# The Marginal effect of K-12 English language development programs: Evidence from Los Angeles Schools 

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#### Abstract

The growing number of K-12 non-native English speaking students increases the value of optimizing education policy to meet their academic needs. Using a regression discontinuity in test scores from the Los Angeles Unified School District, I analyze the optimal age and English proficiency level for students to enter and exit English language development (ELD) programs. I find marginal kindergarteners receive small academic gains from entering ELD classes. Marginal 2nd to 4th graders who are reclassified from ELD to mainstream English classes receive large benefits to their English test scores (0.25 SD) and GPA that persist over the next 7 years. Boys receive the majority of the benefits. I find no evidence that students reclassified in later grades receive any benefit. Achievement gains can be obtained by enrolling more students into ELD programs in kindergarten and choosing to transition them into mainstream English classes sooner.


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Over the last several decades there have been large increases in the number of non-native English speaking students in US schools. Currently, 4.7 million K-12 students, $10 \%$ of all K-12 students, have limited English communication skills and are labeled as English Language Learners (ELLs). This is a $27 \%$ increase from the 3.7 million ELLs in 2001 (Aud et al., 2012). In addition, Thomas and Collier (2002) project that the ELL population will increase to $17 \%$ of K-12 students by 2030 , with most of this change coming from increases in the proportion of students

[^0]speaking Spanish. With this large and growing population of non-native English speaking students, closing the sizeable white-Hispanic educational achievement gap (Fryer \& Levitt, 2004; Lee, 2002) could greatly benefit individuals, families, and society.

The growing number of ELLs has increased the attention on how to best meet ELLs' educational needs (Cheung \& Slavin, 2005; Rossell \& Baker, 1996). There has been particular policy interest in providing special instruction, coursework, and services to help support ELLs (August, 2002; Willig, 1985). Most schools provide separate classes for ELLs with specialized instruction until their English proficiency is deemed adequate. Much of the political debate has focused on how much instruction should be provided in English versus the students' native language. By determining the best policies for ELLs, administrators hope to reduce the Hispanic-White achievement gap.

This paper uses a regression discontinuity design to answer two questions. First, at what level of English language proficiency should incoming kindergarteners be placed into mainstream English classes instead of ELD classes? To do this, I test whether entering an ELD program is beneficial to the marginal student with limited English proficiency. Second, after being placed in ELD classes, at what age and level of English language progression should ELLs be moved into mainstream English classes? In particular, I test whether ELLs are currently staying in specialized classes for too long or not long enough. These two questions address whether student achievement can be increased by changing the inflow and outflow of students in ELD programs. I answer these questions for both the short term (1-2 years after reclassification), and the medium term (3-7 years after reclassification) with several outcome measures: English and math state test scores, GPA, attendance, and grade retention.

The Los Angeles Unified School District (LAUSD) uses cutoff values in test scores to classify students as ELLs and reclassify them as mainstream English students. These cutoffs create discontinuities where students with very similar English language ability are assigned to ELD or mainstream classes based on small differences in test scores. Exploiting these discontinuities, I find that marginal kindergarteners placed in mainstream English classes perform slightly worse than marginal kindergarteners placed in ELD programs. I find no evidence of an effect on math test scores. For marginal kindergarteners, being placed in mainstream English classes decreases their 2nd to 8th grade English test scores by 0.014 to 0.104 standard deviations. I find no evidence of an effect on GPA, attendance, and grade retention.

In answering the question regarding the outflow of ELLs, I find that marginal students placed in mainstream classes in 2nd to 4th grade obtain large, persistent benefits in both their English test scores and English GPA. I find no evidence that marginal students in 5th to 10th grade receive such benefit. I also find no evidence that either group sees persistent benefits in math test scores or math GPA. One year after being reclassified, students in 2nd to 4 th grade have a 0.163 standard deviation increase in their English test scores compared to students who were not reclassified and 7 years after being reclassified English test scores are 0.306 standard deviations higher. In addition, young boys receive a larger benefit from reclassification than young girls. The benefit for boys over the next 7 years of being reclassified in 2nd to 4th grade ranges from 0.247 to 0.443 standard deviations and for girls it ranges from 0.023 to 0.217 standard deviations. I find no evidence that being reclassified effects attendance or grade retention. These results indicate that reclassifying marginal ELLs sooner to mainstream English classes would lead to large academic benefits.

These results imply that academic gains could be obtained by slightly increasing the inflow of students into ELD programs and by increasing the early outflow of students from these programs. It appears that students with limited English communication skills benefit from ELD programs and they would benefit more by increasing the reclassification rate from ELD programs in earlier grades. In
essence, the results imply that expanding ELD programs while shortening the length of time students spend in the program could increase ELLs academic achievement.

Much of the inequality in the United States is explained by the dispersion in human capital such as health and education (Eicher \& Garcia-Penalosa, 2001; Mincer, 1958). The dispersion of human capital is caused by many sources, but a leading contributor to these differences is education, particularly at young ages. Restuccia and Urrutia (2004) find that about one-half of the intergenerational correlation in earnings is determined by parental investment into early education. Differences in classroom instruction of ELD and mainstream English classes for young children may have large effects on the differences in individuals' level of human capital and life outcomes.

Many school districts and education agencies have produced reports on the differences between kindergarteners place in ELD programs versus mainstream classes and ELLs versus reclassified ELLs. They find that students placed in mainstream classes perform substantially better than students placed in ELD programs. However, these reports are merely descriptive and do not take into account the clear selection problem that high English ability students are placed in mainstream English classes while low English ability students are not. Besides these descriptive reports, no previous research has looked at the effect of placing kindergarteners into ELD programs versus mainstream English classes. However, there has been a substantial amount of research looking at the effect of reclassification of students to mainstream English classes (Callahan, 2005; Slama, 2012; Umansky \& Reardon, 2014; Valentino \& Reardon, 2015). This research finds mixed results on the effect of reclassification on students' academic outcomes.

There are three papers that are particularly relevant to this paper. Robinson (2011) uses a regression discontinuity design to look at the effect of reclassification on test scores 1 year after reclassification for older students. His findings corroborate my findings that there is no evidence that older students receive academic gains from reclassification. Matsudaira (2005) also uses a regression discontinuity design for an undisclosed school district and also finds no evidence of an effect of reclassification on test scores for students in older grades 2 years after reclassification. In concurrent work, Robinson-Cimpian, Karen, and Thompson (2015) use both a regression discontinuity design and a policy change to look at the effect of reclassification. They find no evidence of an effect of reclassification on marginal younger students. However, they find that reclassifying a marginal student in 9th or 10th grade has a negative effect on the student's English test scores and likelihood of graduation.

This paper contributes to the literature in the following ways. First, this paper is the first to look at the effect of initial classification of kindergarteners into either mainstream English or ELD classes. Second, this paper contributes to the literature on the reclassification of ELL students by adding additional analysis to this subject. In contrast to past research that found no evidence of an effect for young students, this paper finds large positive academic benefits from the reclassification of young ELL students to mainstream English classes. Third, this paper is able to

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