hold licensure in persistently low-supply (hard-to-staff) licensure areas.[3]

Wisconsin Administrative Code PI 34 specifies three main educator license types: Administrator, Pupil Services, and Teacher. The majority of prospective educators that Wisconsin EPPs lose to both Illinois and Minnesota were teachers, rather than those with Administrator and Pupil Services licensure. PI 34 also breaks out Teacher licenses into approximately 30 different types of grade ranges and subject areas. Table 3 below shows the total number of grade ranges/subject endorsements held by the 2017-18 Wisconsin EPP completers who were teachers working in both Illinois and Minnesota in 2018-19. Grade/subject licensure areas designated by DPI and the U.S. Department of Education as "Teacher Shortage Areas" for 2019-20 are denoted in italics. The data show that 26.2% of the Wisconsin completers teaching in Illinois, and 22.0% of those teaching in Minnesota, were in low-supply teacher shortage areas.

[3] The U.S. Department of Education (https://tsa.ed.gov/#/home/) maintains annual records of hard-to-staff licensure areas as reported by each state education agency (SEA). For 2017-18 (and most prior years), DPI reported several types of Career and Technical Education (CTE) and Special Education licenses, along with English as a Second Language/Bilingual, Foreign Language, Library Media, Mathematics, Music, Reading, and Science.

Table 3: Grade Range/Subject Endorsements Held by 2017-18 Wisconsin Teacher EPP Completers Working in Illinois and Minnesota in 2018-19

Teaching Subject Certification	WI EPP Teaching Completers Working in IL:		WI EPP Teaching Completers Working in MN:	
	Count	% of Total	Count	% of Total
Adaptive Physical Education	0	0.0%	3	1.1%
Agriculture	*1*	*2.6%*	*2*	*0.7%*
Alternative Education	0	0.0%	3	1.1%
Art	1	2.6%	8	2.8%
Bilingual/Bicultural Education	*1*	*2.6%*	*0*	*0.0%*
Biology	*0*	*0.0%*	*1*	*0.4%*
Broad Field Science	*2*	*5.3%*	*7*	*2.4%*
Broad Field Social Studies	2	5.3%	7	2.4%
Business Education	*0*	*0.0%*	*1*	*0.4%*
Chemistry	*0*	*0.0%*	*3*	*1.1%*
Cross Categorical Special Education	*1*	*2.6%*	*9*	*3.1%*
Economics	0	0.0%	1	0.4%
Emotional-Behavioral Disabilities	*0*	*0.0%*	*1*	*0.4%*
English	4	10.5%	10	3.5%
English as a Second Language	*1*	*2.6%*	*2*	*0.7%*
Family and Consumer Education	0	0.0%	2	0.7%
General Music	0	0.0%	4	1.4%
History	1	2.6%	4	1.4%
Instructional Library Media Specialist	*0*	*0.0%*	*2*	*0.7%*
Instrumental Music	1	2.6%	2	0.7%
Mathematics	*2*	*5.3%*	*6*	*2.1%*
NULL	0	0.0%	63	22.0%
Physical Education	5	13.2%	13	4.5%
Physics	*0*	*0.0%*	*1*	*0.4%*
Political Science	0	0.0%	1	0.4%
Psychology	0	0.0%	1	0.4%
Reading Teacher	*0*	*0.0%*	*10*	*3.5%*
Regular Education	14	36.8%	101	35.2%
Spanish	*1*	*2.6%*	*4*	*1.4%*
Special Education	*0*	*0.0%*	*1*	*0.4%*
Specific Learning Disabilities	*0*	*0.0%*	*3*	*1.1%*
Speech and Language Pathology	*0*	*0.0%*	*10*	*3.5%*
Technology Education	*1*	*2.6%*	*0*	*0.0%*
Total	38	100.0%	287	100.0%

Several publications in recent years (see, for example, Chapman & Brown, 2020) have drawn attention to the large and growing discrepancies between Wisconsin's educator workforce, which has remained more than 95% white, and Wisconsin's public school students, who have grown increasingly diverse in recent years, currently 32% students of color. With this context in mind, it would be useful to know how many of the potential additions to the Wisconsin public school workforce that elect to work in Illinois and Minnesota are educators of color.

Unfortunately, publicly-available educator licensing data files from Wisconsin's two neighboring states do not contain selected demographic characteristics of educators, such as race/ethnicity and gender, as do the Wisconsin licensure files, so we were unable to include this information in this brief.

Question 3: How do losses of recent Wisconsin EPP completers to Illinois and Minnesota compare to other "leaks" which impact the state's overall educator labor market?

As a percentage of both unduplicated Wisconsin EPP completers in 2017-18 (n=5018) and EPP completers from 2017-18 who elected not to work in Wisconsin public schools after graduation (n=1644), the number of prospective educators that we "found" in this analysis working in Illinois and Minnesota public schools the following school year (2018-19) is relatively small. Just 38 of this group of prospective Wisconsin public school educators were "lost" to Illinois, and another 287 to Minnesota. As noted above, the latter includes a group (which we estimate to be around 63) who were likely Minnesota residents attending UW System schools in western Wisconsin under the cross-state tuition reciprocity agreement. The number of Wisconsin EPP completers "lost" to Illinois and Minnesota is also small compared to the number of Wisconsin educators we classify in a separate policy brief (Carl, Sim, and Cheng, 2022) as "long-term leavers," meaning they have been out of Wisconsin public schools for at least two consecutive years.[4] This group (long-term leavers) has averaged around 4500 Wisconsin teachers annually in recent years, representing just over 5% of the total teaching workforce each year.

Discussion and Potential Next Steps

This policy brief represents a first attempt to quantify the prospective educators Wisconsin "loses" in a given year to two of its neighboring states, in the form of those who complete all requirements for licensure at one of Wisconsin's 40+ educator preparation programs (EPPs) but elect instead to work in Illinois or Minnesota public schools. While this group is numerically small, with just 38 Wisconsin EPP completers from 2017-18 working in Illinois in 2018-19 and another 287 working in Minnesota, these two subgroups combined represent almost 7% of the 5018 Wisconsin EPP completers from 2017-18, and nearly one-fifth (19.8%) of the 1644 Wisconsin 2017-18 EPP completers who were not working in Wisconsin public schools the following year. As such, the "loss" of this group of potential additions to the Wisconsin educator workforce is not insignificant considering that this "leak" in the pipeline presumably occurs at the same level year after year.

Moreover, we find that a substantial portion (around 25%) of the 2017-18 Wisconsin EPP completers who are working in Illinois and Minnesota are employed in hard-to-staff grade/subject areas of teacher licensure (Special Education, Math, Science, etc.). Some portion

[4] We recognize that some "long-term leavers" may eventually re-enter the public school workforce, and intend to study the extent to which this occurs in an upcoming policy brief.

of this group may also be educators who would have worked in rural and urban districts which have struggled the most in recent years to attract and retain educators, although this is difficult to determine given the existing data. While all "leaks" in the educator pipeline are problematic, losses of those who teach low-supply/high-demand grades/subjects or are willing to work in rural and urban districts, are especially difficult.

We do note that it may be misleading to characterize Wisconsin EPP completers who elect to work in Minnesota as "losses," given the longstanding tuition reciprocity agreement between the two states. Based on the methodology described above, we estimate that approximately 22% of Wisconsin EPP completers working in Minnesota are likely Minnesota residents who may have always intended to work in public schools within their home state. We have no way of knowing whether any type of incentive (financial or otherwise) might have persuaded them to remain in Wisconsin instead. We also recognize that the cross-state educator labor market between Wisconsin and Minnesota is bi-directional, and there is a parallel group of Wisconsinites who attend Minnesota EPPs but are "lost" from the Minnesota educator labor force by taking jobs in Wisconsin public schools. It would be useful, in a future policy brief, to document the size of this parallel group (Minnesota EPP completers who elect to work in Wisconsin public schools), to see if the groups are approximately equal in size, and to compare selected characteristics of this group (subject-area licensure endorsements, which types of districts they work in, etc.) to shed more light on the specifics of these "losses."

Several possibilities exist for next steps for this work. We hope to obtain 2017-18 educator licensing data for Minnesota shortly to identify potential "false" matches to complete and analysis similar to that with the Illinois public school staffing records. We also hope to obtain selected demographic characteristics of Wisconsin EPP completers working in Illinois and Minnesota, such as race/ethnicity, in order to get a better sense of the implications that these "losses" have for Wisconsin's ongoing efforts to diversify its educator workforce.

Longer term, two big unknowns about the "leak" in the Wisconsin educator pipeline represented by EPP completers who work in neighboring states are (a) the specific reasons why this group of prospective educators elected not to work in Wisconsin public schools; and (b) whether any type of incentive program (financial or otherwise) might have persuaded them to remain in Wisconsin. When exploring reasons educators leave Wisconsin, deterrents to seeking employment in Wisconsin could be low pay (actual or perceived), unfavorable perceptions of working in Wisconsin compared to neighboring states, or other factors. We don't know a systematic way to assess these potential factors. Individual Wisconsin EPPs may be collecting this type of information anecdotally, but doing so in a more comprehensive and systematic manner (perhaps via a statewide survey and/or focus groups of EPP completers at all state EPPs prior to graduation) could be an informative and useful next step. When considering a potential program to retain prospective teachers, it may be worth considering a small-scale incentive program, perhaps targeted toward educators of color or those willing to work in a high-needs

school and/or in hard-to-staff subject areas. A program such as this would be implemented and evaluated for effectiveness as one potential way of “plugging the leak.”

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Appendix A

The NCES classifications and corresponding two-digit locale codes are as follows:

- City:
  - City – Large (code 11): Territory inside an Urbanized Area and inside a Principal City with population of 250,000 or more.
  - City – Midsize (code 12): Territory inside an Urbanized Area and inside a Principal City with population less than 250,000 and greater than or equal to 100,000.
  - City – Small (code 13): Territory inside an Urbanized Area and inside a Principal City with population less than 100,000.
- Suburban:
  - Suburban – Large (code 21): Territory outside a Principal City and inside an Urbanized Area with population of 250,000 or more.
  - Suburban – Midsize (code 22): Territory outside a Principal City and inside an Urbanized Area with population less than 250,000 and greater than or equal to 100,000.
  - Suburban – Small (code 23): Territory outside a Principal City and inside an Urbanized Area with population less than 100,000.
- Town:
  - Town – Fringe (code 31): Territory inside an Urban Cluster that is less than or equal to 10 miles from an Urbanized Area.
  - Town – Distant (code 32): Territory inside an Urban Cluster that is more than 10 miles and less than or equal to 35 miles from an Urbanized Area.
  - Town – Remote (code 33): Territory inside an Urban Cluster that is more than 35 miles from an Urbanized Area.
- Rural:
  - Rural – Fringe (code 41): Census-defined rural territory that is less than or equal to 5 miles from an Urbanized Area, as well as rural territory that is less than or equal to 2.5 miles from an Urban Cluster.
  - Rural – Distant (code 42): Census-defined rural territory that is more than 5 miles but less than or equal to 25 miles from an Urbanized Area, as well as rural territory that is more than 2.5 miles but less than or equal to 10 miles from an Urban Cluster.
  - Rural – Remote (code 43): Census-defined rural territory that is more than 25 miles from an Urbanized Area and also more than 10 miles from an Urban Cluster.