

**PROGRAMS FOR LIMITED ENGLISH PROFICIENT STUDENTS IN THE U.S.
AND ACADEMIC ACHIEVEMENT**

Evidence from the National Education Longitudinal Study of 1988

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ABSTRACT

During the last two decades there has been a steady and sizeable rise in the number of students identified as limited English proficient in the U.S. school system. Schools have responded by instituting a variety of English language assistance programs with the primary objective of improving the English language skills of non-English speaking students while keeping students progressing academically in other subjects. Social scientists have long recognized that English proficiency is an important determinant of success in the labor market. Using data from the National Education Longitudinal Survey of 1988, and identifying an appropriate treatment and comparison sample, this paper examines the impact of English language assistance programs on English proficiency, academic achievement in mathematics, science, U.S. history and reading, and academic progress in school. Findings suggest that participation in these programs may not necessarily result in higher student achievement.

I. INTRODUCTION

During the last two decades there has been a steady and sizeable rise in the number of students identified as limited English proficient (LEP) in the U.S. school system. Schools have responded by instituting a variety of English language assistance programs with the primary objective of improving the English language skills of non-English speaking students while keeping students progressing academically in other subjects.¹ In 1991 between two and three billion dollars were spent on special language services for the 2.5 million identified LEP students then in U.S. schools (ALEC Foundation 1994, Youngblood 1995). However, despite widespread agreement on the goal of improving English proficiency among LEP students, there is considerable disagreement over whether ENGLISH LANGUAGE ASSISTANCE programs, such as bilingual education, help achieve that goal, or whether they slow down the acquisition of English language skills and the educational progress of students (Rossell and Baker 1996, Krashen 1996, Greene 1998).

Part of this disagreement stems from a lack of reliable evidence on the effectiveness of these programs. However, the relative success of programs is to some extent a function of the background characteristics of students. To a large extent, LEP students are drawn from a relatively disadvantaged background relative to non-LEP students. Hence language ability is often associated with measures of disadvantagedness. For example, evidence from the Department of Education suggests that LEP students are less likely to be at an age-appropriate grade level than non-LEP students; among LEP high school students 27 percent are two or more years below their age appropriate grade level versus 11 percent for all other students; among LEP middle school students, 19 percent are two or more years below their age appropriate grade level versus 9 percent for all other students. Further, bilingual education students are more likely to be from disadvantaged families than their peers (U.S. Department of Education 1993). Evidence from the

¹ The term "English language assistance programs" consists of a wide variety of programs, including English as Second Language (ESL) programs, bilingual education programs, native language instruction programs, structured English immersion programs, and Bilingual-Bicultural programs.

Current Population Survey (CPS) suggests that individuals between the ages of 16 and 24 who have difficulty speaking English are three times less likely as non-LEP individuals to have a high school degree; 42 percent of LEP individuals did not have a high school diploma and were not currently enrolled in school as compared to 14 percent of English-only individuals (McArthur1993).

In the labor market, English language proficiency plays a critical role in determining a worker's earnings.² Specifically though a majority of the LEP student population is Spanish speaking, suggesting that English language assistance programs have the potential to affect Hispanics most. This is especially important in light of low levels of Hispanic educational achievement and labor market performance. For example, Hispanic workers earn 20-30 percent less than white-non-Hispanics (Chavez 1991, Chapa 1989). Further approximately 49 percent of all Hispanics in California in 1998-99 were LEP.³ However, this differential in wages can be explained by two factors. First, Hispanics generally acquire less education than non-Hispanics, and second, they possess lower levels of English proficiency than non-Hispanics. These relatively lower skill levels, acquired before entering the labor market, drive most of the observed wage gap (Neal and Johnson 1996). Further, earnings for third generation Mexican-Americans are lower than those of comparable whites in large part because of low-levels of educational and English capital acquisition, rather than unequal payoffs to that human capital (Trejo 1997). The low earnings of Hispanics are further compounded by the recentness of their immigration to the U.S. although subsequent generations of Hispanics are finding economic success as previous waves of non-Hispanic immigrants have. (Chavez 1991 and Rodriguez 1997) In the labor market, the differences between LEP individuals and non-LEPs are driven by low levels of English proficiency (Trejo 1997, Mora and Davila 1998, Mora 1995).

² See, for example, Chiswick and Miller (1995), Mora (1996), Bloom and Grenier (1993), Smith (1990), Kossoudji (1988), McManus (1985), Grenier (1984), McManus et al (1983), Reimers (1983), and Carliner (1976).

³ This calculation comes from the author's tabulations from the California Language Census of the California State Department of Education.

The dual problems of low English proficiency and low educational attainment may be closely intertwined: if language deficiencies inhibit educational progress, then one would expect LEP students to drop out at higher rates than native English speakers (Lopez 2000, Chiswick and Miller 1995, Nielsen and Lerner 1986, Fernandez and Nielsen 1986, and Curiel Rosenthal, and Richek 1986). Indeed, one key potential benefit of English language assistance programs is that they may improve not only a student's level of English proficiency, but also academic achievement, by keeping students progressing through school.

In this paper I examine whether English language assistance programs affect English proficiency, examination scores in mathematics, science, U.S. history and reading achievement, and academic progress in school. The paper proceeds as follows. Section II describes English language assistance programs in the U.S.; section III describes some of the history and research evidence on English language assistance programs; Section IV describes the data employed; section V discusses my empirical strategy; and section VI presents empirical results. Section VII concludes.

II. WHAT ARE ENGLISH LANGUAGE ASSISTANCE PROGRAMS?

Three types of English language assistance programs currently exist in the U.S.⁴:

- English as a Second Language (ESL): Limited English proficient students are submerged for part of the day in English only classes, but are removed part of the day for English instruction.
- Transitional Bilingual Education (TBE): Limited English proficient students are taught substantive subjects in their native language until their English is sufficient enough to learn wholly in English.

⁴ Many programs in the U.S. go under different names, including native language instruction, structured English immersion, primary language instruction, or bilingual education.

- Developmental Bilingual Education: Native-English speaking and LEP students are taught in both English and the native language of the LEP students. The focus of the program is two-way bilingualism.⁵

Most school districts, offer services extensive enough to fit to include at least one class of transitional bilingual education, but depending on the resources of the school and the needs of the students, programs other than transitional bilingual education may be offered.⁶ Over 75 percent of LEP students in 1992-1993 received services similar to ESL (27.45 percent) or TBE programs (48.61 percent) (Henderson et. al. 1994).

The objectives of these programs are simple: to teach English to non-English speaking students and move students to English mainstream classrooms as quickly as possible. However, in contrast to ESL or other programs, TBE seeks to not only teach a non-English speaking student English, but to keep the student progressing through other subjects without penalizing them for not speaking English. This is achieved through providing classes such as math and history in the student's native language (Krashen 1996). One other program offering common in the U.S. is a bilingual-bicultural program. These are similar to transitional bilingual education programs, but also contain a component in which students are educated in their native culture.⁷

Who gets English Language Assistance Program Services?

Identification of the number of LEP students in the U.S. is not uniform across states and districts. However, one thing is clear: the population of potential English language assistance recipients has grown tremendously in recent years. Macias et. al. (1998) report that in the 1996-1997 school year there were 3.3 million identified LEP students in U.S. public schools,

⁵ This definition comes from the ALEC Report, 1994.

⁶ *Condition of Bilingual Education 1992*, pages 27-28.

⁷ I do not provide an analysis of bilingual-bicultural program since it is difficult to ascertain participation in such programs. Given the survey instrument of NELS:88, students may have confused foreign language courses with bilingual-bicultural programs.

representing approximately 8 percent of all public school students enrolled.⁸ As shown in Figure 1, since the 1985-1986 school year, there has been a 90 percent increase in the number of limited English proficient students enrolled in the U.S. school system as reported by state education agencies and local school districts.⁹ Most LEP students, over 70 percent, are Spanish speakers, and over 40 percent of the LEP population in 1996-1997 in public schools is in California. Including the populations in Texas, Florida, and New York, over 70 percent of LEP students in U.S. public schools are accounted for (Macias et. al. 1998).

Specifically though, California also has the largest concentration of LEP students. In 1997-1998, California identified over 1.4 million LEP students, or approximately 25 percent of its public school population (California Language Census 1998). Some school districts across the U.S. also have very large concentrations of LEP students. According to Macias et. al. (1998), Los Angeles Unified (45.6 percent), Santa Ana Unified (69.3 percent), Glendale Unified (51.9 percent) and Montebello Unified (46.4 percent), all California school districts, contain high concentrations of LEP students. Across the grade distribution, LEP students are more likely to be concentrated in the earlier grades, which is where most schools target services (Hopstock and Bucaro 1993, Fleischman and Hopstock 1993, Henderson et. al. 1994 and 1993).

Regarding services received, Macias et. al. (1998) report that over 70 percent of LEP students in the U.S. receive some sort of service. During the 1992-1993 school year, 72.1 percent of identified LEP students in elementary schools received English language assistance services; 57.7 percent of identified LEP students in junior high schools received English language assistance

⁸ Estimating the number of LEP students is difficult since states have different criteria for identifying a student as LEP. Usually these differences are expressed in an examination cut-off or examination procedure that delivers different results for different students. Thus a student identified as LEP in one state may not necessarily be identified as LEP in another state. Luckily though states do follow relatively similar procedures in identifying a student as LEP. Different estimates of the number of LEP students are contained in several sources. For example, see Chapa (1990), Hopstock and Bucaro (1993), and ALEC (1994) for other estimates of the number of LEP students in the U.S.

⁹ Counts for Figure 1 and 2 for 1985-86 come from *The Condition of Bilingual Education in the Nation: A Report to Congress and the President 1988*; 1986-87 and 1987-88, come from Olsen (1991); 1989-89 and 1989-90 come from *The Condition of Bilingual Education in the Nation 1991*, and 1990-91, 1991-1992, 1992-1993 to 1993-1994 come from Henderson et. al. (1994), and 1994-1995 through 1996-1997 from Macias et. al. (1998). All public and private school enrollments come from the *Digest of Education Statistics*, various years.

services; and 53.3 percent of identified LEP students in high schools received services. Among those receiving services, 89.3 percent receive services funded from state, local and special federal programs; while the remainder are in programs which receive support specifically from the federal government for bilingual services (Henderson et. al. 1993 and 1994). See Figures 2, 3, and 4.

During the 1997-1998 school year, within California, prior to the passage of Proposition 227, the English for the Children initiative, one third of identified LEP students received bilingual education services, another third received ESL services, and the remainder were either immersed or mainstreamed into English only classrooms.¹⁰

III. HOW EFFECTIVE ARE ENGLISH LANGUAGE ASSISTANCE PROGRAMS?

History

Most research on the effectiveness of English language assistance programs has concentrated specifically on bilingual education. Bilingual education, as an education program, has not been characterized by any national policy though with the passage of the Bilingual Education Act of 1967 and the subsequent authorization of federal funds for bilingual education programs under Title VII of the Elementary and Secondary Education Act of 1968 the federal government began actively to encourage the development of bilingual education. However, the federal government did not mandate the existence of such programs. By the mid 1970s, the Office of Civil Rights began developing a series of guidelines for school districts and assisted many districts in establishing bilingual education programs. In total, the federal government spends approximately \$200 million a year for a host of national bilingual education activities ranging from program development to the gathering of statistics on the number of LEP students in the U.S. and the services they receive.

¹⁰ These tabulations are based on the Author's calculations from the 1997-1998 California language census. See the Department of Education at the State of California for more information.

English language assistance programs have traditionally been designed and implemented at the state level, and often times specialized at the district and school level. Following the federal government's lead, by 1981 several states had passed laws that either allowed for non-language subjects to be taught in languages other than English or mandated the establishment of bilingual programs. See Table 1 for the status of state legislation in 1981. However despite the mandate funding schools, not all LEP students receive bilingual education services. As indicated above, in California prior to the passage of Proposition 227, only 30 percent of LEP students were receiving services extensive enough to be considered bilingual education.

Recently, California voters passed the English for the Children Initiative, or Proposition 227. With its passage in June of 1998, schools across California were required to implement a structured English immersion program in the fall of 1998. However, while the Proposition was intended to eliminate bilingual education, parents had an option to continue enrolling their student in bilingual education or some other program other than structured English immersion. Subsequently, Proposition 227 did not eliminate bilingual education, but it did reduce by half the number of students in bilingual education programs (Bazeley, 1999).

Previous Evidence

Within the last seven years, three major studies on the effectiveness of bilingual programs on academic achievement and transitioning to English only environments have been published, each presenting compelling evidence, but developing no consistent story on the effect of bilingual education programs or ENGLISH LANGUAGE ASSISTANCE programs. Using a meta-analysis, Greene (1998) finds that on average, research on bilingual education programs suggests modest improvements in English achievement. Greene further suggests that in the few, small randomized studies that do exist, there are modest gains in English achievement. Ramirez et. al. (1991), limiting their analysis to Spanish speaking students, found that immersion and bilingual education program students were performing at a similar level in academic tests of mathematical, reading,

and language achievement. The Board of Education of New York City (1994) presented evidence that the earlier first exposure to bilingual education occurs, the quicker the movement to an English-only environment. Also, Spanish-speaking students are slower to leave bilingual programs than Korean, Chinese or Russian students, *certerus paribus*. Overall ESL students performed better on academic achievement than transitional bilingual education students.

However, measuring the success of bilingual education is not limited solely to English proficiency and reading achievement; there are other outcomes on which bilingual education could have an impact for limited English proficient participants. These include the effects of bilingual programs on retention rates, college attendance rates, educational attainment and labor market earnings. Little work assesses the impact of bilingual education programs on these outcomes. Exceptions include Lopez and Mora (1999) that examined the labor market impacts of bilingual education programs on Hispanic students, Mora (1999), which examined a wide range of outcomes from English language assistance programs in high school that included English proficiency and high school completion; and Curiel, Rosenthal, and Richeck (1986) that examined dropout rates. Generally, Lopez and Mora (1999) and Mora (1999), find results suggesting negative effects of English language programs while Curiel, Rosenthal, and Richeck find slight to positive effects of bilingual education programs on the likelihood that a student stays in school.

IV. DATA

The data I use are drawn from the National Center for Education Statistics' National Education Longitudinal Study of 1988 (NELS:88). The survey, a stratified sample design, provides a nationally representative sample of public and private school students in eighth grade during 1988. In the initial base year survey, approximately 25,000 students were interviewed; follow-up surveys were conducted in 1990, 1992, and 1994. I employ data from the base-year survey only.

Identifying the Sample of Analysis

Ideally, evaluation of any English language assistance program would require random assignment of a program treatment across an eligible population of students. To accomplish this, I would conduct an experiment in which students are randomly assigned across programs. Then, I could simply compare the treatment and control groups on a range of outcomes and determine the effects, positive or negative, of an English language assistance program on educational attainment or English proficiency.

Since I am unable to conduct such an experiment, my first objective is to identify a group of individuals likely to have been eligible to participate in an English language assistance program. I do this by modeling the identification and placement process states use in determining a student's eligibility for an English language assistance program.

The first step in identifying potential English language assistance participants is to identify the English language proficiency status of students at the time of their initial enrollment in the U.S. school system. Most districts follow similar procedures in identifying LEP students (see Table 1). Typically, the procedure for LEP identification follows a two-step pattern. First, a student is asked to complete a "Home Language Survey." The survey asks parents and/or students what the home language and first language of a student is, in addition to a few other questions on language usage. In this second step, if a student answers "a language other than English" to questions on home language and first language usage, a student's proficiency in the native language and English is

assessed. If a student's measured level of English proficiency is sufficiently low, the student is then identified as LEP and, depending on available resources and state requirements, is recommended for an English language assistance program. Parental consent is usually obtained before a student is enrolled in any program.

The NELS:88 survey instrument mimics the first step of this procedure closely with a set of language filter questions very much like those of the home language survey. However, NELS:88 has a few shortcomings that prevent me from exactly following the selection process used by school districts. First, NELS:88 does not contain data on a student's LEP status at the time of initial enrollment in the U.S. school system. Second, in the base year survey, students who had been chosen as survey participants, but were designated by school officials as unable to answer the questionnaire because of language difficulties, were excluded from the data collection (Bradby 1992). These students are likely to have been participants in an English language assistance program.¹¹ With these caveats in mind, I define an individual as “at risk” for an English language assistance program if he/she responded that a language other than English is spoken at home, essentially a language minority sample, not a limited English proficient student sample.

I also only use those students who participated in the base year wave of the NELS:88 survey, and who attended public schools. With these sample selection criteria, I generate a sample with 3,870 observations. I identify this sample as the language minority sample.¹²

¹¹ A special attempt, the “new student supplement,” was made in the first follow-up year of 1990 to sample these “base year ineligible” with abbreviated base year and first follow-up questionnaires, but only those students whose English proficiency by 1990 was sufficient to complete an English questionnaire, were included in the supplement. This survey censoring is likely to bias my estimated coefficients upward as only those English language assistance program participants who learned English sufficiently are likely to have been allowed to complete the survey questionnaire. Perhaps this bias is mitigated by the fact that most students who participate in English language assistance programs complete their coursework in these programs during the elementary school years, all prior to the time of this survey.

¹² It should be noted that I have identified the language minority sample. Even within this sample there may be students who grew up in a family where more than one language was spoken, but the student's first language is English. These students would never have qualified for any English language assistance program. This could potentially bias my results down, by comparing native English speakers with native non-English speakers. I address this by performing my analysis on various sub-groups of analysis. In particular this bias is likely to be limited to its greatest extent among foreign born students who were born to foreign born parents. See the results section below for an examination of this question.

Defining English Language Assistance Program Participation

From NELS:88, I define the three following measures of English language assistance participation. First, I define a student as having received treatment in an English language assistance program if he/she had “ever been enrolled in an English language/language assistance program, that is, a program for students whose native language is not English,” or had ever taken a math, science, or history class in their native language during their first two years in the U.S.

Second, I am able to distinguish between program types since NELS:88 provides information on instruction in non-English languages. If a student received English language assistance and either mathematics, science, or history coursework in the student’s native language, that student is defined as having participated in a transitional bilingual education program (TBE). Students with only English language assistance participation are identified as ESL participants.

Third, it is also possible to date the participation period, since NELS:88 asked the students to list the grades in which they were enrolled in a language assistance program. I define the grade of first exposure to an English language assistance program as the grade at which a student started in a program. Students whose first exposure to a program occurred in grades one to three are identified as students whose first exposure to an English language assistance program was “early”. Those whose first exposure occurred in grades four to eight are identified as having a “late” first exposure.

Sample Demographics

Table 2 presents sample means for selected demographic variables across various sub-groups of the NELS:88 data. Column (1) presents data for the full NELS:88 sample of public school students. Column (2) presents data for the sample of public school students from NELS:88 who have no non-English language background, and hence are not at-risk for participation in a language assistance program. I call this sample the non-language minority sample. Column (3) presents data for all students in the language minority sample, and columns (4) and (5) present

demographics for language minority English language assistance non-participants and participants respectively. Columns (6) and (7) further divide the language assistance participant sample into ESL and TBE samples.

Approximately 3 percent of all public school students have participated in some language assistance program in this data, with those participants slightly more likely to be in ESL programs than TBE programs. While this estimate appears low given recent data on the LEP student population proportion of all public school students presented earlier in the paper, the students in the NELS:88 sample would have participated in programs in the early 80s. Little information on the number of LEPs is available from those years, although it is clear the not only has the number of LEPs grown, but so has the proportion LEP. Among language minority students, column (3), approximately 19 percent have participated in an English language assistance program, with participants more likely to receive treatment in grades 1-3 than in grades 4-8. These data match closely what is observed in national data on the participation of LEP students in programs (Macias et. al 1998, Fleishman and Hopstock 1993).

As expected, students “at risk” for participation in a language assistance program, column (3), are more likely to be Asian, Native-American, foreign-born, Hispanic, have completed schooling outside of the U.S., and of lower SES and test quartiles than non-language minority students. Further, students who received English language assistance, column (5), are more likely to be Asian, Hispanic or Native American than the full NELS:88 sample of column (1), or the non-language minority sample of column (2). Language assistance program participants are also more likely to be in both the lower SES and test quartiles than non-language minority students suggesting negative selection into the program.

Across programs, there are some observed differences. ESL students are more likely than TBE students to be Asian, black, immigrant, and from higher test quartiles. TBE participants, alternatively, are more likely to be of lower SES quartile, Native-American or white, and of third or more immigrant generation. Both groups are equally likely to be Hispanic.

Table 3 presents data for the outcomes of interest for the public school language minority sample, which is the principle sample of analysis in this paper. Perhaps most directly, one would expect English language assistance programs to impact student English ability. NELS:88 provides several self-reported measures of English ability: how well the student understands, speaks, reads and writes English as of the eighth grade. Examining these outcomes, it is apparent that on all three measures of English ability, language minority students who did not participate in any English language assistance program report greater levels of English language ability than those language minority students who did not participate in any language assistance program. However, when comparing ESL and TBE students. First ESL students generally report higher levels of English ability than their TBE counterparts, suggesting that among program participants, ESL programs may be doing a better job at teaching English. To some extent, this may be a result of differences in the amount of time students spend in different programs, and thus are moved into English mainstream classrooms. For TBE programs, students may spend up to five years learning English (Krashen 1996), thus delaying their learning of English.

On academic achievement, differences between participants and non-participants among public school language minority students are generally smaller. Specifically, TBE students score lower than ESL students or non-participants on all exams, but these differences are all relatively small. However, some differences are evident in whether or not a student has been held back a grade in school. Particularly, students who participated in TBE programs are most likely to have been held back a grade. This is surprising given that one of the objectives of TBE programs is to keep students progressing through school at grade level with their peers while learning English. A cursory examination of these data suggests that the opposite may be happening.

Overall it appears that students who participate in ENGLISH LANGUAGE ASSISTANCE programs are more likely to come from lower SES backgrounds, are Hispanic, possess lower levels of English proficiency, and score lower on academic exams than their immersed counterparts.

V. EMPIRICAL STRATEGIES

To estimate the impact of English language assistance programs, I first examine the relationship between English proficiency in understanding, reading, writing, and speaking English. Since the primary objective of English language assistance programs is to teach LEP students English and mainstream them into English classrooms, measuring their impact on English proficiency should be a first objective. However, across programs there is some difference in objective, with TBE programs seeking to not only get students into an English mainstream classroom, but also to keep the student progressing through other coursework (in the student's native language) while not falling behind in grade-level. Thus I also examine the impact of programs on student academic achievement and student academic progress.

I model the impact of English language assistance programs on an outcome (y_i) as:

$$y_i = X_i\beta_1 + JS_i\beta_2 + ELA_i\gamma_0 + e_i \quad (1)$$

where y_i represents an academic exam score, whether or not the student has been held back a grade or English proficiency. In all cases y_i is assumed to be a function of several observed characteristics including personal characteristics X_i , such as race, gender, family income, parental education, immigration status, region and urban status; and a set of junior high school general characteristics JS_i , such as the pupil-teacher ratio, percent of the student body which is Latino and African American, total level of enrollment, and provision measures of school level English language assistance programs. Finally, ELA_i is an indicator that equals one for those who participated in an English language assistance program, with γ_0 representing the program treatment effect.

Difficulties in interpreting γ_0 as the treatment effect of an English language assistance program will arise if there are omitted factors that determine both program participation and educational attainment or language proficiency. With education programs, one might assume

positive self-selection bias, leading to an overestimate of the effect of the program on the outcome. However with English language assistance programs it is unclear whether selection is positive or negative. On the one hand, in many programs parents must decide whether or not to place their children into a program, and in fact, in some school districts a program only begins through the parents' initiative (Board of Education, New York City 1994, Crawford 1989). In this case, one might expect positive selection in that children whose parents are more involved with their child's education, and therefore enroll their children in English language assistance programs, also achieve higher levels of educational attainment.

These data from NELS:88, however, suggest negative selection into English language assistance programs on the basis of observable characteristics. If school administrators have access to a more complete set of variables representing the student's language ability than is available in NELS:88, and if students with lower values of these characteristics perform poorly on academic achievement examinations or have lower levels of English proficiency, then γ will be biased down. Further, because NELS:88 only contains data from students who were proficient in English at the time of the survey, any estimate of the effect of English language assistance programs may be biased up as only those students who successfully learned English were allowed by school administrators to complete the survey and its related tests.

If there were no other characteristics that were correlated with English language participation and staying in school, C_o would represent a consistent estimate of the treatment effect of English language assistance program participation. But since there may be unobservable characteristics which are correlated with bilingual program participation, and the sample I have constructed may not truly represent the set of potential bilingual education participants, C_o will not represent the true treatment effect of bilingual education programs. Whether C_o is biased up or down is unclear since selection can be either positive or negative. However, from the results

presented in the next section, the measured effect of English language assistance programs is largely mitigated by observable background factors.¹³

VI. EMPIRICAL RESULTS

English Proficiency Results

Perhaps most directly, English language assistance programs should have an impact on English proficiency. For all English proficiency outcomes I estimate an ordered logit model, with results of this maximum likelihood estimation presented in Table 4. Columns (1) to (5) present results for the student's self-reported ability to understand English. Columns (6) to (8) present results for self-reported ability to speak English; columns (9) to (11) report results for self-reported ability to read in English; and columns (12) to (14) present results for self-reported ability to write in English.

Examining the results for self-reported ability to understand English, students who participated in English language assistance programs are less likely to report that they understand English well than their immersed counterparts. Further, while adding covariates to the model does reduce the estimated coefficient on understanding English, the difference is still statistically significant. Similarly, when I estimate the model using different measures of English language assistance, comparing ESL and TBE programs, I find that students in both programs are equally likely to report low levels of their ability to understand English relative to language minority students who did not participate in programs.

Similarly, for self-reported ability to speak English, English language assistance program participants are less likely to report speaking English well or very well, with the difference statistically significant. Similarly, adding controls, in column (7) reduces the estimated coefficient

¹³ I have also attempted this analysis with an instrumental variables and propensity score method. In both cases, the search for suitable instruments proved difficult, and only in the case of the propensity score method were results reasonable, though smaller in magnitude than those reported here.

associated with participation in English language assistance programs, with the difference still statistically significant. However, across program types, no difference is discernable; in both cases students who participate in ESL or TBE programs are just as likely to report lower levels of English speaking ability.

In self-reported English reading ability, a slightly different pattern emerges. First, participation in an English language assistance program is still associated with lower levels of self-reported ability to read English. However, comparing across programs, in this area, ESL programs appear to do better than TBE programs, although both programs are associated with lower reading ability than students who were immersed in English only environments.

Similar to the results reported for self-reported English reading ability, in self-reported writing ability a familiar pattern emerges. First, participation in an English language assistance program is associated with lower levels of writing ability compared to students who were not enrolled in a program, but were language minorities. However, comparing programs, it appears that participation in ESL is once again producing a smaller negative effect compared to TBE programs, with a statistically significant difference.

Across measures of English proficiency, participation in ENGLISH LANGUAGE ASSISTANCE programs is generally associated with lower levels of self-reported English ability. And across programs, it appears that TBE program participants report lower levels of English ability in the areas of reading and writing English, while there is little difference between program participants, conditional on other controls, in understanding and speaking English.

Academic Achievement

Alternatively, English language assistance programs may have impacts on students beyond English proficiency, and impact academic achievement. Results for academic achievement are contained in Table 5. Columns (1) to (5) contain results using the natural log of reading scores as the dependent variable, columns (6) to (8), (9) to (11) and (12) to (14) each present similar results

using the natural log of mathematics, science, and history achievement as dependent variables respectively.

Concentrating on reading achievement, initial raw results suggest that participation in any English language assistance program is associated with reading scores that are 15 percent lower than those of students who did not participate in any program. However once controls are included, the estimated difference between English language assistance program participants and non-participants drops significantly to approximately a negative 9 percent. Similarly, distinguishing between programs, ESL and TBE participants are statistically similar, and participants in both score lower on reading achievement exams.

In mathematics and science achievement, a similar pattern is evident, although the observed differences are not necessarily as large as they are in reading achievement. For mathematics achievement, controlling for observable characteristics (column (7)), English language assistance program participants score 6.1 percent lower than their English immersed counterparts. Similarly, science scores are lower for participants than non-participants, approximately 5.3 percent less, when controlling for observable characteristics. Further, comparing programs, ESL students score higher than TBE students on mathematics and science achievement, however estimated differences are not statistically different.

With history achievement, a slightly different story is evident. First, English language assistance program participants are scoring lower than their immersed counterparts, although the observed difference is about half the observed difference in reading scores. Further, ESL participants are scoring better in history achievement than TBE students, with the observable difference statistically significant at the 10 percent level, but not at the five percent level.

Perhaps what is most surprising about these results is the relative consistency of differences across examination subject areas. In all categories, students who had participated in any program are scoring lower than students who did not participate in the program. Further, across program types, ESL participants consistently score higher than their TBE counterparts, although in no instance is the estimated difference statistically significant. This suggests that the

objective of TBE programs, to keep students progressing through course work in non-language subject areas, is not being met, or at least students in TBE programs are doing no better than students in other programs on measures of academic achievement.

Being Held Back in School

Another potential side effect of English language assistance programs is their impact on keeping students at grade level. Logit results regarding the general progress of students through school, as measured through the likelihood that a student is held back a grade, are presented in Table 6. English language assistance program participants, in the raw difference, are more likely, by 6.8 percentage points, to have been held back a grade in school. However, controlling for personal and school characteristics reduces the size of the observed difference in half. In column (4), controlling for observed characteristics, the estimated difference is 3.1 percentage points, although this difference is not statically significant.

Across programs though, ESL students are doing no different from other immersed students, although for TBE students, the observed difference is a statistically significant 6.4 percentage points. Further, the estimated coefficients for ESL and TBE programs are statistically different, with ESL students appearing to do better at staying in school than TBE program participants, even though one objective of TBE programs is to guarantee that participants do not fall behind in school while learning English.

Timing of Exposure

Since the effect of learning a language early or late can impact how quickly a student can learn that language (Harley 1986, Long 1990), examining differences in performance as a function of the timing of first exposure provides some insights. Table 7 presents results regarding the importance of the timing of exposure to language assistance programs. Here I present results for different programs dividing the timing of exposure into two categories: first exposure in grades 1 to 3 and first exposure in grades 4 to 8. I present results for each outcome of interest, and estimate

models with a set of controls similar to those presented in Tables 4, 5, and 6. Columns (1) to (4) are ordered logit models, columns (5) to (8) are OLS models, and column (9) presents logit results.

Concentrating on English proficiency first, in all cases, participation in ESL or TBE programs is associated with lower levels of English proficiency. However, earlier exposure, no matter that program students participate in, is associated with relative higher levels of English proficiency compared with students who first exposure occurred in later grades. To some extent this makes sense, as students who enroll in programs early are less likely to enter school at a grade level lower than their suggested grade level given their grade.

On academic achievement, a slightly different story is evident. First, earlier exposure is better than later exposure. However, students who have been exposed to TBE programs early are scoring higher on reading, mathematics and science exams relative to students who received no language program assistance, although these differences are not statistically significant. Unfortunately though, students who participated in either ESL or TBE programs later are also doing worse on academic exam scores.

Regarding academic progress in school, there is a pattern difference that was evident before. First, participation in English language assistance programs is not associated with better student outcomes no matter the student's timing of first exposure. However, observing this difference may be a result of the timing of a student's entry into the U.S. school system and the time a student spends in a program. Recent program entrants may have less time to be held back a grade than students who entered the program five years previously, hence leading to the results reported in column (9) of Table 7.

Second, ESL participants appear to be much less likely to have been held back a grade in school, no matter the timing of exposure, than their TBE counterparts, suggesting that one more objective of TBE programs is not being met, namely staying at grade level while learning English.

Heterogeneity of the Effect across different groups

Tables 8a and 8b present estimates for different sub-groups of the full sample. Table 8a presents results for the overall effect of English language assistance programs while Table 8b presents results for the effect across ESL and TBE programs. In each table, the first row repeats results for the full sample and full model of columns (4), (7), (10), and (13) of Tables 4 and 5, and column (4) of Table 6. All models contain a set of controls as in the above reported columns of Tables 4, 5, and 6. I perform the analysis for immigrants, non-immigrants, Hispanic immigrants, all Hispanics, and students with parents who have completed a high school diploma or less since it is likely that some students, immigrants for example, may benefit from the program more than others.

Concentrating on the overall measured effect of English language assistance programs, results in Table 8a suggest that no matter for which group I perform my analysis, students in English language assistance programs possess lower English proficiency skills. However, across academic achievement measures, non-immigrants appear to score lower on all exams than immigrants or any other group, and also appear to be more likely to have been held back a grade.

Comparing programs, results in Table 8b suggest that generally TBE students score lower, possess lower levels of English proficiency, and are more likely to have been held back a grade than student who did not participate in any program, though often the differences between reported coefficients is not large enough to produce a statistical difference. However, some differences are of note. First for immigrants, TBE participants appear to do worse on all measures, while for non-immigrants there is little difference on English proficiency measures between ESL participants and TBE participants, while across academic achievement measures ESL participants appear to score lower than TBE participants, though again most of the differences are not statistically significant.

Perhaps most striking across all programs is the result that almost all reported coefficients are negative, and often statistically different from zero, suggesting that neither program appears to improve the achievement of program participants relative to students who did not participate in programs, or were immersed in an English-only environment.

VII. CONCLUSIONS

The results presented in this paper suggest that participation in English language assistance programs is not necessarily associated with better student outcomes. In particular, in its most direct goal – improving English proficiency - English language assistance programs are not associated with greater levels of English proficiency. Further across program types, TBE programs are associated with lower levels of English proficiency than ESL programs, though often the differences are not statistically significant. In other areas with potential spillovers, participation in English language assistance programs are associated with lower levels of achievement on reading, mathematics, science and history exams, and students who have participated in these programs are also more likely to have been held back a grade.

However these results should be viewed with a few caveats. Unfortunately the sample I have identified in this paper is a language minority sample, not a limited English proficient student sample even though LEP students are the target population of all English language assistance programs. Hence there may be students in the comparison group of the analysis who while from families where a language other than English is spoken in the home, are not necessarily in need of the services provided by English language assistance programs. Attempting to address this, I examined the results across different sub-groups of the sample. These results are similar to what was found with the entire sample.

While the results here suggest that English language assistance programs generally, and transitional bilingual education programs specifically, may not be meeting the needs of all limited English proficient students, these results do not necessarily lead one to conclude that the programs just are not working, and hence should be scrapped. They do suggest that these programs are not working as intended, and may be a detriment more than a benefit to students enrolled in them. However, the relatively poor performance of students in these programs could stem from several possible factors. First, it is apparent that there is negative selection in to the programs. If selection into the program leads to a selection of students with lower language and general abilities, then

comparing these students to participating limited English proficient students who did not participate in the program will lead to the results presented here. Second, the programs may be overwhelmed. As the influx of limited English proficient students into the U.S. public school system continues, it is likely that schools will find themselves overwhelmed with students needing special services. Thus while a student may get identified as a participant in an English language assistance program, that program may be short on resources, and hence not able to provide a full range of services. If this is the case, it is likely that students labeled as being in such programs will appear to perform poorly relative to students who did not participate in such programs.

However, no matter what assumptions one makes about the unobserved differences between students and programs, it is clear that on observation alone, transitional bilingual education program participants appear to score lower than ESL students on a range of outcomes. It is also clear that getting services early rather than late is important, and that the negative effects among immigrants of these programs are smaller than they are for non-immigrants. In essence participation in an English language assistance program appears to be detrimental to the academic and English proficiency performance of students.

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Data Appendix

Data for this paper come from the private release version of the National Educational Longitudinal Study of 1988 (NELS:88). Use of the private release version of NELS:88 requires permission from the National Center of Education Statistics in the form of a license allowing access to private release data. The NELS:88 is a national representative data set with survey data collected in components from parents, students, school administrators, and teachers. The survey is a stratified sample design, with over 1000 schools in the initial base-year. The full base-year survey contained approximately 20,000 students and was conducted in 1988, with follow-up surveys conducted in 1990, 1992, and 1994. In 1988, all students in the survey were enrolled in the eighth grade at public and private schools. Using data from the NELS:88, one can develop national estimates of school characteristics and program participation.

For this paper I employ data only from the base year survey. I further only examine data from public school students who report that a language other than English is spoken in their home or was their first language. These sample selections produce a sample of 3,870 students. For this sample I collect data from the student, school and parent components to construct the following variables (the source component is indicated in parentheses):

- 1) Participation in a English program for non-English speakers (student file)
- 2) When participation in a English program for non-English speakers occurred (student file)
- 3) Participation in courses during the student's first two years in the U.S. that are given in the student's non-English native language (student file)
- 4) Self-reported ability in understanding, speaking, reading, and writing English (student)
- 5) Whether or not the student had repeated a grade between kindergarten and eighth grades (student file)
- 6) Academic achievement in reading, mathematics, science and U.S. history using Item Response Theory examination scores (student file)
- 7) Gender of the student (student file)
- 8) Race/ethnicity of the student (student file)
- 9) Parental marital status (student file)
- 10) Family income (student file)
- 11) Parental education level (student file)
- 12) Whether or not the student has received any school outside of the U.S. (parent file)
- 13) Immigrant status of a student as determined by parental reports of student and parent nativity (parent file)
- 14) Urban status of the student's junior high school (student file)
- 15) Location of the student's junior high school in one of four U.S. census regions (student)
- 16) Years since arrival of the student in the U.S. if immigrant (parent file)
- 17) Hispanic and black student body percentages at the student's junior high school (school)
- 18) The pupil teacher ratio at the student's junior high school (school file)
- 19) The percent of the school that receives a free lunch at the student's junior high school (school file)
- 20) The concentration of limited English proficient students at the student's junior high school (school file)
- 21) The number of ESL teachers at the student's junior high school (school file)
- 22) Indicators for whether or not the junior high school offers English, reading, math, or science classes for limited English proficient students (school file)
- 23) Measures of the status of state legislation regarding English language assistance programs in 1981 (identification of the state in which a student's junior high school is located requires use of the restricted use version of NELS:88). (private release school file)

All results in the paper are weighted using the 1988 base-year cross-sectional weight.

Table 1
State Bilingual Education Legislation, 1981

States that *do not* mandate or provide for any form of bilingual education:

Alabama	Missouri	South Carolina
Arkansas	Montana	Tennessee
Delaware	Nebraska	Vermont
Georgia	Nevada	Virginia
Hawaii	North Carolina	West Virginia
Kentucky	North Dakota	Wyoming
Mississippi	Oklahoma	
Total: 20		

States that *allow* for bilingual education (but do not explicitly require it):

Arizona	Louisiana	Ohio
Florida	Maine	Oregon
Idaho	Maryland	Pennsylvania
Indiana	Minnesota	South Dakota
Iowa	New Hampshire	Utah
Kansas	New Mexico	Washington
	New York	
Total: 19		

States which *mandate* some form of bilingual education:

Alaska	Illinois	Rhode Island
California	Massachusetts	Texas
Colorado	Michigan	Wisconsin
Connecticut	New Jersey	
Total: 11		

Note: A at risk student can receive Bilingual Education even in states which prohibit instruction in other languages, since the Federal Government also provides funds for districts or schools which have been approved for funds under Title VII of the Elementary and Secondary Education Act of 1968.

Also note that California and Colorado have made changes to their laws since 1981.

Source: Gray, Convery and Fox (1981).

Table 2
Demographics for Different Samples
 (weighted means)

	Sample						
	All of NELS 88	Non- Language Minority Sample	Language Minority Sample				
			All Students	Language Assistance Non- Participants	Language Assistance Participants	ESL*	TBE*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	
Language Assistance	0.030	0.000	0.198	0.000	1.000	1.000	1.000
ESL	0.017	0.000	0.112	0.000	0.566	1.000	0.000
TBE	0.013	0.000	0.086	0.000	0.434	0.000	1.000
<i>First Exposure to ESL</i>							
Grades 1-3	0.011	0.000	0.068	0.000	0.347	0.612	0.000
Grades 4-8	0.006	0.000	0.041	0.000	0.209	0.369	0.000
<i>First Exposure to TBE</i>							
Grades 1-3	0.003	0.000	0.022	0.000	0.112	0.000	0.258
Grades 4-8	0.002	0.000	0.012	0.000	0.063	0.000	0.144
<i>Race/Ethnicity:</i>							
Asian	0.031	0.011	0.138	0.120	0.211	0.245	0.166
Native American	0.014	0.012	0.026	0.025	0.029	0.020	0.040
Latino	0.095	0.029	0.452	0.423	0.572	0.561	0.585
Black	0.140	0.155	0.056	0.062	0.030	0.044	0.011
White	0.711	0.784	0.319	0.361	0.147	0.119	0.184
<i>Immigrant Generation</i>							
First	0.044	0.016	0.194	0.138	0.424	0.460	0.377
Second	0.033	0.006	0.177	0.180	0.163	0.163	0.162
Second/Third	0.040	0.026	0.115	0.125	0.075	0.084	0.063
Third	0.807	0.875	0.046	0.497	0.241	0.198	0.297
Born in US	0.897	0.921	0.770	0.832	0.514	0.469	0.573
Schooling outside of U.S.	0.037	0.018	0.136	0.088	0.331	0.362	0.291
<i>SES Quartile</i>							
Lowest	0.267	0.244	0.387	0.340	0.576	0.529	0.639
Second	0.259	0.264	0.231	0.242	0.183	0.223	0.131
Third	0.249	0.260	0.188	0.204	0.127	0.137	0.113
Highest	0.225	0.231	0.194	0.214	0.114	0.112	0.117
Sample Size	18,582	14,712	3,870	2,996	874	538	336

Source: Author's tabulations from the National Education Longitudinal Study of 1988 (NELS:88) base year (1988) survey. See text for a discussion of members of the language minority sample, which is the sample of analysis employed in this paper. All results are weighted using the base year cross-sectional weight. Some categories do not sum to one because of missing observations or rounding error. Notes:* ESL is English as a Second Language, and TBE is Transitional Bilingual Education, the most common forms of English language assistance programs in the U.S.

Table 3
Outcomes for Different Samples
 (weighted means)

	All Language Minority Students	Language Assistance Non- Participants	Language Assistance Participants	ESL* Participants	TBE* Participants
	(1)	(2)	(3)	(4)	(5)
English Ability					
Number of Obs	3870	2996	874	538	336
<i>Understand English</i>					
Very Well	0.841	0.881	0.682	0.6988	0.660
Well	0.109	0.081	0.221	0.203	0.245
Not Very Well	0.027	0.016	0.074	0.075	0.073
Not at All	0.006	0.004	0.018	0.018	0.019
<i>Speak English</i>					
Very Well	0.781	0.834	0.570	0.597	0.534
Well	0.152	0.120	0.279	0.268	0.295
Not Very Well	0.038	0.021	0.105	0.104	0.106
Not at All	0.013	0.007	0.038	0.024	0.057
<i>Read English</i>					
Very Well	0.750	0.841	0.584	0.618	0.540
Well	0.138	0.112	0.244	0.247	0.240
Not Very Well	0.043	0.021	0.131	0.098	0.174
Not at All	0.012	0.007	0.033	0.031	0.036
<i>Write English</i>					
Very Well	0.767	0.820	0.550	0.577	0.515
Well	0.156	0.128	0.269	0.278	0.258
Not Very Well	0.047	0.025	0.137	0.112	0.171
Not at All	0.013	0.007	0.036	0.027	0.047
Examination Scores					
Ln(reading)	3.135 (0.338) [3,755]	3.166 (0.334) [2,890]	3.010 (0.328) [845]	3.034 (0.339) [523]	2.979 (0.312) [322]
Ln(math)	3.435 (0.340) [3,728]	3.456 (0.338) [2,886]	3.351 (0.337) [842]	3.381 (0.349) [521]	3.309 (0.317) [321]
Ln(science)	2.823 (0.262) [3,716]	2.842 (0.260) [2,877]	2.744 (0.257) [839]	2.762 (0.267) [520]	2.720 (0.241) [314]
Ln(history)	3.321 (0.165) [3,699]	3.335 (0.161) [2,867]	3.263 (0.166) [832]	3.282 (0.170) [513]	3.238 (0.157) [319]
Held Back a Grade in School	0.224 [3,607]	0.209 [2,814]	0.284 [793]	0.250 [492]	0.329 [301]

Source: Author's tabulations from the National Education Longitudinal Study of 1988 (NELS:88) base year (1988) survey. Standard errors are in parentheses and sample sizes are in brackets. See text for a discussion of members of the language minority sample, which is the sample of analysis employed in this paper. All results are weighted using the base year cross-sectional weight. Some categories do not sum to one because of missing observations or rounding error. Notes:* ESL is English as a Second Language, and TBE is Transitional Bilingual Education, the most common form of English language assistance programs in the U.S.

Table 4
**English Language Proficiency in the Eighth Grade
and English Language Assistance Programs**
(Weighted results)

<i>Dependent Variable</i>	Understand English				Speak English				Read English		Write English			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
English Language Assistance	-1.397 (0.144)	-0.858 (0.112)	-0.840 (0.12)	-0.841 (0.113)		-1.447 (0.089)	-0.954 (0.100)		-1.480 (0.091)	-1.008 (0.101)		-1.438 (0.088)	-0.950 (0.098)	
ESL					-0.306 (0.137)			-0.867 (0.122)			-0.841 (0.123)			-0.795 (0.119)
TBE					-0.885 (0.146)			-1.062 (0.132)			-1.216 (0.131)			-1.149 (0.129)
Other Controls														
Personal Characteristics		yes	yes	yes	yes		yes	yes		yes	yes		yes	yes
Junior High School Characteristics			yes	yes	yes		yes	yes		yes	yes		yes	yes
JHS Bilingual Education Characteristics				yes	yes		yes	yes		yes	yes		yes	yes
p-value on ESL = TBE					0.6413			0.2867			0.0145			0.0195
Log-Likelihood	-1844.58	-1696.90	-1687.75	-1668.50	-1668.30	-2252.44	-2147.46	-2146.66	-2205.67	-2167.54	-2164.56	-2478.72	-2331.54	-2328.82
Sample Size	3,810	3,810	3,810	3,810	3,810	3,809	3,809	3,809	3,806	3,806	3,806	3,806	3,806	3,806

Note: The above are ordered logit models with standard errors in parentheses. All standard errors have been corrected for heteroscedasticity and sample clustering. Dependent variables are categorical variables for how well a student understands, speaks, reads, and writes English as of the eighth grade. Ordered categories include: very well, well, not very well and not at all. All results are weighted using the base year cross-sectional weight from NELS:88. See text for a discussion of sample members. An indicator variable was included if information on a student's English language assistance program status was missing or indeterminate. Other Controls include controls for personal characteristics (gender, race (Asian, Black, Latino, and Native American), region as three indicators, and urban status as two indicators of the student's Jr. High School, parental education level and marital status as four indicators each, and family income level as four indicators), immigrant characteristics (dummies for immigrant generation as four indicators, whether or not the student had any schooling outside of the U.S., and years since arrival), Jr. High School general characteristics (Hispanic and black group percentages, pupil/teacher ratio, and the percent of school which receives free lunch), and bilingual education characteristics of the student's school (percent non-English speaking as four indicators, number of ESL teachers, whether or not the school offers English, reading, math or science classes for limited English proficient students, and the status of state legislation on bilingual education as two indicators).

Table 5
**Academic Achievement in Eighth Grade
and English Language Assistance Programs**
(Weighted results)

<i>Dependent Variable</i>	Reading Achievement				Mathematics Achievement				Science Achievement			History Achievement		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
English Language Assistance	-0.162 (0.018)	-0.101 (0.018)	-0.096 (0.018)	-0.095 (0.018)		-0.114 (0.018)	-0.067 (0.019)		-0.065 (0.014)	-0.058 (0.014)		-0.074 (0.009)	-0.046 (0.010)	
ESL					-0.090 (0.019)			-0.057 (0.018)			-0.049 (0.014)			-0.035 (0.008)
TBE					-0.102 (0.026)			-0.081 (0.027)			-0.069 (0.019)			-0.060 (0.016)
Other Controls														
Personal Characteristics		yes	yes	yes	yes		yes	yes		yes	yes		yes	yes
Junior High School Characteristics			yes	yes	yes		yes	yes		yes	yes		yes	yes
JHS Bilingual Education Characteristics				yes	yes		yes	yes		yes	yes		yes	yes
p-value on ESL = TBE					0.6562			0.3310			0.3428			0.0883
R-square	0.0366	0.2314	0.2379	0.2446	0.2446	0.0192	0.2986	0.2988	0.0251	0.2426	0.2429	0.0315	0.2438	0.2450
Sample Size	3,735	3,735	3,735	3,735	3,735	3,728	3,728	3,728	3,716	3,716	3,716	3,699	3,699	3,699

Note: The above are ordinary least squares models with standard errors in parentheses. Dependent variables are the natural log of reading scores for columns (1) to (5), the natural log of mathematics achievement scores in 1988 for columns (6) to (8), the natural log of science achievement scores in 1988 for columns (9) to (11), and the natural log of history achievement scores in 1988 for columns (12) to (14). Standard errors have been corrected for heteroscedasticity and cluster sampling. All results are weighted using the base year cross-sectional weight from NELS:88. See text for a discussion of sample members. An indicator variable was included if information on a student's English language assistance program status was missing or indeterminate. See footnote to Table 4 for a list of included covariates.

Table 6
**Held Back a Grade in School
And English Language Assistance Programs**
(Weighted results)

<i>Dependent Variable</i>	Held Back a Grade in School				
	(1)	(2)	(3)	(4)	(5)
English Language Assistance	0.421 (0.097) [0.072]	0.231 (0.110) [0.036]	0.230 (0.011) [0.036]	0.239 (0.011) [0.037]	
ESL					0.086 (0.140) [0.013]
TBE					0.419 (0.147) [0.066]
Other Controls					
Personal Characteristics		yes	yes	yes	Yes
Junior High School Characteristics			yes	yes	Yes
JHS Bilingual Education Characteristics				yes	Yes
p-value on ESL = TBE					0.0651
Log-likelihood	-1909.1	-1766.4	-1761.6	-1752	-1750.3
Sample Size	3,607	3,607	3,607	3,607	3,607

Note: The above are logit models with standard errors in parentheses and marginal effects, evaluated at the means of the sample, indicated in brackets. The dependent variable is an indicator variable which equals 1 if the student had been held back a grade in school up through the eighth grade. Standard errors have been corrected for heteroscedasticity and sample clustering. All results are weighted using the base year cross-sectional weight from NELS:88. See text for a discussion of sample members. See footnote to Table 4 for additional controls.

Table 7
**Importance of Timing of First Exposure
And English Language Assistance Programs**
(weighted results)

<i>Dependent Variable</i>	Understand English	Speak English	Read English	Write English	Reading Achievement	Math Achievement	Science Achievement	History Achievement	Held Back a Grade
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<i>First Exposure to ESL</i>									
Grades 1-3	-0.642 (0.169)	-0.592 (0.153)	-0.679 (0.140)	-0.489 (0.147)	-0.050 (0.021)	-0.030 (0.020)	-0.017 (0.016)	-0.021 (0.011)	0.141 (0.170) [0.022]
Grades 4-8	-1.099 (0.200)	-1.313 (0.175)	-1.115 (0.182)	-1.214 (0.173)	-0.143 (0.030)	-0.092 (0.030)	-0.093 (0.023)	-0.050 (0.014)	0.066 (0.216) [0.010]
<i>First Exposure to TBE</i>									
Grades 1-3	-1.088 (0.241)	-1.144 (0.219)	-1.198 (0.222)	-1.074 (0.228)	0.010 (0.047)	0.047 (0.037)	0.006 (0.032)	-0.017 (0.021)	0.532 (0.261) [0.084]
Grades 4-8	-1.500 (0.301)	-2.362 (0.289)	-2.087 (0.276)	-1.834 (0.302)	-0.257 (0.046)	-0.219 (1.076)	-0.113 (0.037)	-0.114 (0.039)	1.013 (0.351) [0.159]
Other Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes
p-value on									
ESL:									
1-3 = 4-8	0.0497	0.0007	0.0421	0.0005	0.0039	0.0527	0.0018	0.1021	0.7716
TBE:									
1-3 = 4-8	0.2637	0.0017	0.0087	0.0373	0.0000	0.0008	0.0200	0.0229	0.2562
Log-Likelihood	-1663.39	-2133.26	-2168.94	-2332.99					-1748.30
R-Square					0.2508	0.3045	0.2401	0.2453	
Sample Size	3,810	3,809	3,806	3,806	3,735	3,728	3,716	3,699	3,607

Note: The models in columns (1) to (4) are ordered logit models. The models in columns (5) to (8) are OLS models, and the model in column (9) is a logit model. All models contain a full set of controls as listed in column (4) of Table 4. All results are weighted using the base year cross-sectional weight of NELS:88, and all standard errors have been corrected for heteroscedasticity and sample clustering. See text for a description of sample members.

Table 8a
Sub-Group Analysis
 (weighted results)

<i>Dependent Variable</i>	Under-stand English	Speak English	Read English	Write English	Reading Achievement	Math Achievement	Science Achievement	History Achievement	Held Back a Grade
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Full Sample	-0.841 (0.113)	-0.954 (0.100)	-1.008 (0.101)	-1.008 (0.101)	-0.095 (0.018)	-0.067 (0.019)	-0.058 (0.014)	-0.046 (0.010)	0.239 (0.011) [0.037]
Immigrants	-0.772 (0.141)	-0.749 (0.130)	-0.768 (0.131)	-0.826 (0.127)	-0.032 (0.020)	-0.014 (0.022)	-0.009 (0.015)	-0.028 (0.122)	0.079 (0.016) [0.011]
Non-Immigrants	-0.829 (0.237)	-1.182 (0.188)	-1.241 (0.183)	-0.931 (0.183)	-0.160 (0.026)	-0.130 (0.021)	-0.102 (0.019)	-0.064 (0.012)	0.246 (0.185) [0.040]
Hispanic and Immigrant	-0.277 (0.212)	-0.480 (0.196)	-0.547 (0.196)	-0.634 (0.193)	-0.008 (0.028)	0.002 (0.028)	0.001 (0.021)	-0.016 (0.017)	0.091 (0.233) [0.016]
All Hispanics	-0.644 (0.152)	-0.915 (0.132)	-0.977 (0.134)	-0.914 (0.132)	-0.047 (0.024)	-0.028 (0.022)	-0.034 (0.017)	-0.028 (0.013)	0.071 (0.146) [0.013]
Parent Education at or below HS	-0.852 (0.150)	-0.906 (0.139)	-0.908 (0.139)	-0.955 (0.136)	-0.066 (0.025)	-0.057 (0.026)	-0.037 (0.018)	-0.038 (0.015)	0.095 (0.155) [0.019]

Note: The models in columns (1) to (4) are ordered logit models. The models in columns (5) to (8) are OLS models, and the model in column (9) is a logit model. Reported coefficients represent the coefficient on the English language assistance variable in a model containing controls similar to the models in columns (4), (7), (10), and (13) of Table 5 for columns (1) to (4); columns (4), (7), (10), and (13) of Table 5 for columns (5) to (8) above, and column (4) of Table 6 for column (9). The first row of the above table repeats the results from columns (4), (7), (10), and (13) of Tables 4 and 5, and column (4) of Table 6. Each subsequent row represents a sub-group as indicated. Standard errors are in parentheses. All standard errors have been corrected for heteroscedasticity and sample clustering. See text for a discussion of sample members.

Table 8B
Sub Group Analysis Across Programs
 (weighted results)

<i>Dependent Variable</i>	Under-stand English	Speak English	Read English	Write English	Reading Achievement	Math Achievement	Science Achievement	History Achievement	Held Back a Grade
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<i>Full sample</i>									
ESL	-0.306 (0.137)	-0.867 (0.122)	-0.841 (0.123)	-0.795 (0.119)	-0.090 (0.019)	-0.057 (0.018)	-0.049 (0.014)	-0.035 (0.008)	0.086 (0.140) [0.013]
TBE	-0.885 (0.146)	-1.062 (0.132)	-1.216 (0.131)	-1.149 (0.129)	-0.102 (0.026)	-0.081 (0.027)	-0.069 (0.019)	-0.060 (0.016)	0.419 (0.147) [0.066]
<i>Immigrants</i>									
ESL	-0.662 (0.167)	-0.547 (0.154)	-0.533 (0.155)	-0.654 (0.147)	-0.027 (0.023)	0.005 (0.023)	-0.005 (0.018)	-0.015 (0.012)	-0.025 (0.189) [-0.005]
TBE	-0.918 (0.181)	-1.036 (0.171)	-1.096 (0.170)	-1.093 (0.169)	-0.040 (0.031)	-0.046 (0.036)	-0.046 (0.036)	-0.049 (0.019)	0.226 (0.210) [0.031]
<i>Non-Immigrants</i>									
ESL	-0.720 (0.316)	-1.148 (0.243)	-1.186 (0.240)	-0.748 (0.249)	-0.186 (0.037)	-0.155 (0.028)	-0.155 (0.028)	-0.069 (0.014)	0.119 (0.248) [0.020]
TBE	-0.929 (0.299)	-1.216 (0.244)	-1.297 (0.239)	-1.103 (0.235)	-0.134 (0.028)	-0.107 (0.029)	-0.107 (0.029)	-0.058 (0.017)	0.375 (0.246) [0.061]
<i>Hispanic and Immigrant</i>									
ESL	-0.049 (0.267)	-0.234 (0.243)	-0.200 (0.241)	-0.330 (0.235)	0.018 (0.031)	-0.028 (0.033)	-0.028 (0.033)	-0.006 (0.018)	-0.114 (0.288) [-0.020]
TBE	-0.481 (0.254)	-0.726 (0.240)	-0.922 (0.242)	-0.977 (0.241)	-0.003 (0.040)	-0.028 (0.043)	-0.028 (0.043)	-0.026 (0.024)	0.317 (0.292) [0.055]
<i>All Hispanics</i>									
ESL	-0.568 (0.186)	-0.818 (0.160)	-0.828 (0.161)	-0.761 (0.159)	-0.046 (0.026)	-0.026 (0.022)	-0.026 (0.022)	-0.024 (0.011)	-0.042 (0.181) [0.008]
TBE	-0.727 (0.190)	-1.034 (0.171)	-1.165 (0.173)	-1.110 (0.171)	-0.048 (0.033)	-0.031 (0.031)	-0.031 (0.031)	-0.034 (0.021)	0.209 (0.193) [0.038]
<i>Parent Education at or below HS</i>									
ESL	-0.963 (0.184)	-0.854 (0.175)	-0.712 (0.173)	-0.773 (0.169)	-0.071 (0.025)	-0.054 (0.025)	-0.054 (0.025)	-0.035 (0.012)	-0.160 (0.201) [-0.032]
TBE	-0.744 (0.186)	-0.955 (0.172)	-1.108 (0.172)	-1.143 (0.169)	-0.061 (0.037)	-0.060 (0.038)	-0.060 (0.038)	-0.041 (0.023)	0.342 (0.194) [0.068]

Note: The models in columns (1) to (4) are ordered logit models. The models in columns (5) to (8) are OLS models, and the model in column (9) is a logit model. Reported coefficients represent the coefficient on the ESL and TBE variables in a model containing controls similar to the models in columns (5), (8), (11), and (14) of Tables 4 and 5 and column (5) of Table 6. The first row of the above table repeats the results from columns (5), (8), (11), and (14) of Tables 4 and 5, and column (5) of Table 6. Each subsequent row represents a sub-group as indicated. Standard errors are in

parentheses. All standard errors have been corrected for heteroscedasticity and sample clustering. All results are weighted using the 1988 cross-sectional weight. See text for a discussion of sample members.

Figure 1
U.S. Public School LEP Enrollments

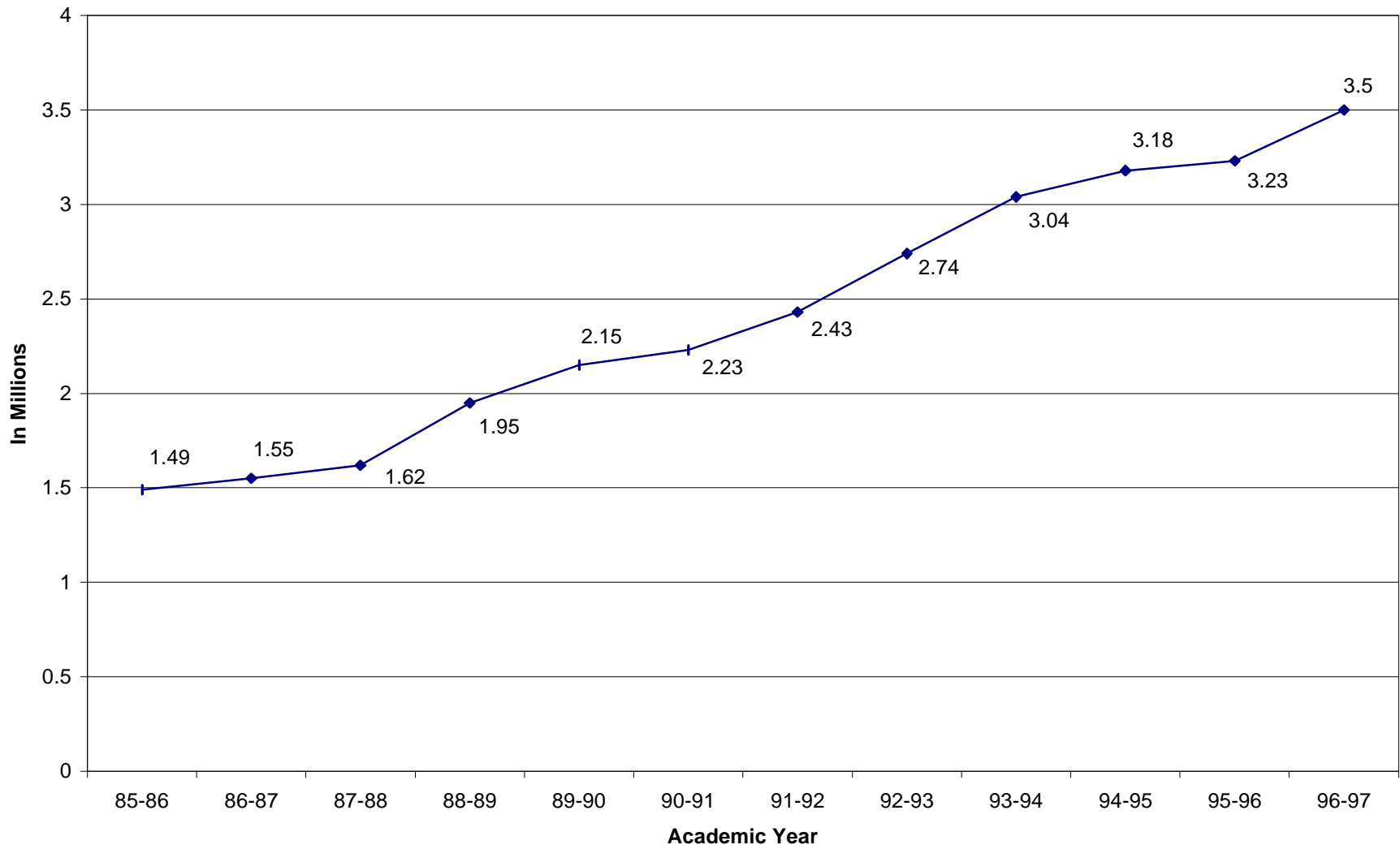


Figure 2
Languages of LEPs, 1993

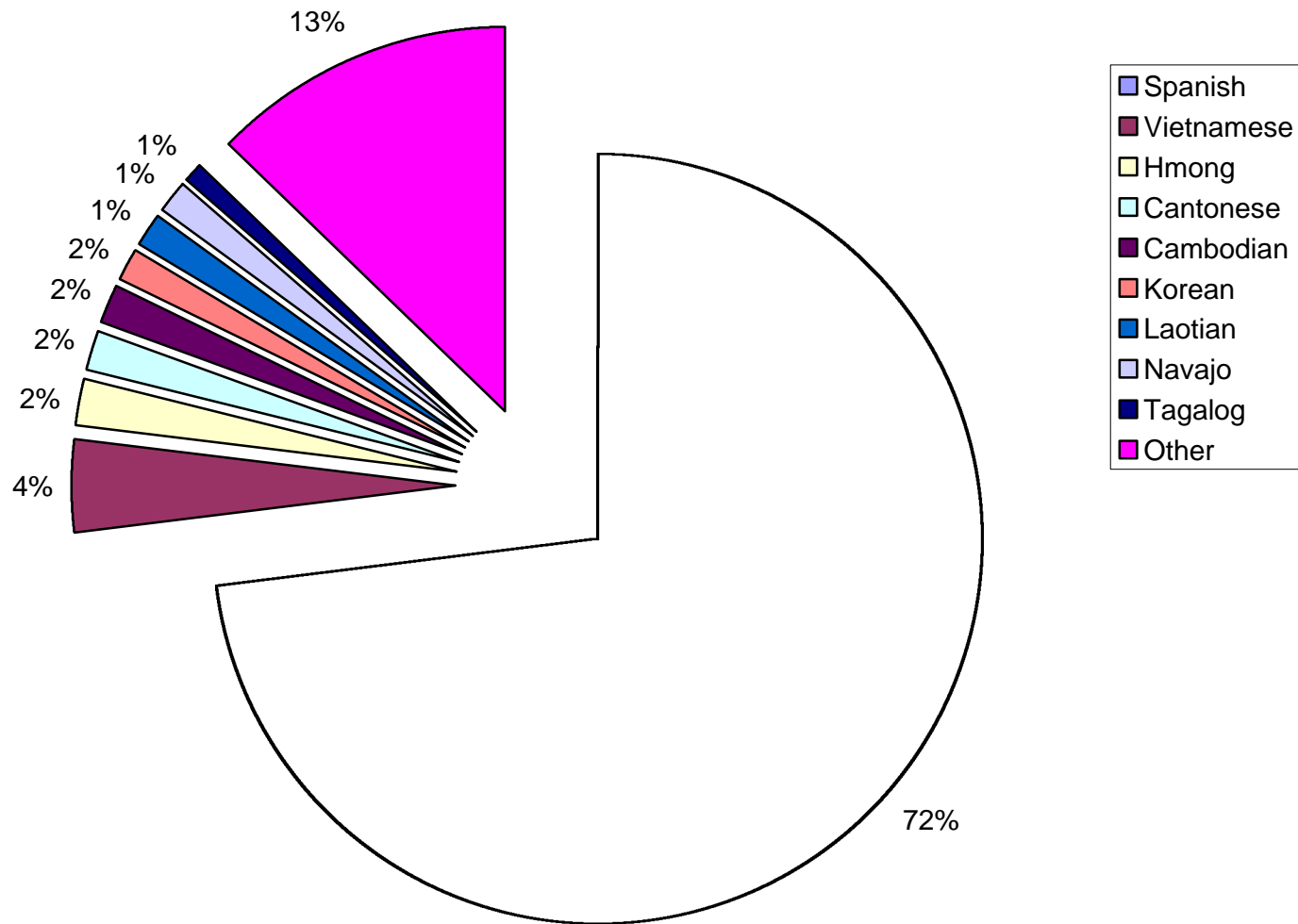


Figure 3
LEP Enrollments by Grade, 1991

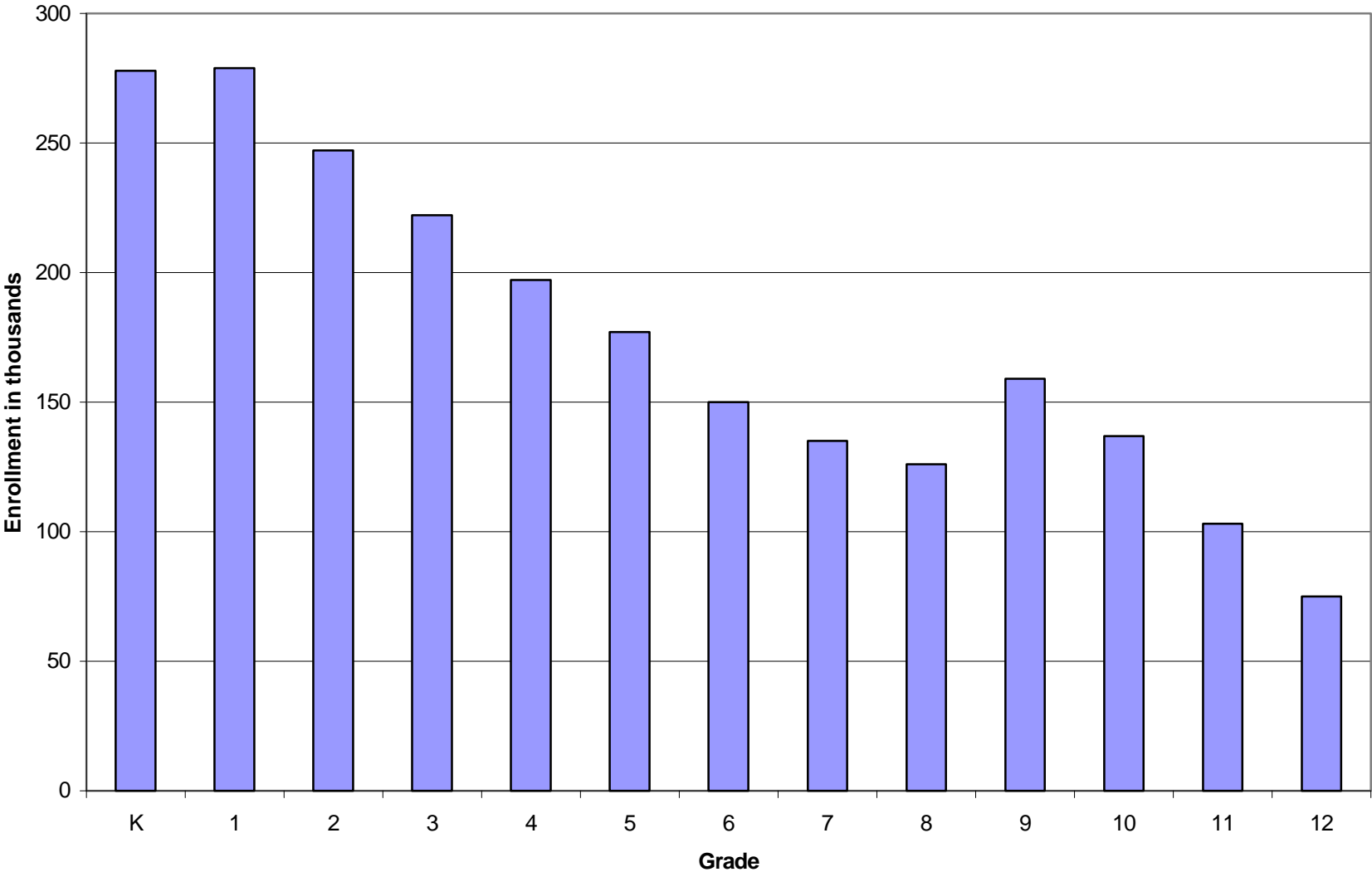


Figure 4
LEP Enrollments by Grade, 1991

