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English Language Learners and Their Postsecondary Education Outcomes:

Evidence from Arkansas

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Abstract

Nearly 10% of students enrolled in public schools in the U.S. are identified as English Language Learners (ELLs). The population of ELL students is expected to continue to rise, therefore research about ELLs is both timely and essential. An increasing body of literature addresses the experience and outcomes of ELLs in the context of both K-12 and postsecondary education. Most studies, however, focus on California, Texas, Florida, and New York (Aguilar, 2010; Callahan et al., 2023; Flores, Batalova & Fix, 2012) presenting a need for more research to make state-by-state comparisons especially from rural states that have become new destinations for many immigrant families. This study seeks to understand the postsecondary enrollment trends of ELL students in Arkansas. Using administrative data from the Arkansas Department of Education and the National Student Clearinghouse, we found that ELLs in Arkansas are less likely to attend postsecondary institutions compared to native English speakers. Results vary by urbanicity and socioeconomic status. Similar themes appear when analyzing the types of postsecondary institutions that ELLs enrolled in after high school graduation. We conclude our analysis by providing discussions and policy recommendations based on the results.

Keywords: English Language Learners; Immigrant students; Multilingual Learners; Postsecondary; Rural

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I. Introduction:

English Language Learners (ELLs) are students who participate in a language assistance program because English is not their first language. The aim of these programs is to help ensure students attain proficiency in the English language and meet academic achievement standards expected of all students (NCES, 2019). While close to three fourths of ELLs in the U.S. identify Spanish as their primary home language, the collective student population recognizes over 450 different home languages (Batalova et al., 2007; Kindler, 2002; Rios-Aguilar & Gándara, 2012a). As of 2019, approximately five million students were identified as ELLs (NCES, 2019). This equates to approximately 10% of the population of students enrolled in public schools in the U.S. With ELL enrollment projected to increase over time, research focusing on this substantial student population is both timely and essential.

A growing body of literature addresses the experiences and outcomes of ELLs in the context of K-12 education. Common topics include language acquisition, core academic outcomes, cultural challenges in learning, and other socio-cultural factors that impact students' literacy development (Callahan et al, 2010; Cheung & Slavin, 2012; Gutiérrez & Rogoff, 2003; Hakuta, 1983; Moll et al., 1992; Rueda & Goldenberg, 2007). The topic of Postsecondary Education (PSE) outcomes for ELLs, however, is still relatively under-researched (Kanno & Cromley, 2013; Kanno & Varghese, 2010; Roessingh & Douglas, 2012; Núñez et al., 2016; Varghese & Fuentes, 2020). Using national data following 8th grade students, Kanno & Cromley (2013) found that ELLs completed high school, enrolled in, and graduated from college at much lower rates than their peers. Additionally, their results showed that within two years of high school graduation, majority of non-ELLs enrolled in college while almost half of ELLs had not enrolled in college. Given that ELLs funding and policies differ by states, while most studies regarding ELLs only come from California, Texas, Florida, and New York, there

is an increasing need for evidence from other states (Aguilar, 2010; Callahan et al., 2023; Flores et al., 2012) especially from rural states that have become new destinations for many immigrant families. This study aims to bridge observed gaps in literature by examining postsecondary education outcomes for ELL students in Arkansas. Using recent data from Arkansas, we seek to understand the postsecondary college enrollment rate of ELL students using the following research questions:

RQ1: What are the overall postsecondary education enrollment rates for Arkansas high school graduates identified as English Language Learners?

RQ2: Are there differences in the type of postsecondary educational institutions that ELLs in Arkansas attend after high school graduation?

This research is limited to the state of Arkansas, and we argue that the results can provide additional understanding of ELLs and their postsecondary outcomes. Arkansas is among the ten states with the highest percent increase in the number of ELL students attending public schools (NCES, 2019). In addition, Arkansas has the second-highest high school graduation rate for ELLs nationally (National Clearinghouse of English Language Acquisition, 2017). Finally, this study factors in the urbanicity of high schools from which ELLs are graduating. Our results provide more nuanced understanding of ELLs college-going rates especially from rural areas.

We conducted the analysis for six independent cohorts to assess robustness and replication. In the following sections, we first present relevant literature, methodology, data, and sample selection. We then discuss our findings and provide policy suggestions from this study.

II. Literature Review

Studies Regarding English Language Learners

There is a growing amount of literature about ELLs in the US. It is presumed that this topic attracts the

attention of researchers because federal and state laws require all school districts to provide support services for this student group (Shin, 2018). A growing body of literature shows that there are significant gaps regarding academic outcomes between ELLs and non-ELL students. Outcomes include, but are not limited to, results of standardized testing and high-school graduation rates (Abedi, 2002; Aguilar, 2010; Abedi & Gándara, 2006; Abedi & Lord, 2001; Abedi et al., 1998; Flores et al., 2012; Hemphill & Vanneman, 2011; Young et al., 2008). In 2002, Abedi conducted research utilizing data about ELLs from various regions in the United States. Without controlling for prior achievement or parental education, results showed that ELLs generally perform lower than non-ELLs in mathematics, science, and English language arts. These results are consistent with other studies. Researchers have hypothesized that the difference in achievement scores is due to the students' language proficiency. The largest observed differences between ELLs' and non-ELLs' achievement scores are in reading and English language arts where language proficiency is a crucial component of what is being assessed. In contrast, in subjects where language proficiency has less impact, mathematics and science, the achievement gap between ELLs and non-ELLs is smaller (Abedi, 2002).

In addition to research on student achievement, studies have reported that ELLs tend to have more educational disadvantages than their non-ELL counterparts (Abedi, 2004; Gándara et al., 2003; Gutiérrez, 2005; Katz, 1999; Valdés, 1998, 2001; Wang & Goldschmidt, 1999). For instance, ELLs tend to have teachers with emergency teaching credentials (Gándara et al., 2003). This is antithetical to the assorted studies showing that teachers with strong professional preparation significantly contribute to students' learning and closing learning gaps (Darling-Hammond, 2002; Haycock, 1998; Sanders & Horn, 1995; Sanders & Rivers, 1996). Additional studies have shown that ELLs tend to have inequitable access to instructional curriculum and materials that may aid them in achieving content proficiency (Gándara et al., 2003; Parrish et al., 2002). Consequently, ELLs are likely to be exposed to less material than their peers which leads to acquiring fewer skills, and placement in lower

academic groups. Overall, these factors may lead to substantial academic disadvantages for this particular student group (Dreeben & Barr, 1983; Gamoran 1992; Oakes, 1985).

Researchers Kanno and Kangas (2014) elaborated on previous studies finding that ELLs have been historically limited in their curricular choices. Specifically, compared to students from higher socioeconomic status, ELLs have limited access to advanced placement courses (lower tracking pattern). As a result, students from low-income families, including ELLs, are typically placed on a lower tiered academic track, putting them at a significant risk of falling farther behind students of higher socioeconomic status. These results align with similar studies surrounding this topic (College Board, 2012; Finkelstein & Fong, 2008; Morita-Mullaney et al., 2020; Oakes, 2005; Yonezawa et al., 2002). Furthermore, Finkelstein & Fong (2008) found that teachers and counselors tended to steer ELLs away from taking high-track courses as a means of protection, believing that more advanced classes would have dense amounts of reading and writing that might present challenges for ELLs.

These disparities in instruction have contributed to several inequities in educational opportunities for ELLs. Without the same opportunities as their peers in high-track classes, ELLs may lose the opportunity to develop higher-order thinking skills that would aid them in the future. Furthermore, ELLs experience a significantly different classroom climate than their peers. For instance, teachers in low-track courses tend to spend substantial amounts of instruction time on classroom management which leads to limited time for direct instruction (Hallinan, 1994; Oakes, 2005). The difference in instruction could shape students' academic achievement outcomes in both the short- and long- term in regards to student achievement on standardized tests, high school completion, and college enrollment (Adelman, 2006; Cabrera & La Nasa, 2001; Long et al., 2012; Schneider et al., 1998).

English Language Learners and Postsecondary Education Outcomes

Some studies about ELLs argued that there is at least one important uncharted area of research: ELLs and their postsecondary education outcomes (Kanno & Cromley, 2015; Núñez et al., 2016; Wolf, et

al., 2008). Current research on this topic is primarily centered on applied linguistic studies (Harklau, 2000; Kanno, 2015; Kanno & Grosik, 2012; Kanno & Varghese, 2010; Leki, 2007) and not from the field of higher education. Núñez et al. (2016) have argued that there are several reasons why the scholarship around ELLs and their postsecondary education outcomes is still limited. First, Núñez et al. (2016) have stated that “the first and fundamental reason is that the classification of EL students is, at least in name, associated with particular legal rights and the reception of academic support services in the elementary and secondary education levels, but not at the higher education level” (p.44, 2016). Services provided to ELLs in public schools do not extend beyond K-12 into higher education. Secondly, like in the K-12 context, a student’s ELL status may change over the time they are enrolled in a postsecondary institution. Some students may achieve a higher level of language proficiency as they progress in their studies. Finally, the availability of data limits the ability to analyze ELLs’ postsecondary education outcomes and trends. In longitudinal federal datasets, there are only limited information about ELLs while data gathered at the state- and district- level typically contain more the specific information needed for analyses.

Prior research on the postsecondary education outcomes of ELL students using federal longitudinal datasets and state-level datasets typically focused on states that have larger populations of ELLs. The studies consistently find that ELLs enroll in college and attain college degrees at much lower rates than their non-ELL counterparts. In 2013, Kanno & Cromley conducted a study using data from the Educational Longitudinal Study of 2002 (ELS: 2002). The results showed that only 19% of ELLs enrolled at 4-year colleges within two years of high school graduation, compared to about 45% of native English speakers (Kanno & Cromley, 2015). ELLs who enroll in college typically attend less selective institutions than non-ELLs. Nuñez & Sparks (2012) found that ELLs who have achieved proficiency in English tend to attend more selective four- year institutions, whereas ELLs who have not achieved proficiency are more likely to attend community colleges or other two-year institutions (Nuñez

& Sparks, 2012). Núñez et al. hypothesized in a later study that ELLs are more likely to enroll in community colleges for reasons such as the school having an open admission policy or because they are more affordable (Núñez et al., 2016).

Qualitative studies have shown that ELLs face major barriers that threaten their persistence in community college including financial distress, family obligations, and maintaining full-time employment (Almon, 2010; Almon, 2015). Other studies conclude that ELLs with more academic and economic resources tend to advance to four-year institutions at higher rates than ELLs with limited resources (Kanno & Grosik, 2012; Kanno & Varghese, 2010). Conversely, several studies have shown that ELLs have better outcomes for postsecondary persistence and completion (Arellano, 2011; DeAngelo et al., 2011). While the reason for the positive association is unclear, researchers postulate that the cause is the concept of “immigrant optimism,” or the practice of immigrant parents emphasizing the importance of academic success for their first-generation immigrant children (Kao & Tienda, 1995).

English Language Learners in Rural Contexts: A Case from Arkansas

Many studies of postsecondary education rates of ELLs focus on states with large populations or from nationally representative data. There is virtually no research that explores this topic concentrating on more rural areas. This observed gap in the research could be explained by the fact that less than 5% of ELLs in the U.S. attend schools in rural areas while over 60% of ELLs attend schools in urban areas (Digest of Education Statistics, 2015). In the past decade, however, there has been an increase of ELLs in more rural areas. South Carolina, Kentucky, and Nevada all reported drastic changes in the number of ELL students enrolled in their schools that range from increases of 255-610% (Horsford & Sampson, 2013). Rural areas are experiencing a rapid influx of racial and ethnic diversity in their student populations (Reed, 2010). Consequently, rural area school districts might

be rethinking how to provide better multicultural educational services to best support ELLs. There has been a call for more collaborative research to be done with schools, parents, and communities to help provide more support for these students (Shim, 2013; Wringley, 2000).

According to NCES data (2019) Arkansas is one of the southern states that has recently experienced an influx of ELLs. While the number of Arkansas ELLs is still below the national average, there are growing numbers of ELL students in public schools across Arkansas. An Arkansas Categorical Funding report from 2019 states that the total ELL enrollment in public schools rose by roughly 34% between 2011 and 2017. This equates to approximately 10,000 additional ELLs enrolled in Arkansas public schools. While there have been research regarding ELLs in the context of the state of Arkansas, most studies relate to how categorical funding for ELLs impacts students' educational attainment (Arkansas Bureau of Legislative research, 2020). We found no studies that examined postsecondary education enrollment rates for Arkansas's ELL high school graduates.

III. Theoretical Framework

Bourdieu's Theory of Social Reproduction

The foundation for our theoretical framework draws upon Bourdieu's theory of social reproduction (1977a, 1986). This theory identifies four main concepts that shape individuals' opportunities including *field*, *habitus*, *practice*, and *capital*. Individuals will utilize their resources to advance their opportunities (McDonough et al., 2000). *Field* is defined as where individuals compete for opportunities. *Habitus* are orientations or dispositions that individuals develop over time based on their interactions in family setting, school settings, or past experiences that they draw upon and use in attain opportunities (Bourdieu, 1977a; McDonough et al., 2000). *Practices* are strategies that individuals utilize to access resource for advancement of educational opportunities. *Capital* refers to tangible and intangible resources needed for advancement including, but not limited to, academic

preparation, economic wealth, language proficiency, cultural and social capital. *Capital* is used to identify which resources are highly valued for educational advancement (Bourdieu, 1977a; McDonough & Núñez, 2007; McDonough et al., 2000).

Bourdieu posited that educational institutions have a significant role in developing social hierarchy by creating conditions that facilitate the success of students from higher classes. These students seek a school setting that shares the values and cultures of their home. This choice ultimately leads to students adjusting, thriving, and succeeding in their environment. Conversely, students from low socioeconomic backgrounds might be presented with more barriers in aligning their values, experience, and cultures to that of a school. As a result, these students find it more challenging to navigate in a new setting or achieve academic success than their counterparts. More advantaged students can leverage the resources available to them to gain academic success (educational capital), which leads to economic capital (financial wealth), social capital (social network and influence), and symbolic capital (professional status in society) (Bourdieu, 1977a; McDonough et al., 2000; McDonough & Núñez, 2007; Swail, 2000).

Since postsecondary education in the U.S. is not a guaranteed right for all students, higher education is a perfect representation of a system that operates under Bourdieu's framework of an unequal distribution of opportunity with more privileged individuals having the upper hand in maintaining the status quo. For example, parents who attended college can provide their children with support navigating the college admission process, college preparatory programs, and financial aid (Chou, 2001; Kano & Crowley, 2013). In contrast, less privileged students might endure more barriers to achieve similar education capital as their peers.

This inequality also applies to the context of ELL students. ELLs are generally first-generation college students. ELL students arguably enter this competition with disadvantages that could include lack of capital ranging from language proficiency to financial resources (Kanno & Cromley, 2013;

Choy, 2001). The disadvantages could play a significant role in an ELL students' college access and attainment. In the context of this theoretical framework, ELLs are classified as having significant barriers. However, it is imperative to acknowledge that these students possess other forms of capital that their counterparts do not have including multilingualism, adaptability, and cultural awareness (Kanno & Cromley, 2013). While important, these capitals are not the essential capitals that may aid in academic success, particularly in the higher education system in the U.S.

IV. Empirical Approach

This study examines the following research questions:

1. What are the overall postsecondary education enrollment rates for Arkansas students identified as English Language Learners?
2. Are there differences in the type of postsecondary educational institutions that ELLs in Arkansas attend after high school graduation?

Drawing from prior research, we hypothesize that ELLs in Arkansas enroll in college at lower rates than Arkansas high school graduates whose primary home language is English. Additionally, we hypothesize that ELLs in Arkansas will be more likely to enroll in 2- year community colleges than 4- year institutions. We also predict that ELLs in Arkansas will be more likely to attend in-state institutions rather than out-of-state institutions.

Data and Sample

This study is descriptive in nature; it does not reveal what causes the difference in ELL college going rates, but rather identifies trends in the college-going rates for Arkansas' ELLs. To empirically test our hypotheses, we examine anonymized student data from the Arkansas Department of Education, National Student Clearinghouse (NCS), and the US Census Tract. NCS data was used to identify the

college-going trends for ELLs and non-ELLs in Arkansas. US Census Tract data was used as an identifier for urbanicity. Our sample of over 180,000 students consists of six independent cohorts of students who graduated from a public high school in Arkansas from the 2013-14 academic year through the 2018-19 academic year. Cohort 1 refers to students who graduated high school in the spring 2013-2014 academic year, and cohort 6 refers to students who graduated high school in the 2018-2019 academic year. An overview of cohort distribution by grade and academic year is presented in Table 1.

Administrative data gathered from the Arkansas Department of Education (ADE) contains student demographic information including gender, race, ELL status, special education status, and participation in free or reduced-priced lunch (FRL), a proxy for low socioeconomic status. The ADE data also contained achievement scores from the ACT Aspire assessment in 10th grade for cohorts 5-6 and the Partnership for Assessment of Readiness for College and Careers (PARCC), a state-issued standardized test in Arkansas which we only have information for cohort 4. Both ACT Aspire and the PARCC test students in Math and English Language Arts (ELA) and these standardized data were used in an additional subgroup analysis of the most recent three cohorts to control for students' prior achievement. NSC data encompasses students' college-going data including the following indicators about the college: 2-year or 4-year, in-state or out-of-state, and public or private. We merged NCS data into the administrative data from the Arkansas Department of Education using an anonymized unique student identifier. We then merged the US Census Tract data with the previously mentioned data sets to identify if the high school from which students graduated was in a rural or urban setting. In our analyses, we classified ELL status if the student had been identified as ELL in any grade from 6th–12th. This decision was chosen based on the Arkansas Department of Education estimates for how long a student should receive ELL services before becoming proficient (Arkansas Bureau of Legislative Research, 2020). The benchmarks range from 3-8 years depending on the student's initial proficiency level and the grade level at initial placement. We selected 6th grade as our cutoff to encompass a greater

range of students who received ELL services. We used a one-year cutoff after high school graduation to categorize postsecondary enrollment. The final analytical sample includes over 182,000 individual observations over the six cohorts. Descriptive statistics of the total analytical sample as well as individual cohorts are presented in Table 2.

Across the six cohorts, about 7% of Arkansas graduates were identified as ELL. The primary explanatory variable of ELL status is a binary indicator that takes the value of 1 if the student was identified as ELL and 0 if otherwise. We define a student as an ELL if they were identified and received language services from their school at any year from 6th grade to high school graduation. There is an even split between male and female students. Approximately 51% of students in our sample qualify for FRL. Additionally, roughly two-thirds of the students in the sample are white (65%). Only about 7% of the students in the sample are categorized as receiving special education services. About 42% of students attended high schools in rural areas and about 58% of students attended urban districts. We defined urban as school districts that are located in city or suburban areas while we defined rural as town and rural areas in Arkansas based the US Census Bureau. The Census Bureau identifies two types of areas: urbanized areas of 2500 people (city & sub-urban) and rural areas with less than 2500 people having less population than those two categorizations (US Census Bureau, 2010).

Postsecondary enrollment outcome variables are also presented in Table 2. On average, approximately 56% of Arkansas students from the analytical sample attended postsecondary education institutions the year following high school graduation with 36% enrolling in a 4-year university and 20% enrolling in 2-year community colleges or vocational-technical schools. Nearly half of the overall sample continued their education at in-state and public institutions, while a small portion of Arkansas graduates pursued postsecondary education at out-of-state institutions (6%) or at a private institution (5%). When limiting the sample to students who enrolled in a postsecondary education institution, 89%

of students enrolled at schools in Arkansas and 11% of students enrolled at schools out of state. Of those that enrolled in a postsecondary institution, 90% of enrolled in public institutions and 10% enrolled in private institutions. These trends are consistent across all six cohorts.

Methodology

To empirically test our first hypothesis, we employ a simplified version of the logit models in our analyses that is represented by the following regression model:

$$\Pr(Y_{it}) = \Lambda(\beta_0 + \beta_1 ELL_i + X_{it} + \mu_t + \varepsilon_{it})$$

Subscript i is an individual student in Arkansas in year t . Y indicates whether student i enrolls in a postsecondary institution one year prior to high school graduation. ELL_i is a binary indicator variable that takes the value of 1 if student i was ever classified as an ELL student in grade 6-12 and 0 if otherwise. Matrix X_{it} represents demographic characteristics of student i in year t . Finally, μ_t represents year fixed effects. We employ three different models for each outcome of interest. First, we regress ELL status on the outcome variable without controlling for covariates. In the second, we control for a matrix of covariates X_{it} that includes student gender, socio-economic status (FRL status), and special education status, as well as school urbanicity. Specifically, the variable *rural* takes value 1 if school districts are located in either rural or town areas and takes value 0 if they are in city or suburban areas. The final model is the same as the second model but with additional controls for students' prior ACT Aspire and PARCC scores in Math and ELA in grade 10. Each model controlled for year fixed effects to account for variation in each academic year (μ_t). Lastly, ε_{it} is the error term capturing unobserved differences. For the outcome of college enrollment rates, we have conducted a pooled analysis with the overall sample, individual analyses for all six cohorts and a subgroup analysis using the last three cohorts with achievement scores.

For the second research question, we utilize a multinomial logit model that follows this

following model:

$$P(Y_{it} = j|X_{it}) = \frac{\exp(\beta_j' X_{it})}{\sum_{l=1}^6 \exp(\beta_l' X_{it})} \quad j = \begin{cases} 4 - year \\ 2 - year \\ In\ state \\ Out\ of\ state \\ Public \\ Private \end{cases}$$

For each of the specifications, we control for the same sets of demographic characteristics represented by X_{it} and year fixed effects (μ_t) from previous logit model. The baseline category for each of the six comparison categories are students who graduated high school but did not enroll in any postsecondary institutions. All estimates from the logit and multinomial logit analyses are reported as marginal effects for ease of interpretation.

V. Results

Results from the pooled analysis are presented in Table 3. We find consistent significant results that when compared to native English speakers, ELLs are associated with a lower likelihood of enrolling in any postsecondary institutions in the year following high school graduation. The results from the most simplistic model presented in Column 1 returned estimates that ELLs in Arkansas, on average, are 18 percentage points less likely to enroll in any postsecondary institution compared to their non-ELL peers. After including additional controls for student demographics and year-fixed effects, this estimate decreased slightly to 11 percentage points (Column 2). The third model includes two interaction terms between ELLs and the urbanicity (*rural*) of their high school and ELLs and free and reduced-priced lunch status. Interaction terms were included to identify the heterogeneous differences among ELLs by urbanicity and socio-economic status. The estimates returned show that ELLs who graduated from a high school in rural areas are more likely to enroll in college by approximately nine percentage points compared to ELLs in urban or suburban areas. This estimate was

calculated by adding the beta coefficient for “*Rural*” variable and for the interaction term (*ELL x Rural*). A greater difference is observed when making the same comparison for ELLs and native English speakers in urban settings. Compared to native English speakers, ELLs who graduated from high schools in urban settings (city and suburban school districts) are 25 percentage points less likely to enroll in any postsecondary institution. This estimate is represented by the *ELL* variable. Similar trends are found when examining the heterogeneous effects of being ELLs by socio-economic status (FRL status). ELL students who qualify for FRL are associated with a lower likelihood of enrolling in any postsecondary institution by four percentage points compared to ELLs from a more economically advantaged background. This estimate is statistically significant at the 99% level of confidence. When comparing native English speakers and ELLs who both qualify for FRL, the estimates return results showing that on average, ELLs are about eight percentage points less likely to enroll in any postsecondary institution. The results presented in Table 3 provides a consistent story about postsecondary enrollment gap among ELLs in Arkansas especially across urbanicity and socio-economic status.

The results from the pooled analysis presented in Table 3, however, do not control for individual students’ academic achievement. Studies have documented the importance of prior achievement to capture unobserved measures about students (Chetty et al., 2016). The state of Arkansas launched one-year standardized testing of PARCC assessment for grade 10 in 2014 and then adopted ACT Aspire for the same grade from 2015-16 onward in mathematics and ELA. Therefore, we conducted a separate subgroup analysis for the most recent three cohorts (Cohorts 4-6), where we can control for prior achievement using 10th-grade achievement scores. We do not run the same analyses for the first three cohorts because we do not have information about students’ prior achievements. This analysis follows the same analytical strategies employed for the pooled analysis. The scores were standardized by cohort for ease of interpretation. Students that did not have 10th grade

test scores were omitted from the sample.

The results from the subgroup analyses are presented in Table 4. Columns labeled 1 display results by cohort where controls include ELL status, gender, FRL status, SPED status, an indicator for high school urbanicity (*rural*), and interaction terms for ELL status and FRL and ELL status and high school urbanicity. Columns labeled 2 display results where additional controls are added for students' prior academic achievement. The results differ from the pooled analysis, with individual prior achievement becoming a significant factor predicting ELLs' lower likelihood of enrolling in a postsecondary institution. We still observe in the estimates returned that ELLs are associated with a lower likelihood of attending postsecondary institutions. When the same analysis includes controls for lagged standardized test scores, the estimates in each cohort decreased from 18 to 13 percentage points, indicating that student achievement is also a significant factor predicting the likelihood of ELLs' postsecondary education. We conducted a Likelihood Ratio Test to test whether adding mathematics and English language arts (ELA) achievement improved our model fit. From this robustness check, we found that adding these achievement variables indeed improved the model fit. Moreover, these results in Table 4 indicate that students' math and ELA achievement, not only their ELL status are also significant factors predicting the observed gap in ELLs and native English speakers' postsecondary enrollment rates. For Cohort 5 (Column 2), a one standard deviation increase in a student's math and ELA scores are associated with an increase of eight and twelve percent of standard deviations, respectively, in the likelihood of enrolling in a postsecondary institution after high school. The consistent and statistically significant results presented lead to a conclusion that 10th grade ELA scores are a stronger predictor of postsecondary enrollment than 10th grade math scores.

We also found consistent results for the likelihood of ELLs enrolling in a postsecondary institution across socioeconomic status indicators. Specifically, ELLs from lower-SES households have a three to six percentage point lower likelihood of enrolling in any postsecondary institution compared

to ELLs in high-SES households. These estimates are found by adding the *FRL* coefficient and its interaction term (*ELL x FRL*). We observe a similar trend in which ELLs from rural schools are associated with higher likelihood of attending any postsecondary institutions than ELLs in more urban settings by about 13 to 15 percentage points only for cohort 4 and 5. These estimates can be gained by adding the *Rural* and *ELL x Rural* variables.

Our final analysis employed a multinomial-logit model to better understand heterogeneous effects of ELLs attending different types of postsecondary institutions. Based on our previous analyses, we know that achievement is a strong and significant predictor that improves the fitness of the model. Therefore, the final analyses are restricted to students in Cohorts 4-6 with recorded achievement scores. The results are presented in Table 5.

The estimates presented in Table 5 returned several significant results. First, when focusing on ELLs who graduated from high schools in urban areas, the results show that holding all else equal, ELLs are associated with a 15 percentage points lower likelihood of enrolling in a university compared to native English speakers (Column 1). Second, when ELLs were compared across urbanicity, ELLs in rural areas are more likely to attend university than ELLs in urban settings by about eight percentage points (Column 1). Third, ELLs who participated in the FRL program are about six percentage points less likely to attend university than ELLs who did not participate in the FRL program. Conversely, all else equal, we observe a higher likelihood for ELLs in this setting to attend community college by about six percentage points and across urbanicity, ELLs in rural areas are associated with a higher likelihood than ELLs in urban areas to attend community college by about three percentage points (Column 2). On the contrary, we observe opposite patterns among low-income ELLs enrolling in other types of institutions. On average, low-income ELLs are associated with lower likelihoods of attending in-state, public and private institutions by about three, two and four percentage points compared to ELL from high-SES households, respectively. We do not observe significant results for out-of-state institutions.

Finally, we observed consistent significant results that individual students' standardized ELA testing and ACT Aspire scores in the 10th grade are significant predictors of their postsecondary enrollment. To test for robustness, we executed a Wald test to see if the addition of the interaction terms improves our models. The Wald test showed that the inclusion of the interaction terms (*ELL x FRL* and *ELL x Rural*) significantly improved the fit of the model.

VI. Conclusion and Discussion

This study examined the college-going rates of students identified as English Language Learners in Arkansas. The sample included six cohorts of high school students that graduated from 2014 – 2019. The outcomes of interest were postsecondary enrollment rates overall and categorized by different types of postsecondary institutions. This study consisted of a pooled analysis including all six cohorts and a subgroup analysis of three cohorts of students who took the state-required standardized tests in 10th grade. While this study does not provide any causal associations between ELL and the rates at which they enroll in postsecondary education, it provides valuable information to stakeholders such as parents, school building leaders, teachers, state policy makers, and education researchers.

Research Question 1

We found consistent and significant results from both the pooled and cohort analyses in regard to the overall postsecondary education enrollment rates for Arkansas students identified as English Language Learners. The overall results showed that ELLs in Arkansas are eighteen to twenty-five percentage points less likely to enroll in postsecondary institutions compared to native English speakers. Variation in the estimates returned can be linked to the addition of controls for the urbanicity of a student's high school. Our results align with previous studies related to national trends of ELLs and their postsecondary outcomes (Kanno & Cromley, 2013; Kanno & Cromley, 2015; Nuñez & Sparks, 2012). In addition, we also found that ELL's academic achievement and socioeconomic status

significantly contribute to the likelihood of them enrolling in a postsecondary institution one year after high school graduation. ELLs who qualify for FRL have a lower likelihood of attending any postsecondary institution compared to high-SES ELLs or low-income native English speakers. On the other hand, comparing ELLs by urbanicity, ELLs in rural areas are associated with a higher likelihood to attend any postsecondary institutions than ELLs in urban areas.

Research Question 2

Our second research question in this study asked if there were differences in the type of postsecondary educational institutions that ELLs in Arkansas attend after high school graduation. This research question had an additional control for prior student achievement. Compared with ELLs in rural Arkansas, ELLs from urban areas are associated with a lower likelihood of attending university but they are more likely to enroll in a 2-year programs at a community college or technical school. Moreover, we observe consistent patterns among ELLs across socioeconomic status in which in which low-income ELLs attend any type of postsecondary institutions in much lower rates than high-income ELLs. These results reinforced the idea that poverty is a strong determinant of college going. Lastly, we also found that students with higher achievement were more likely to attend a university and less likely to attend community colleges and these results are consistent across different types of postsecondary institutions.

Theoretical Framework Discussion:

Bourdieu's social reproduction framework (1977a, 1986) offers possible explanations for these results. ELLs have less significant social capital in navigating postsecondary education than their counterparts. Unlike some of their peers, first-generation ELLs generally do not have substantial support from their parents in navigating the postsecondary education setting. Studies have documented that parental support is a significant contributing factor driving the gap between ELLs and their

counterparts, especially in their access to higher education (Kanno & Cromley, 2013). Non- first-generation college going students will have an advantageous start to their post-secondary career because of a parent's familiarity with the complexities of the higher education system (Choy, 2001; Kanno & Cromley, 2013). ELLs typically navigate this setting by themselves. Additionally, since 4-year institutions emphasize the importance of a competitive academic background and financial resources, it is understandable that accessing higher education will be an easier task for students with greater social capital. Studies have consistently shown persistent trends of course-tracking in high schools that put students from higher SES on higher tiered academic tracks than students from low-income families or ELLs (College Board, 2012; Finkelstein & Fong, 2008; Kanno & Kangas, 2014; Oakes, 2005; Yonezawa et al., 2002). The differences in academic tracks may have substantial long-term outcomes that increase the disparities that marginalized student groups. ELL students could be excluded from classes that train students to develop higher order thinking skills that could be beneficial in a higher education setting.

The results reveal that ELLs are more likely to enroll in a community college than a 4-year institution. This result is similar to other studies that have found that community colleges are more accessible for immigrant students (Nuñez and Sparks; 2012; Núñez et al., 2016; Almon, 2010, 2015). Community colleges attracts more ELLs than university because they are more affordable and have open admission policies. Since ELLs have a lack of social and financial capital, community colleges offer students an opportunity to continue their education in a more affordable and flexible way. Class schedules at these institutions are typically more flexible and allow students to work while pursuing a degree. Additionally, the community college transfer pipeline also provides options for students to transfer credits to a four-year institution.

When examining the results through the lens of urbanicity of ELL students, we found that ELLs in rural areas are more likely to attend any postsecondary institution than ELLs in urban areas. While

this result could be influenced by the definition of the US Census Bureau’s classification of urban and rural, the result could also be tied to the idea of “immigrant optimism” by Kao & Tienda (1995). Studies indicate a significant influx of immigrant migration to rural areas for economic opportunities (Reed, 2010). Students with this family structure tend to be taught the importance of academic success, expectations, and academic-related values. This theory posits that education is the way out of poverty, therefore, it strongly influences immigrant students to pursue higher education. With arguable limited economic opportunities compared to urban areas, immigrant optimism in rural areas could lead to an increase in college-going rates for ELLs (Bahena, 2020; Fuligni, 2012; Kirui & Kao, 2018).

Limitations and Implications:

We acknowledge several limitations to this study. First, although this research is arguably one of the first attempts to analyze post-secondary education trends of ELLs in Arkansas, the evidence provided through the analyses cannot establish a causal relationship. Secondly, we recognize that our assigned categorization of ELL students could be considered broad. Our analysis identified a student as an ELL if they were identified by their school at any point from the 6th – 12th grade. Some students may not have an ELLs classification by the time they graduate but were still considered in the study due to past classification. Furthermore, our analysis focused on college-going rates the year after to high school graduation. Some studies with similar topics use a broader window for post-secondary enrollment. Kanno & Cromley (2013) use a 2-year window after high school graduation for their postsecondary enrollment measure. Future quantitative and qualitative research surrounding this topic could reveal more targeted information that could be beneficial for ELLs.

We draw several implications from the findings of this study. First, there should be more targeted programs and interventions regarding college-going for ELLs at the school level. These programs could be introduced as early as elementary or middle school. Since ELLs lack social capital, the school can be

a significant entity that cultivates the awareness and importance of attending college. Studies have documented that if students attend high school with high aspirations of college, they will be more likely to apply (Cabrera & La Nasa, 2001). In later years, interventions could include more information about the financial aid system. Secondly, since achievement appeared to be the largest driver in the difference in results, it is important that school use targeted interventions for students who are not at content area proficiency. This would be beneficial not only for students qualifying for ELL services, but also students who are consistently scoring below grade level on end of year assessments. Thirdly, there is evidence from Arkansas that ELLs attending high school in rural areas are slightly more likely to attend postsecondary institutions than ELLs attending high schools in urban contexts. Arguably, there are more options for students to choose from after high school graduation in urban areas than in rural Arkansas. ELLs in urban areas can either continue their higher education or help their family financially by working. On the contrary, in order to financially help their families in long term, attending any postsecondary institutions might be the only way out. Given the complexity of higher education system might prevent these first-generation students in rural areas to attend or even apply for college, it is really important we start thinking about targeted ways to familiarize these students with this issue. Studies have found if students were exposed from a young age about the importance of college, they will be more likely to attend college than those who do not have any exposure (Kanno & Cromley, 2013; Kanno & Cromley, 2015; Nuñez & Sparks, 2012). Helping ELLs in rural areas which are also first-generation students to understand the complexity of current postsecondary financial aid systems since early years in high school might be something that would help ELL students successfully enroll in college.

Finally, there are many potential areas for future research regarding ELLs in Arkansas. Future studies should explore course-taking pattern of ELLs throughout their K-12 education. With universities favoring students who took Advanced Placement courses in high school coupled with the fact that academic achievement is a significant predictor of college-going, this topic is important and should be

explored further. Since socio-economic status has a significant role in ELLs college going rates, we also propose that the topics of ELLs family composition, educational expectations or college aspirations, any other non-cognitive skills and their postsecondary outcomes areas needing further exploration. Finally, with a current influx of immigrants moving from urban areas to rural areas, there is a need for additional research exploring outcomes of rural ELLs. These studies could provide additional information to a complex system in the public education system in Arkansas and the United States in general.

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Table 1
Cohort Grade by Academic Year

School Year	Cohort 1	Cohort 2	Cohort 3	Cohort 4	Cohort 5	Cohort 6
2007-08	6 th					
2008-09	7 th	6 th				
2009-10	8 th	7 th	6 th			
2010-11	9 th	8 th	7 th	6 th		
2011-12	10 th	9 th	8 th	7 th	6 th	
2012-13	11 th	10 th	9 th	8 th	7 th	6 th
2013-14	12 th	11 th	10 th	9 th	8 th	7 th
2014-15		12 th	11 th	10 th	9 th	8 th
2015-16			12 th	11 th	10 th	9 th
2016-17				12 th	11 th	10 th
2017-18					12 th	11 th
2018-19						12 th

Table 2
Descriptive Statistics of Cohorts

	Total	Cohort 1	Cohort 2	Cohort 3	Cohort 4	Cohort 5	Cohort 6
	182,137	27,746	29,803	30,126	31,402	32,551	30,509
Demographic Descriptive Statistics							
% ELL	7.36	6.03	6.28	6.84	7.62	8.28	08.86
% Female	49.64	49.84	49.37	49.81	49.47	49.66	49.70
% FRL	51.20	48.76	49.25	51.42	52.19	52.71	52.48
% White	64.63	66.51	65.64	64.25	64.73	63.52	63.39
% SPED	6.87	6.62	6.19	5.98	6.30	6.01	10.17
% Rural	42.05	42.89	42.84	42.15	42.17	41.31	41.08
Outcome Variable Statistics							
% PSE Enrollment	56.00	59.93	58.86	59.06	56.60	49.56	52.82
% University (4-year)	35.90	37.31	37.86	38.06	36.36	32.29	33.91
% Community College (2-year)	20.10	22.62	21.00	21.00	20.24	17.27	18.91
% In-state	49.65	53.59	52.58	52.57	49.98	43.61	46.45
% Out-of-State	6.33	6.33	6.27	6.47	6.61	5.95	6.37
% Public	50.63	54.99	53.73	53.42	50.82	44.55	47.18
% Private	5.36	4.94	5.13	5.64	5.78	5.02	5.64

Table 3*Pooled Analysis Results from Postsecondary Enrollment Logit Model, Cohorts 1-6 (N=182,137)*

	(1) PSE Enrollment	(2) PSE Enrollment	(3) PSE Enrollment
ELL	-0.18*** (0.02)	-0.11*** (0.02)	-0.25*** (0.02)
Female		0.13*** (0.00)	0.13*** (0.00)
Rural		0.02** (0.01)	0.02** (0.01)
ELL x Rural			0.07*** (0.02)
FRL		-0.20*** (0.01)	-0.21*** (0.01)
ELL x FRL			0.17*** (0.02)
SPED		-0.37*** (0.01)	-0.37*** (0.01)
Pseudo R2	0.00	0.09	0.09
Year fixed effects	No	Yes	Yes

Standard errors in parentheses and are clustered in district level

*** p<0.01, ** p<0.05, * p<0.1

Table 4*Post-Secondary Enrollment Results from Logit Model, Subgroup Analysis Cohorts 4-6*

	Cohort 4		Cohort 5		Cohort 6	
	(1)	(2)	(1)	(2)	(1)	(2)
ELL	-0.18*** (0.03)	-0.13*** (0.03)	-0.22*** (0.03)	-0.11*** (0.03)	-0.10*** (0.02)	-0.03* (0.02)
Female	0.15*** (0.01)	-0.10*** (0.01)	0.12*** (0.01)	0.08*** (0.01)	0.13*** (0.01)	0.10*** (0.01)
Rural	0.03* (0.02)	0.05*** (0.02)	0.00 (0.01)	0.01 (0.01)	0.00 (0.01)	0.02 (0.02)
ELL x Rural	0.09** (0.04)	0.10*** (0.03)	0.12*** (0.03)	0.12*** (0.02)	0.01 (0.05)	0.03 (0.04)
FRL	-0.18*** (0.01)	-0.12*** (0.01)	-0.20*** (0.01)	-0.10*** (0.01)	-0.18*** (0.01)	-0.08*** (0.01)
ELL x FRL	0.12*** (0.03)	0.09*** (0.03)	0.13*** (0.04)	0.06* (0.03)	0.07** (0.03)	0.02 (0.02)
SPED	-0.24*** (0.04)	-0.11*** (0.04)	-0.33*** (0.04)	-0.07* (0.04)	-0.27*** (0.03)	-0.04 (0.03)
Math Achievement		0.03*** (0.00)		0.08*** (0.00)		0.08*** (0.01)
ELA Achievement		0.37*** (0.02)		0.12*** (0.01)		0.11*** (0.01)
Pseudo R2	0.05	0.10	0.05	0.14	0.04	0.13
<i>Observations</i>	<i>18,928</i>	<i>18,928</i>	<i>26,451</i>	<i>26,451</i>	<i>24,777</i>	<i>24,777</i>

Standard errors in parentheses and are clustered in district level

*** p<0.01, ** p<0.05, * p<0.1

Table 5*Subgroup Analysis Results from Multinomial Logit Model, Cohorts 4-6 (N=70,156)*

	(1) University	(2) Community College	(3) Out-of-State Institutions	(4) In-State Institutions	(5) Public Institutions	(6) Private Institutions
ELL	-0.15*** (0.04)	0.06** (0.03)	-0.03** (0.01)	-0.07*** (0.02)	-0.07*** (0.02)	-0.02** (0.01)
Female	0.05*** (0.00)	0.05*** (0.00)	0.01** (0.00)	0.09*** (0.01)	0.09*** (0.01)	0.01*** (0.00)
Rural	-0.06*** (0.02)	0.09*** (0.02)	-0.04*** (0.01)	0.06*** (0.01)	0.04*** (0.01)	-0.01** (0.00)
ELL x Rural	0.14** (0.06)	-0.06 (0.05)	0.03** (0.01)	0.04 (0.03)	0.04* (0.02)	0.04*** (0.01)
FRL	-0.08*** (0.01)	-0.02*** (0.01)	-0.01** (0.00)	-0.09*** (0.01)	-0.10*** (0.01)	-0.01* (0.00)
ELL x FRL	0.02 (0.03)	0.03 (0.03)	-0.01 (0.01)	0.06*** (0.02)	0.08*** (0.02)	-0.03*** (0.01)
Special Education	-0.08*** (0.03)	-0.03 (0.02)	-0.01 (0.01)	-0.09*** (0.03)	-0.11*** (0.02)	-0.03*** (0.00)
Math Achievement	0.08*** (0.00)	-0.02*** (0.00)	0.02*** (0.00)	0.04*** (0.00)	0.05*** (0.00)	0.02* (0.01)
ELA Achievement	0.14*** (0.00)	-0.01* (0.00)	0.02*** (0.00)	0.12*** (0.00)	0.11*** (0.00)	0.03*** (0.00)
Pseudo R2	0.11	0.11	0.10	0.10	0.10	0.10
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Baseline outcome is “No enrollment to any post-secondary institution.” Standard errors in parentheses and are clustered in district level. *** p<0.01, ** p<0.05, * p<0.1