Teacher Attrition in Charter and Public Schools

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This paper examines attrition and retention rates among teachers in charter and traditional public schools. This study finds that among all teachers, there is no difference in the attrition rate between charter and traditional public school teachers. Among new teachers, charter teachers are 3.39 times more likely to leave teaching than their traditional public school counterparts. Among new teachers who voluntarily leave or move, teaching at a charter increases the odds of leaving by a factor of 3.04. The difference between the two rates indicates that charter schools may be exercising their freedom to let go of teachers which are not a good fit for their schools. Teachers with a higher opportunity cost of teaching, those teaching high school, those with graduate degrees, and those with grater responsibilities outside of the classroom are more likely to leave the profession.

Keywords: Teacher Attrition, Teacher Retention, Teacher Mobility, Charter Schools, School Choice, Schools and Staffing Survey

JEL Codes: I20, I21, I29, J45, J63

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1 INTRODUCTION

Teacher attrition in the public school system is a subject of much concern among policymakers. It is estimated that the cost of replacing a teacher is roughly 25% of the salary and benefits per teacher (Texas Center for Educational Research 2000). Attrition may be beneficial, if those who are not committed and those who are the least effective are the ones leaving. If, however, higher quality teachers are the ones who are leaving, then attrition becomes a problem. Furthermore, a constant churn of teachers in and out of schools may introduce instability into students' academic careers.

Charter schools are a hybrid of public and private schools in that they are publicly funded but may be exempt from some constraints associated with traditional public schools. Charter teachers are generally younger than traditional public school teachers, and they are less likely to be union members. They are also more likely to be from better ranked colleges. Proponents of the charter school movement believe the autonomy associated with charters may make them attractive workplaces for teachers. Given the fundamental differences between charter and public schools, investigating if there is a difference in attrition may illuminate how to encourage effective teachers to remain in the profession.

Attrition includes both teachers who leave the profession as well as those who switch schools. Attrition is higher among newer, younger teachers (Hansen et al. 2004, Inman and Marlow 2004, Miron and Applegate 2007). Roughly 11% of teachers exit in their first year of teaching, while nearly 40% leave within 5 years (Ingersoll 2002). Certified teachers are less likely to leave (Ondrich et al. 2008), and noncertified teachers are more likely to leave (Miron and Applegate 2007). Teacher attrition is also high in schools located in urban areas (Lankford et al. 2002) and in schools which serve minority (Feng 2010, Feng 2009, Hanushek et al. 2004, Scafidi et al. 2007) or poorer students (Lankford et al. 2002). Since charter teachers are newer and younger than traditional teachers, since they are less likely to be certified, and since charters disproportionately serve minority students, the attrition rate may be higher at charter schools. Charter teachers also have more autonomy than traditional public school (TPS) teachers, so attrition may be lower in charters.

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With the rise of the charter school movement, recent literature has attempted to examine attrition in charter and public schools. The results are somewhat mixed. In Florida, charter teachers are more likely to leave their schools than TPS teachers, though those who leave are the weaker ones (Harris 2007). Meanwhile, in Wisconsin, the high rates of turnover in charter schools is attributed to the types of teachers hired and charter location as opposed to their charter status (Gross and DeArmond 2010). Among charter teachers in Florida, the less experienced are not more likely to move to another school (Harris 2007). Studies on charters in Wisconsin and Florida may not be generalizable to the nation, as their charter laws are relatively strict and teacher requirements are similar between the two school types. For example, in other states, newer and younger teachers are more likely to leave charters (Miron and Applegate 2007) .

Cannata (2010), using a binomial logistic hierarchical linear model, also finds charter teachers leave their schools at a greater rate than TPS teachers. She cites that inexperience and lack of certification are the main drivers of decisions to leave. She finds no difference in the odds of leaving for charter and TPS teachers after controlling for teacher and school characteristics and teacher experiences. Cannata's analysis only investigates teachers who leave teaching, not those who switch schools.

Using data from the 1999-2000 Schools and Staffing Survey (SASS) and the 2000-2001 Teacher Follow up Survey (TFS), Renzulli et al. (2011) estimate a multinomial logit model and find that charter teachers are 3.47 times more likely to leave schools and 2.7 times more likely to leave teaching altogether than TPS teachers. While the authors control for teacher and school characteristics, they do not account for certification nor for qualifications such as the competitiveness of the teacher's undergraduate college. Stuit and Smith (2009, 2012) find similar results using the 2003-2004 SASS and TFS. Using a multinomial logit, the authors find that charter teachers are more likely to leave teaching and to move schools than traditional teachers, though their analysis is limited to sixteen states.

This study draws on the previous literature on attrition and retention in schools and attempts to clarify the ambiguity. It investigates how attrition, measured in terms of both leaving teaching altogether and switching schools, differs between charter and public school teachers and among teachers with different

qualifications. It further examines how attrition rates vary for all teachers versus new teachers. Furthermore, it investigates differences in attrition among teachers who voluntarily left their schools.

This chapter is organized as follows: Section 3.2 describes the relevant literature. Section 3.3 defines the empirical strategy, and section 3.4 describes the data. Section 3.5 presents the results, while section 3.6 concludes.

2 LITERATURE REVIEW

Teachers' mobility decisions are a factor of personal and professional characteristics. These include general demographic and household characteristics, quality and qualifications, financial aspects, and nonpecuniary aspects of teaching.

With respect to personal demographics, Black teachers are more likely to leave teaching while Hispanic teachers are more likely to transfer districts (Feng 2009). Gender's role in the mobility decision is slightly murky. One study suggests that females are more likely to leave (Guarino et al. 2006), while another finds that males are more likely to leave (Harris 2007). Among charter school teachers, gender and race are not significant predictors of the mobility decision (Miron and Applegate 2007).

One of the seemingly most obvious reasons why teachers may leave their profession is low pay or relatively lower pay given outside options. The literature on this aspect is mixed. One study reports that teachers do not leave for higher paying jobs (Scafidi et al. 2006), while others claim that they are less likely to change districts or leave teaching when they are paid relatively more (Feng 2009, Ondrich et al. 2008). Other studies suggests that teachers respond to pay incentives, though the effect is small (Hansen et al. 2004, Hanushek et al. 2004).

Similarly, teachers who may have greater opportunities outside of teaching, such as those from higher-ranked colleges, those with graduate degrees, or those who teach high school, may be more likely to leave. Again, the findings in the literature are slightly mixed. Some studies indicate that teachers with greater qualifications and those who are more effective are less likely to leave (Feng and Sass 2011, Goldhaber et al. 2010, Boyd et al. 2011, Boyd et al. 2008). A host of other studies suggest that teachers graduating from better

ranked colleges are more likely to leave teaching earlier (Guarino et al. 2006, Henke et al. 2000, Lankford et al. 2002, Murnane and Olsen 1989, Murnane and Olsen 1990, Podgursky et al. 2004). One study finds that both higher and lower quality teachers are more likely to leave teaching than are average quality teachers (Feng and Sass 2011).

The literature on the effects of advanced degrees on attrition is ambiguous as well. Some studies suggest teachers with Master's degrees are more likely to leave (Hensen et al. 2004), while others suggest they are less likely to leave (Feng 2009).

High school teachers are more likely to leave teaching (Guarino et al. 2006, Henke et al, 2001, Ingersoll 2001, Kirby et al. 1999, Miron and Applegate 2007). Female math and science teachers are more likely to leave teaching than female elementary school teachers (Ondrich et al 2008).

School context matters to teachers, as they respond to school and student characteristics, as well as their experiences in their schools. Teachers are more likely to leave low-achieving schools and academically disadvantaged students (Hanushek et al. 2004). This effect is greater for more qualified teachers (Boyd et al 2005, Lankford et al. 2002). Teachers are more likely to leave when they are in higher poverty schools (Harris 2007).

Teachers who leave cite a lack of professionalism, support, and collegiality as reasons for why they may leave (Inman and Marlow 2004). Johnson and Birkeland (2003) also find teachers leave due to lack of clear expectations and unsupportive and cooperative environments.

Charter teachers are less likely to move or leave schools with greater proportion of limited-English proficient (LEP) students, while public school teachers are more likely to leave these schools (Harris 2007). Male teachers are more likely to move, and inexperienced public school teachers more likely to move than the more experienced (Harris 2007).

Thus, the literature and conclusions on teacher attrition leave an incomplete and complex picture. It appears that newer, younger teachers leave teaching at a greater rate than their more experienced counterparts. Teachers also leave more challenging work environments. Teachers who have greater opportunity costs of teaching may be more likely to leave teaching. What remains unclear is if the attrition

rate differs for charter and TPS teachers, and if teacher qualifications, such as the competitiveness of the teacher's undergraduate college, matter.

This study draws on the previous literature and attempts to clarify which teacher, school, and student characteristics enter into the teacher mobility decision. Furthermore, while most studies incorporate teacher demographic characteristics such as age, race, and gender, household characteristics tend to be lacking from the analysis. This study incorporates household characteristics into the mobility decision as a teacher must factor in not only work-related aspects, but also his or her home life and necessities. Finally, this study investigates differences in attrition for different sub-groups of teachers, including new teachers and those who voluntarily left teaching, a characteristic often ignored in the literature[2].

3 EMPIRICAL STRATEGY

To investigate factors that determine attrition rates, this study estimates a multinomial logit model to determine the probability that a teacher may leave or move schools. The model is:

$$P(A_i = j|x) = \frac{\exp(x\beta_j)}{\left(1+\sum_{h=1}^{J}\exp(x\beta_j)\right)}, j = 1,2 \quad (1)$$

$$x\beta_j = T_i\alpha + P_i\gamma + S_i\delta$$

where A is attrition and j=0 represents staying in the current school, j=1 represents leaving teaching altogether, and j=2 represents switching schools. The vector T contains teacher characteristics, the vector P includes information regarding teacher's perceptions of their school and experiences, and S is a vector of school characteristics.

Contained in T are teacher i's demographic, household, and teacher characteristics. These include the teacher's age, gender, ethnicity, marital status, the competitiveness of the teacher's undergraduate institution, and if the teacher holds a Master's or doctorate degree. *A priori*, this study expects that younger

[2]Feng (2010, 2009) and Feng and Sass (2011) acknowledge that turnover may be a result of school actions, though they cite that in Florida 85-90% of turnover is voluntary. Since their data are from Florida, they therefore include both voluntary and involuntary leavers.

teachers will be more likely to leave or move schools as they will be less likely to be settled and established at their schools.

This study does not have an expectation about the role of gender in the mobility decision, as prior literature was ambiguous. Females may be more likely to leave teaching, especially if they are caretakers of their families. At the same time, they may be less likely to leave due to the convenient schedule of teaching if they are caretakers and have a perceived lack of options.

Married teachers may be more likely to leave as they have the security of their spouse's income and/or may have to leave teaching because of their spouse's job. On the other hand, married teachers may not be more likely to leave because their lives are more stable than teachers who have never been married. This study expects that teachers who are divorced or who become divorced or separated are more likely to move schools, as they may have had to move due to their divorce or separation.

With respect to the competitiveness of the teacher's undergraduate institution, this paper anticipates that teachers graduating from higher ranked colleges may be more likely to leave teaching as they have a greater opportunity cost of teaching. Similarly, teachers with graduate degrees may be more likely to leave teaching than those without as they also have greater opportunity costs of teaching.

The household characteristics include the number of children under age five, number of family members, and household income. These characteristics are often ignored in studies on attrition and retention, likely because they are difficult to obtain; however, these characteristics should be included since teachers make mobility decisions based on their own personal lives and households as well as based on their career experiences.

This study projects that the probability of leaving teaching is increasing in the number of children a teacher has under five years of age. Teachers with young children will require day care for their young children, increasing the cost of teaching. Along the same lines, teachers with larger households may be more likely to leave teaching as they may have to be the caretakers.

This study expects that teachers who are from households in the top tiers of the income distribution will be more likely to leave teaching than those from the middle or lower end of the distribution as these

teachers' salaries likely will be a small part of the income and perhaps unneccessary. Meanwhile, teachers from the lower or middle of the income distribution range may be more likely to stay in the profession as these teachers may be significant contributors to their household's well-being.

Teaching characteristics include the number of years of total teaching experience and it square, the number of years the teacher taught at the school and its square, if the teacher is a secondary or primary school teacher, whether the teacher is a union member, if the teacher is part time, the teacher's log yearly earnings, and the teacher's certification status. *A priori* expectations suggest that newer teachers and teachers who are newer to their schools will be more likely to leave teaching or to move schools.

This study anticipates secondary school teachers are more likely to leave teaching than elementary school teachers. It expects that nonunionized teachers are also more likely to leave as they do not have union support and may not be as committed to teaching. Part-time teachers also are more likely to leave as they may be teaching part time while they look for a permanent job or because they may have other obligations that make teaching or having a full time job unattractive.

Teachers who earn more will be less likely to leave or move schools. Moving schools may cause teachers to earn less money, depending on the salary structure of the receiving school. Furthermore, teachers who earn more may be at better schools or may have been at their schools longer, also contributing to the decision to stay. Finally, uncertified teachers are expected to leave teaching at greater rates as these teachers have less invested in their teaching careers than certified teachers.

The vector *P* contains information regarding teachers' perceptions or experiences at their schools. This includes information regarding the teacher's level of satisfaction with his/her job, whether the teacher believes if the school is run well, if the teacher has ever thought about transferring, or if the teacher believes other teachers enforce school rules. This study anticipates that more satisfied teachers will be less likely to leave or move schools. It also expects that teachers will be less likely to leave if they agree that the school is run well. It expects that teachers who have thought about transferring will be more likely to move schools and less likely to leave teaching. Teachers who think about transferring may be dissatisfied with their current schools, but they may be committed to teaching. Finally, this study expects that teachers who agree that

other teachers enforce school rules will be more likely to stay since enforcement may reflect a sense of support and community that teachers seek.

Also included in the vector *P* are variables indicating whether the teacher believes s/he has control over choosing his/her own teaching technique, choosing the materials for class, or over disciplining the students. A priori, this study expects that greater degrees of control will be associated with decreases in the probability of leaving teaching, as teachers may desire autonomy in their classrooms.

Finally, *S* contains all student and school characteristics. These include an indicator for charter status, the percent of students on an individualized education plan (IEP), the percent who are limited-English proficient (LEP), the percent on school lunch, and the percent of students and the percent of teachers who are Hispanic, Black, White, or Other (Asian, American Indian, or Pacific Islander). A priori expectations suggest that teachers will be more likely to leave schools where they teach greater percentages of students on an IEP, who are LEP, and who are on free or reduced price lunch. Finally, it expects that teachers may be more likely to leave schools with greater proportions of minority students. It expects that Black and Hispanic teachers may be more likely to leave teaching than White teachers.

The vector *S* also includes the teacher's class size (or average class size if the teacher teaches multiple groups of students) and an indicator for if the school has teachers with no classroom. This study expects that teachers who have larger class sizes may be more likely to move schools than to stay. It also expects that teachers will be more likely to leave schools if there are not enough classrooms for each teacher to have his/her own, although having too few classrooms may indicate that the teachers are happy and wish to stay at that particular school.

S contains characteristics of the school's organization and mission. These include characteristics such as if it is a school for problem children or if it has admissions requirements, if the classes are taught with an interdisciplinary focus, or if there is team teaching at the school. *A priori* expectations suggest that teachers will be more likely to switch schools if it is a school targeted at problem children. Teachers will be more likely to stay if the school has admissions requirements, as students at these schools must have an increased desire to be at these schools. Finally, teachers will be more likely to switch schools if the school has an

interdisciplinary teaching focus or team teaching focus. Although, having an interdisciplinary focus may be part of a school's mission, and if teachers choose their schools based on the mission, they may be more likely to stay due to the interdisciplinary aspect.

Final controls included are indicators for if the school has a twelve month schedule or block scheduling, both of which may be associated with lower retention at that school. Finally, urbanicity, whether it is urban or rural, and state fixed effects also are included. State fixed effects are important in this analysis, as not only do states determine teachers' retirement packages and requirements, but charter laws vary by state. Some states have very lenient charter laws, while others are more strict. Although the laws vary by state, it should also be noted that not all charters within a state are the same and may vary quite significantly from other charters in the state; however, this study treats all charter schools the same.

4 DATA

The data come from the restricted-use 2003-2004 Schools and Staffing Survey (SASS) and the 2004-2005 Teacher Follow-up Survey (TFS). The SASS is a stratified probability proportional to size survey that is administered every four years. The SASS is composed of a series of questionnaires at the teacher, school, principal, and district levels. Schools are sampled and surveyed first, and then teachers are sampled from the responding schools. Teachers within schools are surveyed at a rate of at least one and no more than 20 teachers per school, with an average between 3 and 8 teachers sampled per school. The TFS is based on a sub-sample of SASS teacher respondents to track attrition and retention in schools. To help determine what drives attrition, the TFS purposefully oversamples teachers who leave teaching (leavers) and teachers who switch schools (movers).

The teacher survey contains a series of questions about the teacher's demographic characteristics (e.g., age, race, gender); educational attainment, including the name of the teacher's undergraduate college, degrees obtained, years of graduation; years of teaching experience and years of teaching at the current school; and certification status. It also contains questions about teacher's perceptions of the school climate

and about the teacher's attitudes towards teaching and his or her school. Answered ranged from 4 "Strongly Agree" to 1 "Strongly Disagree."

To obtain the ranking and competitiveness of the teacher's undergraduate college, this study utilized rankings from Barron's Profiles of American Colleges, which ranks all four year institutions which offer bachelor's degrees if they are fully accredited or are recognized as candidates for accreditation. The rankings are divided into six tiers, Most Competitive, Highly Competitive, Very Competitive, Competitive, Less Competitive, and Non Competitive. This study complied a dataset of the rankings for the publication years 1970, 1984, 1986, 1992, 1994, 1996, 1998, 2000, and 2002. It identified the Barron's ranked colleges IPEDS codes from the National Center of Education Statistics (NCES) for use in merging the rankings to the SASS data. It dropped specialized colleges (e.g., religious or arts schools), those that closed or merged, colleges with multiple campuses that are not uniquely identifiable in both datasets, and foreign colleges from the analysis. Teachers' colleges competitiveness is identified off of the ranking in the year closest to when the teacher entered college. For example, a teacher who entered college in 1990 received the 1992 ranking.

The school survey contains information regarding the demographic make up of the teachers and students at the school. Student characteristics include the percentages and number of students on IEPs, of students who receive free or reduced price lunch, and of students who are LEP. It also contains information regarding the organization of the school, schedule of the school year, special programs or focuses, and information on class sizes. Finally, it contains geographic information, including the state and urbanicity of the school.

The Teacher Follow-Up Survey indicates if the teachers remained in their positions between the 2003-2004 and 2004-2005 academic years, if they switched schools (movers), or if they left teaching altogether (leavers). It also contains information regarding why they left, including if it was the result of a school staffing action (e.g., layoff, lack of contract renewal) or other reason (e.g., maternity or leave, retirement). It contains demographic information regarding the teacher's household, such as the number of children under age 5, the number of people in the household, the teacher's marital status, the teacher's marital status the year before, and information regarding the household income.

There were 1,830[3] former public school teachers and there were 3,500 current public school teachers in the TFS. Teachers without a college identifier or who did not have a school identified in the school survey were dropped from the analysis. The 650 teachers who retired after the 2003-2004 academic year were also excluded from the analysis. The final sample consists of full or part time regular teachers who are not on maternity, paternity, disability leave, or sabbatical. The full sample is 3,500 teachers. Of these teachers, 970 were teachers with three or fewer years of experience who started within 5 years[4].

5 RESULTS

5.1 Descriptive Statistics

Table 1 illustrates the differences between leavers and movers versus stayers. Leavers and movers are more likely to be from charter versus traditional public schools. They are more likely to be graduates of Less and Non Competitive colleges, but they are less likely to be graduates of Competitive colleges. Generally, they are younger than traditional teachers, and they have more children under the age of 5 years.

[3] All samples are rounded to the nearest 10 for confidentiality purposes associated with the restricted-use nature of the data.

[4] The SASS defines a new teacher as one with three or fewer years of teaching experience. Many of these teachers started teaching greater than 5 years ago, but still have fewer than 3 years of experience. This study defined new teachers as those with three or fewer years of teaching experience who started within 5 years. This corresponds to the idea that teachers progress along a learning curve in their first few years, and it also corresponds to the idea that teachers leave teaching within their first 5 years.

Table 1. Descriptive Statistics for Leavers and Movers versus Stayers, All Teachers

	Leavers/Movers			Stayers			Difference			
	Mean	Std Err	N	Mean	Std Err	N	Mean	Std Err	t-stat	N
Charter (=1)	0.065	0.008	1970	0.051	0.006	1530	0.015	0.008	1.81	3500
New Teacher (=1)	0.278	0.015	1970	0.273	0.011	1530	0.004	0.015	0.28	3500
Most Competitive College (=1)	0.008	0.003	1970	0.008	0.002	1530	-0.001	0.003	-0.29	3500
Highly Competitive College (=1)	0.044	0.007	1970	0.038	0.005	1530	0.005	0.007	0.76	3500
Very Competitive College (=1)	0.143	0.012	1970	0.144	0.009	1530	0.000	0.012	-0.04	3500
Competitive College (=1)	0.454	0.017	1970	0.511	0.013	1530	-0.058	0.017	-3.40	3500
Less Competitive College (=1)	0.257	0.015	1970	0.230	0.011	1530	0.027	0.015	1.84	3500
Non Competitive College (=1)	0.095	0.009	1970	0.068	0.007	1530	0.027	0.009	2.88	3500
Age (Hundreds yrs)	0.382	0.004	1970	0.407	0.003	1530	-0.025	0.004	-6.43	3500
Female (=1)	0.720	0.015	1970	0.746	0.011	1530	-0.025	0.015	-1.67	3500
Tch Hispanic (=1)	0.041	0.007	1970	0.035	0.005	1530	0.006	0.007	0.92	3500
Tch Black (=1)	0.100	0.010	1970	0.086	0.007	1530	0.014	0.010	1.44	3500
Tch Oth Ethnicity (=1)	0.062	0.008	1970	0.042	0.006	1530	0.019	0.008	2.55	3500
No. Children Under 5	0.396	0.022	1970	0.292	0.017	1530	0.104	0.022	4.69	3500
No. Family Members	2.763	0.046	1970	2.773	0.034	1530	-0.010	0.046	-0.22	3500
Got Married (=1)	0.044	0.007	1970	0.044	0.005	1530	0.000	0.007	-0.01	3500
Got Divorced (=1)	0.018	0.004	1970	0.011	0.003	1530	0.007	0.004	1.62	3500
Married Dec 2003 (=1)	0.646	0.016	1970	0.650	0.012	1530	-0.004	0.016	-0.24	3500
Separated/Divorced Dec 2003 (=1)	0.106	0.011	1970	0.108	0.008	1530	-0.002	0.011	-0.15	3500
Never Married Dec 2003 (=1)	0.239	0.014	1970	0.230	0.011	1530	0.009	0.014	0.60	3500
Household Income <$35,000 (=1)	0.110	0.010	1970	0.066	0.007	1530	0.044	0.010	4.49	3500
Household Income $35,000-50,000 (=1)	0.222	0.014	1970	0.181	0.010	1530	0.042	0.014	3.03	3500
Household Income $50,000-75,000 (=1)	0.197	0.014	1970	0.194	0.010	1530	0.003	0.014	0.23	3500
Household Income $75,000-100,000 (=1)	0.206	0.014	1970	0.235	0.011	1530	-0.029	0.014	-2.10	3500
Household Income $100,000+	0.157	0.013	1970	0.194	0.010	1530	-0.038	0.013	-2.92	3500
Years Experience Total	10.105	0.329	1970	12.309	0.247	1530	-2.204	0.329	-6.69	3500
Years Teaching at School	5.313	0.242	1970	7.734	0.181	1530	-2.421	0.242	-10.02	3500
High School (=1)	0.552	0.017	1970	0.488	0.013	1530	0.064	0.017	3.77	3500
Union Member (=1)	0.655	0.016	1970	0.756	0.012	1530	-0.101	0.016	-6.51	3500
Part Time Teacher (=1)	0.082	0.008	1970	0.040	0.006	1530	0.041	0.008	4.98	3500
Log Yearly earnings	10.505	0.011	1970	10.619	0.008	1530	-0.115	0.011	-10.39	3500
Hours per Week	51.545	0.364	1970	52.440	0.273	1530	-0.895	0.364	-2.46	3500
Graduate Degree (=1)	0.397	0.017	1970	0.425	0.013	1530	-0.028	0.017	-1.68	3500
No certificate (=1)	0.045	0.006	1970	0.022	0.005	1530	0.024	0.006	3.79	3500
Other certificate (=1)	0.164	0.012	1970	0.136	0.009	1530	0.028	0.012	2.25	3500
Regular State Certificate (=1)	0.791	0.013	1970	0.842	0.010	1530	-0.051	0.013	-3.86	3500

Table 1. Descriptive Statistics for Leavers and Movers versus Stayers, All Teachers (cont).

	Leavers/Movers			Stayers			Difference			
	Mean	Std Err	N	Mean	Std Err	N	Mean	Std Err	t-stat	N
Teacher Satisfied with Teaching at School	3.200	0.027	1970	3.526	0.020	1530	-0.325	0.027	-12.10	3500
Teacher Agreement School Run Well	2.805	0.027	1970	3.005	0.020	1530	-0.199	0.027	-7.33	3500
Teacher Agreement Thought of Transferring	2.309	0.032	1970	1.878	0.024	1530	0.431	0.032	13.46	3500
Teacher Agreement Teachers Enforce Rules	2.857	0.031	1970	2.947	0.023	1530	-0.090	0.031	-2.90	3500
Teacher Control over Teaching Technique	3.604	0.021	1970	3.647	0.016	1530	-0.043	0.021	-2.02	3500
Teacher Control over Materials	2.736	0.035	1970	2.810	0.026	1530	-0.074	0.035	-2.11	3500
Teacher Control over Disciplining Students	3.433	0.023	1970	3.516	0.017	1530	-0.083	0.023	-3.60	3500
Pct Students on Individual Ed Plan	0.421	0.013	1970	0.387	0.009	1530	0.034	0.013	2.65	3500
Pct Students Limited English Proficient	0.153	0.009	1970	0.132	0.007	1530	0.021	0.009	2.25	3500
Ave Class Size	21.944	0.410	1970	22.405	0.307	1530	-0.461	0.410	-1.12	3500
Percent Students on Free Lunch	0.436	0.010	1970	0.407	0.007	1530	0.030	0.010	3.01	3500
School is for Problem Children	0.017	0.004	1970	0.010	0.003	1530	0.007	0.004	1.87	3500
School has Admissions Requirements	0.113	0.011	1970	0.108	0.008	1530	0.005	0.011	0.45	3500
School has Teachers with No Classrooms	0.330	0.016	1970	0.369	0.012	1530	-0.039	0.016	-2.39	3500
Percent Students Hispanic	0.139	0.008	1970	0.144	0.006	1530	-0.006	0.008	-0.76	3500
Percent Students Black	0.203	0.009	1970	0.169	0.007	1530	0.034	0.009	3.69	3500
Percent Students Other Ethnicity	0.073	0.005	1970	0.049	0.004	1530	0.023	0.005	4.69	3500
Percent Teachers Black	0.100	0.006	1970	0.082	0.005	1530	0.018	0.006	2.86	3500
Percent Teachers Hispanic	0.046	0.004	1970	0.051	0.003	1530	-0.006	0.004	-1.25	3500
Percent Teachers Other	0.030	0.003	1970	0.018	0.002	1530	0.012	0.003	3.80	3500
School Schedule Block (=1)	0.418	0.017	1970	0.386	0.013	1530	0.033	0.017	1.95	3500
School 12 Month Schedule (=1)	0.067	0.008	1970	0.037	0.006	1530	0.030	0.008	3.88	3500
School has Interdisciplinary Teaching (=1)	0.398	0.017	1970	0.388	0.012	1530	0.010	0.017	0.58	3500
School has Team Teaching (=1)	0.401	0.017	1970	0.424	0.013	1530	-0.023	0.017	-1.35	3500
Urbanicity: City (=1)	0.301	0.015	1970	0.250	0.011	1530	0.050	0.015	3.30	3500
Urbanicity: Suburb (=1)	0.328	0.016	1970	0.400	0.012	1530	-0.072	0.016	-4.42	3500

They are less likely to be female. They are more likely to be Asian, Pacific Islander, or American Indian (other minority ethnicity). They are more likely to come from households earning under $50,000 per year and less likely to be from households earning over $75,000 per year.

Leavers and movers are more inexperienced, and they have been teaching at their schools fewer years than stayers. They are more likely to be high school teachers and part-time teachers, and less likely to be in a union. They earn less money than stayers, and they work roughly one hour less per week. They are less likely to have a graduate degree. They are more likely to be uncertified or holding a temporary, provisionary, or probational teaching certificate and less likely to hold a regular state teaching certificate.

Teachers who leave or move are less satisfied teaching at their schools and do not believe the school is run as well as stayers do. They are more likely to have thought about transferring, and they do not believe that other teachers enforce school rules. They report having less control over determining their teaching techniques, choosing teaching materials, and disciplining students.

Leavers and movers appear to be from more challenging schools. They teach more students who are limited English proficient, who are on an individual education plan, and who are on school lunch. Leavers and movers they are more likely to teach at a school specifically for problem children. They leave schools with greater percentages of Black or other minority students. Their peer teachers are more likely to be Black or other minority ethnicities. They are less likely to be from schools with more teachers than classrooms. They are more likely to leave schools with block scheduling or with a twelve month schedule.

Leavers and movers teach in more urban areas than stayers. They are less likely to teach in suburban areas.

All in all, the descriptive statistics for all the teachers appear to confirm the findings of the literature on teacher attrition and the a priori expectations of this study. That is, leavers and movers tend to have a greater opportunity cost of teaching. They report dissatisfaction with their schools and a general lack of autonomy. Furthermore, they teach in more challenging environments than stayers.

5.2 Multinomial Logit Results

Table 2 presents the results of the multinomial logit model presented in section 3. Following the analysis by Gross and DeArmond (2010), the model is estimated four times using different controls to illustrate how the study findings may change depending upon the controls included in the model.

The results in Table 2 are for all teachers, including new teachers and involuntary leavers. For each specification, the reference category is stay (e.g., stay in same school as last year). The first column represents the difference between leaving and staying and the second column represents the difference between moving (switching schools) and staying.

Table 2. Multinomial Logit Estimates of Mobility for All Teachers

	Model I		Model II		Model III		Model IV	
	Leave	Switch	Leave	Switch	Leave	Switch	Leave	Switch
Charter (=1)	0.0827	-0.2619	-0.0402	-0.2667	-0.0722	-0.2659	0.1833	-0.2154
	(0.1993)	(0.1798)	(0.2048)	(0.1820)	(0.2202)	(0.1965)	(0.2439)	(0.2098)
Most Competitive College (=1)	0.0829	-1.1304**	0.0048	-1.1497**	0.0057	-1.2425**	-0.0782	-1.2817**
	(0.4640)	(0.5429)	(0.4735)	(0.5453)	(0.4636)	(0.5870)	(0.4899)	(0.6121)
Highly Competitive College (=1)	-0.0581	-0.2942	-0.0554	-0.2929	-0.0956	-0.2803	0.2160	-0.0943
	(0.2727)	(0.2456)	(0.2723)	(0.2456)	(0.2735)	(0.2572)	(0.3093)	(0.2798)
Very Competitive College (=1)	-0.2347	-0.2065	-0.2372	-0.2050	-0.2252	-0.1585	0.0787	0.0432
	(0.1981)	(0.1789)	(0.1982)	(0.1792)	(0.2047)	(0.1936)	(0.2361)	(0.2131)
Competitive College (=1)	-0.3722**	-0.3035*	-0.3770**	-0.3025*	-0.4040**	-0.3458**	-0.1431	-0.1891
	(0.1693)	(0.1553)	(0.1695)	(0.1554)	(0.1738)	(0.1685)	(0.2008)	(0.1865)
Less Competitive College (=1)	-0.0367	-0.1505	-0.0370	-0.1489	-0.0324	-0.1416	0.1626	-0.0245
	(0.1792)	(0.1659)	(0.1791)	(0.1660)	(0.1836)	(0.1781)	(0.2065)	(0.1924)
Graduate Degree (=1)	0.3035***	0.0873	0.3089***	0.0888	0.3535***	0.1181	0.2775**	0.0446
	(0.1047)	(0.0946)	(0.1054)	(0.0946)	(0.1100)	(0.0993)	(0.1171)	(0.1030)
Years Teaching Total	0.0593**	0.0565***	0.0646***	0.0572***	0.0578**	0.0509**	0.0462*	0.0477**
	(0.0237)	(0.0211)	(0.0243)	(0.0216)	(0.0251)	(0.0229)	(0.0264)	(0.0235)
Years Teaching Total Squared	-0.0012*	-0.0010*	-0.0014**	-0.0010*	-0.0011	-0.0008	-0.0010	-0.0009
	(0.0067)	(0.0059)	(0.0007)	(0.0006)	(0.0007)	(0.0006)	(0.0007)	(0.0007)
Years Teaching at School	-0.1113***	-0.1115***	-0.1114***	-0.1117***	-0.1192***	-0.1221***	-0.1216***	-0.1278***
	(0.0231)	(0.0212)	(0.0231)	(0.0213)	(0.0242)	(0.0228)	(0.0253)	(0.0235)
Years Teaching at School Squared	0.0032***	0.0116**	0.0032***	0.0016**	0.0035***	0.0022***	0.0036***	0.0022***
	(0.0008)	(0.0076)	(0.0008)	(0.0008)	(0.0008)	(0.0008)	(0.0008)	(0.0008)
High School (=1)	0.6156***	0.0040	0.6023***	0.0034	0.5874***	-0.0023	0.6927***	0.0427
	(0.0992)	(0.0845)	(0.0997)	(0.0845)	(0.1171)	(0.1020)	(0.1247)	(0.1077)
Union Member (=1)	-0.3095***	-0.3009***	-0.3087***	-0.3011***	-0.2884***	-0.2386**	-0.1921	-0.2492**
	(0.1059)	(0.0942)	(0.1060)	(0.0942)	(0.1080)	(0.0994)	(0.1220)	(0.1113)
Part Time Teacher (=1)	0.4222*	0.0777	0.4083*	0.0769	0.4617**	0.2371	0.6059**	0.3775
	(0.2171)	(0.2165)	(0.2186)	(0.2159)	(0.2286)	(0.2246)	(0.2581)	(0.2464)
Log Yearly Earnings	-1.1831***	-0.6494***	-1.1583***	-0.6499***	-1.1242***	-0.5998***	-0.4731*	-0.0455
	(0.0219)	(0.1996)	(0.2199)	(0.1993)	(0.2369)	(0.2163)	(0.2773)	(0.2434)
Age 20-24 yrs (=1)	-0.0523	-0.3037	-0.0584	-0.3047	0.1031	-0.2519	0.0848	-0.2981
	(0.2573)	(0.2093)	(0.2560)	(0.2090)	(0.2565)	(0.2246)	(0.2713)	(0.2297)
Age 25-29 yrs (=1)	0.3227	-0.1119	0.3392	-0.1112	0.3621	-0.1216	0.3139	-0.1729
	(0.2830)	(0.2191)	(0.2811)	(0.2190)	(0.2824)	(0.2324)	(0.2980)	(0.2382)
Age 30-34 yrs (=1)	0.0407	-0.0792	0.4017	-0.0786	0.4695	-0.0166	0.3831	-0.0804
	(0.3322)	(0.2608)	(0.3310)	(0.2610)	(0.3307)	(0.2737)	(0.3482)	(0.2805)
Age 35-39 yrs (=1)	0.4402	-0.3006	0.4403	-0.3018	0.4943	-0.2228	0.3174	-0.3431
	(0.3452)	(0.2740)	(0.3443)	(0.2739)	(0.3456)	(0.2876)	(0.3633)	(0.2946)
Age 40-44 yrs (=1)	0.3397	-0.4974*	0.3333	-0.4993*	0.4112	-0.4504	0.2876	-0.5331*
	(0.3550)	(0.2813)	(0.3545)	(0.2811)	(0.3551)	(0.2943)	(0.3747)	(0.3017)
Age 45-49 yrs (=1)	0.0862	-0.3225	0.0787	-0.3252	0.1142	-0.2283	-0.0429	-0.3274
	(0.3617)	(0.2765)	(0.3619)	(0.2764)	(0.3622)	(0.2906)	(0.3805)	(0.2971)
Age 50-54 yrs (=1)	0.1563	-0.4275	0.1472	-0.4301	0.2238	-0.2887	0.0443	-0.3934
	(0.3594)	(0.2777)	(0.3591)	(0.2775)	(0.3589)	(0.2926)	(0.3794)	(0.3015)
Age 55-59 yrs (=1)	0.1175	-0.7244**	0.1079	-0.7271**	0.2066	-0.5691*	-0.0225	-0.6901**
	(0.3674)	(0.2916)	(0.3669)	(0.2914)	(0.3672)	(0.3061)	(0.3871)	(0.3108)
Age 60-64 yrs (=1)	0.6971	-0.9111	0.6954	-0.9152**	0.8747**	-0.6180	0.5231	-0.8476**
	(0.4312)	0.3948**	(0.4293)	(0.3947)	(0.4308)	(0.4138)	(0.4487)	(0.4138)
Female (=1)	-0.2717**	0.0018	-0.2665**	0.0020	-0.2492**	0.0311	-0.1804	0.0805
	(0.1073)	(0.0981)	(0.1078)	(0.0982)	(0.1119)	(0.1028)	(0.1192)	(0.1061)
Other Ethnicity (=1)	0.2405	0.5801***	0.2314	0.5823***	-0.0766	0.3676*	-0.0327	0.3692*
	(0.2136)	(0.1786)	(0.2134)	(0.1785)	(0.2435)	(0.2040)	(0.2614)	(0.2070)
No. Children Under 5	0.2090**	0.0759	0.2140**	0.0747	0.2458***	0.0930	0.2541***	0.0818
	(0.0846)	(0.0770)	(0.0847)	(0.0770)	(0.0873)	(0.0815)	(0.0900)	(0.0827)
Got Divorced	0.0811	0.5620*	0.0746	0.5658*	0.2243	0.7099*	-0.0632	0.6031*
	(0.4171)	(0.3390)	(0.4144)	(0.3394)	(0.4205)	(0.3635)	(0.4488)	(0.3433)
Household Income $100,000+	0.1599	-0.2200*	0.1649	-0.2190*	0.1701	-0.2138	0.3111**	-0.1378
	(0.1381)	(0.1288)	(0.1387)	(0.1288)	(0.1442)	(0.1333)	(0.1538)	(0.1375)
Certication: None (=1)			0.8263***	0.1066	0.8463***	0.1721	1.0278***	0.3712
			(0.2550)	(0.2601)	(0.2623)	(0.2768)	(0.2882)	(0.2905)
Certification: Other (=1)			-0.0444	0.0068	-0.0084	0.0168	0.1984	0.1874
			(0.1435)	(0.1224)	(0.1464)	(0.1301)	(0.1574)	(0.1367)

Table 2. Multinomial Logit Estimates of Mobility for All Teachers (cont)

	Model I		Model II		Model III		Model IV	
	Leave	Switch	Leave	Switch	Leave	Switch	Leave	Switch
Teacher Agrees Satisfied with Teaching at School					-0.4632***	-0.2687***	-0.4500***	-0.2665***
					(0.0747)	(0.0687)	(0.0789)	(0.0698)
Teacher Agrees School Run Well					-0.1135	0.0918	-0.1578*	0.0672
					(0.0774)	(0.0695)	(0.0807)	(0.0710)
Teacher Agreement Thought of Transferring					0.0490	0.5461***	0.0234	0.5355***
					(0.0629)	(0.0548)	(0.0650)	(0.0560)
Teacher Agrees other Teachers Enforce Rules					0.0620	0.0440	0.0825	0.0455
					(0.0614)	(0.0534)	(0.0630)	(0.0547)
Teacher Has Control over Teaching Technique					-0.0357	0.0314	-0.0402	0.0295
					(0.0843)	(0.0785)	(0.0871)	(0.0799)
Teacher Has Control over Material					0.0701	-0.0529	0.0411	-0.0570
					(0.0520)	(0.0460)	(0.0547)	(0.0475)
Teacher Has Control over Discipline					-0.0355	0.0073	-0.0545	-0.0058
					(0.0773)	(0.0715)	(0.0816)	(0.0728)
Percent Students on IEP					0.1536	0.1771	0.2077	0.2216*
					(0.1390)	(0.1257)	(0.1470)	(0.1299)
Percent Students on LEP					0.2392	0.2309	0.2003	0.1841
					(0.2017)	(0.1853)	(0.2171)	(0.1960)
Ave. Class Size					0.0005	-0.0016	0.0009	-0.0032
					(0.0042)	(0.0038)	(0.0043)	(0.0040)
Percent Students on School Lunch					-0.1353	0.0181	-0.2151	-0.0791
					(0.2341)	(0.1952)	(0.2642)	(0.2120)
Percent Students Hispanic					-0.0008	-0.1279	0.2939	0.1362
					(0.3365)	(0.3026)	(0.4232)	(0.3575)
Percent Students Black					0.2710	0.6295**	0.9414**	1.0292***
					(0.3430)	(0.2930)	(0.3785)	(0.3263)
Percent Students Other Ethnicity					1.7697***	0.5490	0.8929	-0.0038
					(0.4723)	(0.4441)	(0.5539)	(0.5069)
Percent Teachers Black					-0.2747	-0.5549	-0.6247	-0.7361*
					(0.4578)	(0.4075)	(0.4929)	(0.4198)
Percent Teachers Hispanic					-0.7964*	-0.6281	-0.6829	-0.4540
					(0.4722)	(0.4281)	(0.5220)	(0.4435)
Percent Teachers Other Ethnicity					-0.9416	0.4010	-1.2881	0.2507
					(0.7244)	(0.6102)	(0.9124)	(0.6912)
School is for Problem Children (=1)					-0.0529	0.0315	0.0158	0.0464
					(0.4009)	(0.3847)	(0.4299)	(0.4064)
School Has Admissions Requirements (=1)					-0.2685*	-0.1038	-0.1996	-0.0516
					(0.1607)	(0.1441)	(0.1673)	(0.1465)
School Has Teachers without Classrooms (=1)					-0.3334***	-0.1535	-0.2720**	-0.0918
					(0.1050)	(0.0957)	(0.1118)	(0.1001)
School Has Block Scheduling (=1)					0.1399	0.0013	0.0653	0.0104
					(0.0979)	(0.0889)	(0.1058)	(0.0935)
School Has 12 Month Schedule (=1)					0.5727**	0.6743***	0.5201**	0.5626***
					(0.2392)	(0.2009)	(0.2493)	(0.2045)
School Has Interdisciplinary Teaching (=1)					0.1235	0.1544*	0.0856	0.1538
					(0.1029)	(0.0938)	(0.1110)	(0.0962)
School Has Team Teaching (=1)					-0.0637	-0.1521*	-0.0689	-0.1364
					(0.1019)	(0.0915)	(0.1101)	(0.0947)
City (=1)							0.0392	0.0631
							(0.1488)	(0.1342)
Suburb (=1)							-0.0718	-0.0015
							(0.1334)	(0.1167)
State Effects & Urbanicity	No	No	No	No	No	No	Yes	Yes
Constant	11.660***	7.4958***	11.3484***	7.4952***	13.2614***	6.3689***	6.1439**	0.7648
	(2.2723)	(2.0816)	(2.2856)	(2.0813)	(2.4924)	(2.2424)	(2.9094)	(2.5573)
Observations	3500	3500	3500	3500	3500	3500	3500	3500

Standard errors in parentheses

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

Reference category is stay at school.

Other controls include hours per week, Black or Hispanic ethnicity, number of family members, if the teacher got married between Dec 03 and Sept 04, marital status, household income categories under $100,000. None of these were significant in the analysis.

Included in Model I are teacher individual characteristics, including their demographic and household characteristics, as well as their teacher qualifications and characteristics. The results of Model I indicate that charter teachers are not significantly more or less likely to leave teaching or to move schools than TPS teachers. Furthermore, the results indicate that graduating from Most Competitive colleges decreases the odds of moving versus staying, with the relative odds being 0.323 times the odds of those graduating from Non Competitive colleges. This translates to a decrease in the predicted probability of moving schools relative to staying by nearly 70%[5] compared to those from Non Competitive colleges. Teachers who graduate from Competitive colleges are less likely to leave or move versus to stay in their schools than teachers from Non Competitive colleges. The odds of leaving for graduates of Competitive colleges are 0.69 times the odds of leaving for graduates of Non Competitive colleges. The relative odds of moving for Competitive graduates are 0.74 times the odds of the Non Competitive graduates.

Meanwhile, teachers with graduate degrees are more likely to leave teaching, with the relative risk of leaving increasing by a factor of 1.35 (a 35% increase in the predicted probability of leaving), than they are to stay in their schools. They are not more likely to move schools than they are to stay. Teachers with more experience appear more likely to leave teaching and to move schools, though this result is increasing at a decreasing rate and is somewhat surprising and quite small in magnitude. With respect to years of teaching in their schools, those with more experience at their schools are more likely to stay versus to leave or to move. This result is increasing at an increasing rate. The magnitude of experience at their schools is larger than the magnitude of years of experience total, so the net effect appears to suggest that teachers with more experience at their schools and more total experience are more likely to stay in their schools versus leave and move.

High school teachers' relative odds are 1.85 times the odds of primary school teachers for leaving versus staying at their schools. Teaching at a high school has no effect on the probability of moving versus staying. These results are consistent with the literature on attrition.

[5] Transforming the estimates to odds ratios for interpretation, e^{-1.833}=0.306. Thus, graduating from a most competitive college leads to relative odds of moving versus staying are 0.306 times what they would be for a teacher graduating from a Non Competitive college.

Union members are less likely to leave teaching compared to non-union members, and they are less likely to switch schools. Part-time teachers appear more likely to leave teaching than to stay, but they are not more or less likely to move schools compared to full time teachers. Teachers who earn more money are less likely to leave teaching and are less likely to move schools versus staying.

With respect to age, teachers who are 40-44 years old or who are 55-59 years old are less likely to switch schools versus to stay. There is no age effect on the probability of leaving. Females are less likely to leave teaching than males. Teachers of other minority ethnicities are more likely to move schools than to stay.

With respect to household characteristics, the results indicate that for every additional child under age five that a teacher has, the relative odds of leaving teaching increases 1.23 times what they were before the additional child. Teachers who divorced between December 2003 and September 2004 are more likely to switch schools. Finally, teachers from households earning more than $100,000 per year are less likely to switch schools than to stay, though they are not more likely to leave teaching.

In all, controlling only for teacher and demographic characteristics, the results suggest that charter teachers are not more or less likely to move schools versus to stay in their schools, and teachers from Most Competitive colleges are less likely to move schools. The findings are consistent with the idea that those with a higher opportunity cost of teaching are more likely to leave teaching. Furthermore, the results indicate that household characteristics do enter into teachers' mobility decisions.

Model II incorporates teacher certification status. Certification requirements vary by state and by school type. Some charter school teachers are not required to have a teaching certificate, while others are required to follow the same laws and requirements as traditional school teachers. Controlling for teacher certification status, charter teachers remain no more or less likely to leave or to move schools versus staying compared with TPS teachers. Having no state certification increases the relative risk of leaving teaching by a factor of 2.28. Certification status does not change the odds of moving schools versus staying. The results for all other controls are similar to those from Model I.

While teacher demographic characteristics may influence the mobility decision, school characteristics and teacher experiences at their schools matter as well. Model III incorporates the school characteristics. There remains no difference in the mobility decisions of charter and TPS teachers. Teachers from Most Competitive colleges are even less likely to move schools versus stay. Teachers graduating from Competitive colleges are less likely to leave teaching versus to stay, and they are less likely to switch schools as well. The results for other teacher demographic and household characteristics are similar to the previous models.

The teacher experience variables indicate that teachers who are more satisfied with their jobs are less likely to leave teaching and are less likely to move schools than to stay in their schools. Beliefs on how well the school is run does not affect the mobility decision in this specification. Teachers who have thought about transferring are more likely to move schools than to stay in their schools. These results are consistent with the a priori expectations. Interestingly, having control over teaching techniques, over choosing the materials for their courses, and over disciplining students does not have an effect on the mobility decisions. These results are surprising given prior expectations.

Teachers appear more likely to move schools versus stay in their schools if their school has a larger percentage of Black students. They are more likely to leave teaching if they teach in schools with a greater percentage of students of other minority ethnicity. They are less likely to leave schools with greater percentages of Hispanic teachers. They are less likely to leave teaching if their school has admissions requirements, likely reflecting a school quality characteristic. They are also less likely to leave teaching if they work at a school that does not have enough classrooms for all of the teachers. This finding is surprising, though it may reflect other attractive characteristics of the school.

Teachers who work at schools with 12 month schedules are more likely to leave teaching and to move schools versus to stay in their schools than teachers who do not face a 12-month schedule. Teachers are more likely to move schools if their sending school has an interdisciplinary teaching focus, but they are less likely to move if their school has a team teaching environment.

Finally, geographic controls are included in Model IV. Urban and rural areas serve different demographics, and the mobility decision may be influenced by school setting. Also, since state laws dictate

the terms of teachers' contracts in both public and charter schools, state fixed effects must be included to capture the differences in laws between states.

The results from previous models are generally robust to adding the urbanicity controls and state fixed effects. The results in Model IV suggest that charter status does not enter into the teacher mobility decision. Teachers graduating from Most Competitive colleges are less likely to move schools versus to stay in their schools compared to Non Competitive graduates. These teachers have a relative risk of moving versus staying that is 0.28 times the relative risk of Non Competitive graduates of moving schools. Graduates of Competitive colleges are no longer more or less likely to leave or switch schools compared to graduates of Non Competitive colleges. Teachers who hold graduate degrees are more likely to leave teaching, with the relative odds of leaving increasing by a factor of 1.31 (31% increase in the predicted probability of leaving teaching) compared to those without a graduate degree.

The results for other teacher demographic controls are similar to those from previous models. The most notable changes are that females are no longer less likely to leave and having a household income greater than $100,000 increases the probability of leaving.

With respect to teacher experience and school characteristics, again, the majority of the results are similar to those from Model III. Having control and autonomy do not affect the mobility decision. Teachers are more likely to switch schools if they taught in schools with greater percentages of students on an IEP. They are more likely to leave teaching and to move if they taught in schools that serve a greater proportion of black students. Other minority ethnicity is no longer significant in the ethnicity decision. The percentage of teachers who are Hispanic no longer has an effect on the mobility decision. Admissions requirements no longer effect the mobility decision, nor does interdisciplinary or team teaching.

All in all, charter status does not affect the teacher mobility decision in the full sample. Teachers with greater opportunity costs of teaching, those with graduate degrees or those who teach high school, are more likely to leave teaching. Teachers from Most Competitive colleges are less likely to move schools versus stay. Teacher household characteristics continue to enter into the mobility decision. Investigating if these trends are the same for beginning teachers may help guide policymakers.

This study reestimated the main model for new teachers who started teaching within 5 years and who have three or fewer years of teaching experience. Again, the estimation added groups of controls at at time to illustrate how controls may influence findings. The results are presented in Table 3. The results are slightly different for newer teachers versus for the entire sample population.

In Model I, which only includes teacher demographics and household characteristics, it appears that charter teachers are more likely to leave teaching versus to stay in their schools by a factor of 2.13. Including certification status, in Model II, the charter effect disappears. Charter status continues to have no effect on the mobility decision in Model III, which includes school characteristics and teacher experiences and perceptions. Once state fixed effects and urbanicity are included, the charter effect reemerges. Hence, model specification may help explain the ambiguity in the literature

In the full specification (Model IV), for new teachers, those at a charter school have a greater relative risk of leaving teaching versus staying by a factor of 3.39 compared to TPS teachers. There is no effect on the decision of moving or switching schools versus staying. Also, college competitiveness and graduate degrees do not appear to enter into the mobility decision, while they did for all teachers (Table 2).

Although they are relatively new to teaching, the more years of teaching experience, the less likely the teacher is to leave teaching. Likewise, the more tenure at a school a teacher has, the less likely to switch schools the teacher is. Teaching at a high school increases the relative odds of leaving versus staying by a factor of 2.42 compared to primary school teachers. Part time teachers are more likely to both leave teaching and to switch schools compared to full time teachers. Teachers aged 25-29 and 35-39 are less likely to switch schools, while new teachers in their 40s are significantly more likely to leave teaching versus staying. Hispanic teachers are more likely to switch schools versus stay compared to White teachers.

With respect to household characteristics, teachers who finalized a divorce are more likely to leave teaching than to stay at their schools. New teachers from households earning in the $50,000-75,000 range are more likely to leave teaching than stay compared to those from households earning under $50,000.

Having no state certification increases the relative odds of leaving teaching versus staying by a factor of 3.72. Certification status has no effect on the odds of moving schools.

Table 3. Multinomial Logit Estimates of Mobility for New Teachers

	Model I		Model II		Model III		Model IV	
	Leave	Switch	Leave	Switch	Leave	Switch	Leave	Switch
Charter (=1)	0.7562**	0.1255	0.5538	0.1026	0.5148	0.0857	1.2204***	0.3239
	(0.3467)	(0.3293)	(0.3452)	(0.3333)	(0.4086)	(0.3753)	(0.4373)	(0.4052)
Most Competitive College (=1)	0.6373	-0.2485	0.4706	-0.2546	0.7895	-0.3723	0.2537	-0.3008
	(0.6165)	(0.6596)	(0.6513)	(0.6622)	(0.6918)	(0.7076)	(0.7260)	(0.7899)
Highly Competitive College (=1)	-0.2055	-0.0472	-0.1924	-0.0238	0.0123	0.0177	-0.2931	0.2901
	(0.5244)	(0.3689)	(0.5114)	(0.3698)	(0.5295)	(0.4224)	(0.5975)	(0.5020)
Very Competitive College (=1)	0.3055	0.1239	0.2925	0.1379	0.2977	0.1465	-0.0558	0.3236
	(0.3776)	(0.3131)	(0.3787)	(0.3141)	(0.4270)	(0.3547)	(0.5047)	(0.4436)
Competitive College (=1)	-0.0705	-0.0021	-0.0592	0.0080	-0.1089	-0.0652	-0.4045	0.0171
	(0.3394)	(0.2743)	(0.3419)	(0.2749)	(0.3777)	(0.3168)	(0.4539)	(0.4061)
Less Competitive College (=1)	0.2828	0.1270	0.2972	0.1273	0.3601	0.1379	0.2369	0.3257
	(0.3788)	(0.3131)	(0.3778)	(0.3131)	(0.4137)	(0.3526)	(0.4897)	(0.4361)
Graduate Degree (=1)	0.1321	0.2097	0.1722	0.2152	0.2636	0.2347	0.0254	0.0521
	(0.2794)	(0.2199)	(0.2889)	(0.2202)	(0.3236)	(0.2340)	(0.3545)	(0.2667)
Years Teaching Total	1.4666*	-1.2170*	1.4678*	-1.2726*	0.9842	-1.2412	0.8102	-1.7214**
	(0.8397)	(0.7197)	(0.8462)	(0.7195)	(0.9387)	(0.7727)	(1.0408)	(0.8495)
Years Teaching Total Squared	-0.3416	0.3592**	-0.3302	0.3721**	-0.2200	0.3673*	-0.1955	0.4843**
	(0.2111)	(0.1784)	(0.2126)	(0.1785)	(0.2363)	(0.1919)	(0.2606)	(0.2110)
Years Teaching at School	-1.3690***	0.0699	-1.3574***	0.0966	-1.0890*	0.2580	-1.2182*	0.6277
	(0.5050)	(0.5167)	(0.5044)	(0.5189)	(0.6482)	(0.5506)	(0.6576)	(0.6151)
Years Teaching at School Squared	0.2434**	-0.0927	0.2337**	-0.0998	0.1508	-0.1402	0.1781	-0.2088
	(0.1100)	(0.1214)	(0.1098)	(0.1224)	(0.1485)	(0.1281)	(0.1453)	(0.1445)
High School (=1)	0.7055***	-0.1514	0.6293***	-0.1519	0.6531**	-0.0254	0.8871***	-0.0116
	(0.2058)	(0.1571)	(0.2072)	(0.1572)	(0.2580)	(0.1865)	(0.2844)	(0.2088)
Union Member (=1)	-0.3929*	-0.3147*	-0.3953*	-0.3132*	-0.3274	-0.2350	-0.0152	-0.2549
	(0.2169)	(0.1693)	(0.2165)	(0.1696)	(0.2311)	(0.1810)	(0.2767)	(0.2234)
Part Time Teacher (=1)	0.5721	0.6671	0.4888	0.6825	0.8905	0.9413**	2.5143***	1.7357***
	(0.4648)	(0.4382)	(0.4825)	(0.4391)	(0.5440)	(0.4726)	(0.6935)	(0.5999)
Log Yearly Earnings	-1.6533**	-0.5580	-1.6111**	-0.5667	-1.7340**	-0.6014	0.2253	0.5839
	(0.6606)	(0.4663)	(0.6875)	(0.4680)	(0.8070)	(0.5192)	(0.9318)	(0.6766)
Hours per Week	0.0009	0.0014	0.0018	0.0016	0.0015	0.0005	-0.0026	-0.0001
	(0.0098)	(0.0079)	(0.0100)	(0.0079)	(0.0107)	(0.0086)	(0.0119)	(0.0093)
Age 20-24 yrs (=1)	0.2515	-0.4122	0.2749	-0.4135	0.3562	-0.3715	0.5412	-0.4710
	(0.3336)	(0.2695)	(0.3310)	(0.2694)	(0.3519)	(0.2947)	(0.4045)	(0.3344)
Age 25-29 yrs (=1)	0.3785	-0.4650*	0.3977	-0.4597*	0.4195	-0.4261	0.6329	-0.6284*
	(0.3328)	(0.2651)	(0.3288)	(0.2650)	(0.3602)	(0.2873)	(0.4130)	(0.3363)
Age 30-34 yrs (=1)	0.4190	-0.5043	0.4283	-0.5015	0.4008	-0.4311	0.3400	-0.6399
	(0.4692)	(0.3758)	(0.4692)	(0.3769)	(0.4964)	(0.3954)	(0.5423)	(0.4476)
Age 35-39 yrs (=1)	0.6692	-0.7529*	0.6746	-0.7480*	0.6011	-0.7406	0.7729	-0.9871*
	(0.5066)	(0.4378)	(0.5141)	(0.4375)	(0.5505)	(0.4704)	(0.6530)	(0.5120)
Age 40-44 yrs (=1)	0.8786*	-1.1320**	0.8894*	-1.1336**	1.1075**	-0.9182*	1.6045**	-0.9125
	(0.5248)	(0.4864)	(0.5320)	(0.4871)	(0.5646)	(0.5269)	(0.6272)	(0.6029)
Age 45-49 yrs (=1)	1.3378**	-0.5258	1.3701**	-0.5092	1.2128*	-0.4103	1.5247**	-0.4923
	(0.5766)	(0.5148)	(0.5762)	(0.5150)	(0.6252)	(0.5538)	(0.7452)	(0.6197)
Age 50-54 yrs (=1)	0.2862	-0.6837	0.2755	-0.6818	0.4408	-0.5409	0.6981	-0.8001
	(0.6874)	(0.5954)	(0.6889)	(0.5963)	(0.7111)	(0.6100)	(0.7584)	(0.7251)
Age 55-59 yrs (=1)	0.7437	0.1412	0.7172	0.1534	0.6508	0.5856	1.1017	0.6786
	(0.8582)	(0.6184)	(0.8579)	(0.6240)	(1.0101)	(0.7115)	(1.0019)	(0.7584)
Age 60-64 yrs (=1)	1.9166*	-15.2416***	1.8306*	-13.7737***	1.9512*	-12.5183***	2.3522**	-14.5463***
	(1.0612)	(0.9304)	(0.9393)	(0.8924)	(1.0356)	(0.8823)	(1.1257)	(0.9112)
Female (=1)	-0.1825	-0.0896	-0.1760	-0.1029	-0.1592	-0.1709	0.0071	0.0013
	(0.2162)	(0.1840)	(0.2198)	(0.1853)	(0.2354)	(0.1983)	(0.2713)	(0.2272)
Black (=1)	-0.4636	0.0293	-0.6130*	0.0374	-0.3086	0.0140	-0.4989	0.0988
	(0.3495)	(0.2580)	(0.3605)	(0.2585)	(0.4531)	(0.3494)	(0.4774)	(0.3872)
Hispanic (=1)	0.1289	0.3532	-0.0062	0.3358	0.0459	0.5343	0.0606	0.6562*
	(0.4562)	(0.3538)	(0.4538)	(0.3541)	(0.5160)	(0.3861)	(0.5092)	(0.3948)
Got Divorced	1.3445*	0.6381	1.3114*	0.6572	1.1926	0.8355	1.5885*	0.6843
	(0.7662)	(0.6922)	(0.7171)	(0.6923)	(0.7503)	(0.6836)	(0.8290)	(0.6906)
Household Income $50,000-$75,000	0.3992	0.1804	0.4370*	0.1817	0.4718*	0.2246	0.6020**	0.3148
	(0.2448)	(0.2086)	(0.2435)	(0.2083)	(0.2621)	(0.2238)	(0.2918)	(0.2374)
Certication: None (=1)			1.0878***	0.0526	1.0630***	0.0666	1.3145***	0.2673
			(0.3370)	(0.3349)	(0.3728)	(0.3574)	(0.4235)	(0.3793)
Certification: Other (=1)			0.1175	-0.1017	0.0549	-0.1218	0.3733	0.1372
			(0.2092)	(0.1628)	(0.2243)	(0.1731)	(0.2768)	(0.1987)

Table 3. Multinomial Logit Estimates of Mobility for New Teachers (cont)

	Model I		Model II		Model III		Model IV	
	Leave	Switch	Leave	Switch	Leave	Switch	Leave	Switch
Teacher Agrees Satisfied with Teaching at Schl					-0.5420***	-0.3763***	-0.6757***	-0.4634***
					(0.1495)	(0.1327)	(0.1725)	(0.1458)
Teacher Agrees School Run Well					-0.1592	0.1142	-0.3538*	0.0618
					(0.1771)	(0.1423)	(0.1964)	(0.1537)
Teacher Agrees Thought about Transferring					0.1511	0.5678***	0.1067	0.5712***
					(0.1366)	(0.1100)	(0.1463)	(0.1211)
Teacher Agrees other Teachers Enforce Rules					-0.2006	0.1539	-0.1873	0.1869
					(0.1310)	(0.1045)	(0.1395)	(0.1151)
Teacher Has Control over Teaching Technique					-0.3622*	0.0618	-0.4522**	0.0334
					(0.1868)	(0.1625)	(0.2026)	(0.1756)
Teacher Has Control over Material					0.0534	-0.1451	0.0239	-0.1538
					(0.1091)	(0.0902)	(0.1197)	(0.0995)
Teacher Has Control over Discipline					-0.0314	0.0869	0.0129	0.1025
					(0.1632)	(0.1394)	(0.1794)	(0.1462)
Percent Students on IEP					0.2440	0.1657	0.3589	0.2065
					(0.3069)	(0.2345)	(0.3373)	(0.2621)
Percent Students on LEP					0.9271**	0.0788	0.6947	-0.0264
					(0.4385)	(0.3938)	(0.4761)	(0.4272)
Ave. Class Size					-0.0046	-0.0126*	-0.0022	-0.0145*
					(0.0092)	(0.0073)	(0.0092)	(0.0083)
Percent Students on School Lunch					0.0718	0.2115	0.0105	0.2055
					(0.4828)	(0.3793)	(0.5495)	(0.4363)
Percent Students Hispanic					-0.0815	0.2442	0.5165	0.5151
					(0.6957)	(0.5575)	(0.9125)	(0.7303)
Percent Students Black					-0.0700	0.4406	0.5866	1.2588*
					(0.7264)	(0.5604)	(0.8182)	(0.6530)
Percent Students Other Ethnicity					0.4088	-0.5724	-1.2796	-2.1263**
					(0.9260)	(0.8202)	(1.0763)	(1.0272)
Percent Teachers Black					-0.5760	-0.7171	-1.0883	-1.2337
					(0.9223)	(0.7808)	(0.9309)	(0.8323)
Percent Teachers Hispanic					-1.2936	-0.7302	-1.2285	-1.0578
					(0.9481)	(0.6381)	(1.0094)	(0.6991)
Percent Teachers Other Ethnicity					-0.5805	-0.0920	1.6053	1.3087
					(1.2517)	(1.0934)	(1.4823)	(1.6303)
School is for Problem Children (=1)					0.0156	-1.6982**	-0.0842	-2.1744**
					(0.6889)	(0.8652)	(0.7277)	(1.0186)
School Has Admissions Requirements (=1)					-1.0078***	-0.1963	-0.9412***	-0.0598
					(0.3374)	(0.2516)	(0.3528)	(0.2733)
School Has Teachers without Classrooms (=1)					-0.6004***	-0.1817	-0.5356**	-0.1382
					(0.2265)	(0.1800)	(0.2492)	(0.1985)
School Has Block Scheduling (=1)					-0.0260	0.0740	-0.0826	0.2000
					(0.2077)	(0.1677)	(0.2455)	(0.1858)
School Has 12 Month Schedule (=1)					0.6855	0.5472	0.6433	0.4307
					(0.5243)	(0.3630)	(0.5049)	(0.3624)
School Has Interdisciplinary Teaching (=1)					-0.0846	0.0810	-0.2299	0.0443
					(0.2333)	(0.1792)	(0.2682)	(0.1934)
School Has Team Teaching (=1)					0.1062	-0.1274	0.2574	-0.0681
					(0.2205)	(0.1694)	(0.2455)	(0.1841)
City (=1)							-0.2606	-0.4545
							(0.3187)	(0.2794)
Suburb (=1)							-0.1716	-0.0951
							(0.2995)	(0.2452)
State Effects & Urbanicity	No	No	No	No	No	No	Yes	Yes
Constant	15.5126**	7.5099	14.8758**	7.6486	20.2854**	7.0587	1.8768	-3.8002
	(6.7827)	(4.8666)	(7.0471)	(4.8838)	(8.4336)	(5.5306)	(9.7538)	(7.0362)
Observations	970	970	970	970	970	970	970	970

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Reference category is stay at school.

Other controls include hours per week, Other ethnicity, number of family members, number of children under 5, if the teacher got married between Dec 03 and Sept 04, marital status, household income categories above $75,000. None of these were significant in the analysis.

School culture and experiences appear to matter more to newer teachers than they did to all teachers. Teachers who report being more satisfied with teaching are more likely to stay in their schools and are less likely to leave teaching or to move schools. Teachers who report greater satisfaction with how well their school is run are also less likely to leave teaching versus to stay. Teachers who agree more with the statement that they have thought about transferring are more likely to switch schools versus stay.

Autonomy matters to new teachers. Increases in the perceived amount of control teachers have in their classrooms over choosing their teaching techniques is associated with a decrease in the odds of leaving versus staying by a factor of 0.64.

Newer teachers are less likely to move schools versus stay if they have larger classes, though this effect is quite small and is significant at the 10% level. They are more likely to leave schools with larger percentages of black students, and they are less likely to leave schools with larger percentages of Asian, American Indian, or Pacific Islander students.

New teachers who teach at schools for problem children are less likely to move schools versus to stay. These results may reflect that some teachers enjoy working with higher risk students. Similarly, the results suggest that teaching at a school with admission requirements decreases the odds of leaving teaching compared to staying. Teachers who teach at schools with more classrooms are also less likely to leave teaching.

Thus far, the results suggest that among all teachers, charter status does not have an effect on teacher mobility. Teachers with a greater opportunity cost of teaching are more likely to leave teaching. Among new teachers, those teaching at a charter school are more likely to leave teaching. Newer teachers are also more sensitive to autonomy and control in their classrooms.

So far, the analysis has focused on all teachers, regardless of why they left or switched schools. Included in these teachers are those who voluntarily moved schools or left teaching as well as teachers who were forced to due to a school staffing action (e.g., lay off, unrenewed contract). Assuming schools act in their own best interest, it may be informative to examine what influences the decisions of voluntary leavers and movers.

Table 4 presents the multinomial logit results for all voluntary leavers and movers. The results indicate that again, model specification matters. For Models I through III, it appears that charter teachers are less likely to switch schools versus to stay in their school; however, including the geographic controls, charter status no longer has an effect on the mobility decision. Teachers from Most Competitive colleges are less likely to move schools versus to stay in their current schools. Teachers who have graduate degrees are more likely to leave teaching than to stay compared to those without a graduate degree. In general, teachers with a greater opportunity cost of teaching are more likely to leave teaching, including those who may have greater possibilities outside of teaching (those who teach high school, those who make less money, or those who have a graduate degree) and those who have more household responsibilities (e.g., more younger children).

Table 5 presents the results for new teachers who voluntarily leave. Again, the results are similar to the previous analysis with a few exceptions. In the full specification, teaching at a charter increases the odds of leaving versus staying by a factor of 3.04 compared to TPS teachers. Teachers who hail from Very Competitive colleges are more likely to switch schools versus those from Non Competitive colleges. Previously, college competitiveness did not affect teacher mobility among new teachers. Another notable difference is that married and divorced teachers are less likely to leave teaching than their single counterparts.

While charter status does not appear to matter in the full sample of leavers and movers, it does enter into the decision for new teachers. College competitiveness appears to affect the likelihood of moving schools but not of leaving teaching.

Table 4. Multinomial Logit Estimates of Mobility for All Voluntary Leavers/Movers

	Model I		Model II		Model III		Model IV	
	Leave	Switch	Leave	Switch	Leave	Switch	Leave	Switch
Charter (=1)	-0.1816	-0.3339*	-0.2806	-0.3421*	-0.3497	-0.3646*	0.0119	-0.1451
	(0.2257)	(0.1941)	(0.2321)	(0.1953)	(0.2500)	(0.2132)	(0.2766)	(0.2316)
Most Competitive College (=1)	0.0152	-1.0717*	-0.0649	-1.0929*	-0.0094	-1.1003	0.0413	-1.2830*
	(0.5100)	(0.6038)	(0.5100)	(0.6066)	(0.4874)	(0.6755)	(0.5202)	(0.7218)
Highly Competitive College (=1)	-0.0300	-0.4497	-0.0241	-0.4472	-0.0382	-0.4082	0.2869	-0.2477
	(0.2944)	(0.2766)	(0.2934)	(0.2764)	(0.2960)	(0.2902)	(0.3411)	(0.3190)
Very Competitive College (=1)	-0.1781	-0.1594	-0.1763	-0.1579	-0.1503	-0.0981	0.1096	0.0721
	(0.2152)	(0.1955)	(0.2152)	(0.1956)	(0.2231)	(0.2124)	(0.2571)	(0.2385)
Competitive College (=1)	-0.3186*	-0.2153	-0.3231*	-0.2150	-0.3312*	-0.2487	-0.1043	-0.1552
	(0.1850)	(0.1695)	(0.1849)	(0.1696)	(0.1899)	(0.1852)	(0.2197)	(0.2092)
Less Competitive College (=1)	0.0314	-0.1037	0.0289	-0.1027	0.0438	-0.0927	0.1924	-0.0322
	(0.1961)	(0.1815)	(0.1957)	(0.1816)	(0.2003)	(0.1964)	(0.2251)	(0.2165)
Graduate Degree (=1)	0.3443***	0.1254	0.3487***	0.1259	0.3823***	0.1661	0.3089**	0.0898
	(0.1141)	(0.1018)	(0.1149)	(0.1018)	(0.1194)	(0.1082)	(0.1280)	(0.1129)
Years Teaching Total	0.0631**	0.0694***	0.0634**	0.0688***	0.0542**	0.0584**	0.0398	0.0584**
	(0.0263)	(0.0232)	(0.0269)	(0.0239)	(0.0274)	(0.0256)	(0.0289)	(0.0265)
Years Teaching Total Squared	-0.0010	-0.0014**	-0.0011	-0.0014**	-0.0008	-0.0010	-0.0006	-0.0013*
	(0.0007)	(0.0007)	(0.0008)	(0.0007)	(0.0008)	(0.0007)	(0.0008)	(0.0008)
Years Teaching at School	-0.1064***	-0.1018***	-0.1073***	-0.1024***	-0.1131***	-0.1123***	-0.1141***	-0.1184***
	(0.0249)	(0.0229)	(0.0250)	(0.0230)	(0.0260)	(0.0247)	(0.0274)	(0.0257)
Years Teaching at School Squared	0.0031***	0.0015*	0.0031***	0.0015*	0.0033***	0.0021**	0.0034***	0.0023**
	(0.0008)	(0.0008)	(0.0008)	(0.0008)	(0.0009)	(0.0009)	(0.0009)	(0.0009)
High School (=1)	0.6544***	0.1088	0.6460***	0.1091	0.6282***	0.1119	0.7006***	0.1381
	(0.1087)	(0.0916)	(0.1090)	(0.0916)	(0.1280)	(0.1119)	(0.1364)	(0.1181)
Union Member (=1)	-0.3683***	-0.4238***	-0.3588***	-0.4216***	-0.3573***	-0.3628***	-0.1868	-0.2753**
	(0.1134)	(0.1002)	(0.1136)	(0.1002)	(0.1155)	(0.1070)	(0.1304)	(0.1185)
Part Time Teacher (=1)	0.3592	-0.1790	0.3545	-0.1734	0.3843	-0.0088	0.4930*	0.1452
	(0.2410)	(0.2454)	(0.2426)	(0.2448)	(0.2531)	(0.2524)	(0.2832)	(0.2713)
Log Yearly Earnings	-1.1429***	-0.7549***	-1.1341***	-0.7571***	-1.0919***	-0.7151***	-0.4142	-0.0907
	(0.2380)	(0.2146)	(0.2396)	(0.2140)	(0.2567)	(0.2335)	(0.3015)	(0.2604)
Age 30-34 yrs (=1)	0.5546	0.1321	0.5484	0.1308	0.6206*	0.1942	0.5352	0.1738
	(0.3533)	(0.2850)	(0.3514)	(0.2851)	(0.3518)	(0.3062)	(0.3718)	(0.3171)
Age 35-39 yrs (=1)	0.5417	-0.1146	0.5439	-0.1154	0.5975	-0.0312	0.3939	-0.1278
	(0.3679)	(0.2987)	(0.3664)	(0.2987)	(0.3682)	(0.3204)	(0.3871)	(0.3319)
Age 40-44 yrs (=1)	0.2398	-0.3496	0.2446	-0.3486	0.3192	-0.3178	0.1895	-0.3617
	(0.3807)	(0.3078)	(0.3796)	(0.3076)	(0.3808)	(0.3291)	(0.4033)	(0.3420)
Age 45-49 yrs (=1)	0.1312	-0.2435	0.1347	-0.2439	0.1672	-0.1520	0.0054	-0.2087
	(0.3857)	(0.3034)	(0.3848)	(0.3034)	(0.3842)	(0.3254)	(0.4029)	(0.3363)
Age 50-54 yrs (=1)	-0.0350	-0.2635	-0.0363	-0.2647	0.0416	-0.0975	-0.1638	-0.1853
	(0.3899)	(0.3025)	(0.3893)	(0.3023)	(0.3882)	(0.3269)	(0.4093)	(0.3418)
Age 55-59 yrs (=1)	-0.2532	-0.5741*	-0.2443	-0.5742*	-0.1501	-0.3862	-0.4725	-0.4787
	(0.3994)	(0.3207)	(0.3991)	(0.3206)	(0.3977)	(0.3407)	(0.4209)	(0.3528)
Age 60-64 yrs (=1)	0.3918	-0.6340	0.4071	-0.6362	0.6327	-0.3516	0.2673	-0.5337
	(0.4752)	(0.4177)	(0.4748)	(0.4175)	(0.4769)	(0.4555)	(0.4954)	(0.4697)
Female (=1)	-0.2979**	0.1159	-0.2957**	0.1153	-0.2995**	0.1459	-0.2792**	0.1890
	(0.1165)	(0.1071)	(0.1170)	(0.1072)	(0.1218)	(0.1125)	(0.1310)	(0.1172)
Other Ethnicity (=1)	0.1854	0.5689***	0.1961	0.5722***	-0.0175	0.2789	0.0351	0.2537
	(0.2379)	(0.1937)	(0.2361)	(0.1934)	(0.2640)	(0.2246)	(0.2884)	(0.2346)
No. Children Under 5	0.2546***	0.1017	0.2594***	0.1010	0.2953***	0.1282	0.3123***	0.1297
	(0.0909)	(0.0819)	(0.0911)	(0.0819)	(0.0927)	(0.0876)	(0.0973)	(0.0891)
Got Divorced	-0.2237	0.6450*	-0.2320	0.6475*	-0.0472	0.8573**	-0.3521	0.8084**
	(0.5019)	(0.3490)	(0.4981)	(0.3490)	(0.5059)	(0.3750)	(0.5329)	(0.3646)
Household Income $100,000+	0.1720	-0.1417	0.1787	-0.1412	0.1960	-0.0998	0.4072**	0.0369
	(0.1516)	(0.1385)	(0.1522)	(0.1384)	(0.1581)	(0.1442)	(0.1698)	(0.1497)
Certication: None (=1)			0.7384**	0.1344	0.7837***	0.2296	0.9999***	0.4210
			(0.2886)	(0.2897)	(0.3011)	(0.3137)	(0.3345)	(0.3323)
Certification: Other (=1)			-0.1528	-0.0423	-0.1043	-0.0108	0.1576	0.1969
			(0.1593)	(0.1370)	(0.1618)	(0.1472)	(0.1766)	(0.1557)

Table 4. Multinomial Logit Estimates of Mobility for All Voluntary Leavers/Movers (cont)

	Model I		Model II		Model III		Model IV	
	Leave	Switch	Leave	Switch	Leave	Switch	Leave	Switch
Teacher Agrees Satisfied with Teaching at School					-0.4541***	-0.2167***	-0.4389***	-0.2148***
					(0.0805)	(0.0741)	(0.0855)	(0.0760)
Teacher Agrees School Run Well					-0.1015	0.1152	-0.1519*	0.0939
					(0.0842)	(0.0764)	(0.0884)	(0.0786)
Teacher Agrees Thought about Transferring					0.0375	0.6320***	0.0091	0.6215***
					(0.0676)	(0.0598)	(0.0707)	(0.0613)
Teacher Agrees other Teachers Enforce Rules					0.0405	0.0292	0.0513	0.0205
					(0.0667)	(0.0577)	(0.0686)	(0.0592)
Teacher Has Control over Teaching Technique					-0.0248	0.0618	-0.0157	0.0450
					(0.0912)	(0.0861)	(0.0958)	(0.0880)
Teacher Has Control over Material					0.0386	-0.0574	0.0140	-0.0505
					(0.0559)	(0.0507)	(0.0592)	(0.0523)
Teacher Has Control over Discipline					0.0010	-0.0328	-0.0172	-0.0422
					(0.0835)	(0.0768)	(0.0893)	(0.0780)
Percent Students on IEP					0.1471	0.1322	0.2223	0.1959
					(0.1510)	(0.1366)	(0.1610)	(0.1428)
Percent Students on LEP					0.0948	0.2794	0.0649	0.2532
					(0.2184)	(0.2008)	(0.2349)	(0.2158)
Ave. Class Size					0.0009	-0.0018	0.0011	-0.0032
					(0.0045)	(0.0040)	(0.0047)	(0.0042)
Percent Students on School Lunch					-0.2447	0.0104	-0.4850*	-0.0954
					(0.2560)	(0.2118)	(0.2915)	(0.2316)
Percent Students Hispanic					0.0312	-0.1905	0.6394	0.0547
					(0.3614)	(0.3379)	(0.4542)	(0.4135)
Percent Students Black					0.3401	0.6491**	0.9000**	1.0022***
					(0.3767)	(0.3146)	(0.4193)	(0.3535)
Percent Students Other Ethnicity					1.7729***	0.7915	1.2212*	0.5181
					(0.5410)	(0.4960)	(0.6346)	(0.5688)
Percent Teachers Black					-0.4708	-0.4940	-0.5666	-0.7452
					(0.4970)	(0.4407)	(0.5365)	(0.4571)
Percent Teachers Hispanic					-0.6332	-0.6388	-0.4647	-0.4081
					(0.5191)	(0.5006)	(0.5827)	(0.5257)
Percent Teachers Other Ethnicity					-1.3679	0.8393	-2.2629*	0.2981
					(0.9635)	(0.6812)	(1.1682)	(0.7535)
School is for Problem Children (=1)					-0.1061	0.2626	-0.0660	0.2883
					(0.4648)	(0.4036)	(0.5107)	(0.4386)
School Has Admissions Requirements (=1)					-0.1680	-0.1623	-0.0738	-0.1108
					(0.1704)	(0.1576)	(0.1763)	(0.1620)
School Has Teachers without Classrooms (=1)					-0.3497***	-0.1786*	-0.3223***	-0.1125
					(0.1141)	(0.1039)	(0.1224)	(0.1097)
School Has Block Scheduling (=1)					0.0908	-0.0231	0.0030	-0.0046
					(0.1065)	(0.0971)	(0.1170)	(0.1037)
School Has 12 Month Schedule (=1)					0.5607**	0.6612***	0.4865*	0.5346**
					(0.2632)	(0.2238)	(0.2759)	(0.2326)
School Has Interdisciplinary Teaching (=1)					0.1011	0.1715*	0.0616	0.1772*
					(0.1102)	(0.1022)	(0.1198)	(0.1060)
School Has Team Teaching (=1)					-0.0990	-0.1018	-0.0978	-0.0700
					(0.1099)	(0.1001)	(0.1202)	(0.1042)
City (=1)							0.0244	0.0982
							(0.1623)	(0.1464)
Suburb (=1)							-0.0123	0.0381
							(0.1459)	(0.1292)
State Effects & Urbanicity	No	No	No	No	No	No	Yes	Yes
Constant	10.7868***	7.8627***	10.6831***	7.8923***	11.7972***	6.1108**	5.4211*	0.2316
	(2.4797)	(2.2417)	(2.4974)	(2.2390)	(2.7247)	(2.4654)	(3.1626)	(2.7329)
Observations	3050	3050	3050	3050	3050	3050	3050	3050

Standard errors in parentheses

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

Reference category is stay at school.

Other controls include ages 20-24 and 25-29, hours per week, Black or Hispanic ethnicity, number of family members, if the teacher got married between Dec 03 and Sept 04, marital status, household income categories under $100,000. None of these were significant in the analysis.

Table 5. Multinomial Logit Estimates of Mobility for All New Voluntary Leavers/Movers

	Model I		Model II		Model III		Model IV	
	Leave	Switch	Leave	Switch	Leave	Switch	Leave	Switch
Charter (=1)	0.4490	0.1410	0.2267	0.0999	-0.0463	0.0506	1.1139**	0.3607
	(0.3959)	(0.3574)	(0.4015)	(0.3582)	(0.4920)	(0.4072)	(0.5561)	(0.4374)
Most Competitive College (=1)	0.8886	0.3909	0.6648	0.3770	1.2115	0.5507	1.0842	0.7271
	(0.7257)	(0.7306)	(0.7436)	(0.7351)	(0.8600)	(0.8440)	(0.9131)	(0.9261)
Highly Competitive College (=1)	0.0854	0.0354	0.1357	0.0402	0.3309	0.1932	-0.1412	0.4743
	(0.6184)	(0.4404)	(0.6093)	(0.4435)	(0.6312)	(0.4903)	(0.7307)	(0.5993)
Very Competitive College (=1)	0.7088	0.5422	0.7232	0.5445	0.7220	0.7324*	0.3507	0.9095*
	(0.4657)	(0.3775)	(0.4702)	(0.3808)	(0.5252)	(0.4228)	(0.6511)	(0.5393)
Competitive College (=1)	0.1684	0.4044	0.2151	0.3989	0.1592	0.4392	-0.2330	0.4908
	(0.4378)	(0.3387)	(0.4427)	(0.3425)	(0.4842)	(0.3796)	(0.5902)	(0.4944)
Less Competitive College (=1)	0.3957	0.4691	0.4409	0.4542	0.4045	0.5441	0.1448	0.7328
	(0.4839)	(0.3869)	(0.4846)	(0.3896)	(0.5271)	(0.4295)	(0.6411)	(0.5362)
Graduate Degree (=1)	0.4632	0.4171	0.5151	0.4238*	0.6568	0.5077*	0.5720	0.2693
	(0.3273)	(0.2566)	(0.3430)	(0.2574)	(0.4107)	(0.2788)	(0.4551)	(0.3132)
Years Teaching Total	1.6015	-1.6690**	1.5256	-1.7517**	1.2737	-2.2153**	0.9652	-2.6745***
	(0.9798)	(0.8485)	(0.9805)	(0.8463)	(1.0984)	(0.9050)	(1.2536)	(0.9860)
Years Teaching Total Squared	-0.4152*	0.4857**	-0.3883	0.5055**	-0.3307	0.6304***	-0.2603	0.7512***
	(0.2480)	(0.2090)	(0.2486)	(0.2090)	(0.2781)	(0.2246)	(0.3138)	(0.2441)
Years Teaching at School	-1.3288**	0.0250	-1.3018**	0.0417	-1.5096**	0.1673	-1.7214*	0.3526
	(0.6104)	(0.5233)	(0.6094)	(0.5269)	(0.6880)	(0.5766)	(0.8938)	(0.6862)
Years Teaching at School Squared	0.2512*	-0.0881	0.2444*	-0.0946	0.2642*	-0.1313	0.3075	-0.1674
	(0.1353)	(0.1193)	(0.1357)	(0.1207)	(0.1529)	(0.1315)	(0.2064)	(0.1627)
High School (=1)	0.9795***	-0.1090	0.9198***	-0.1055	0.7992**	0.0250	1.1758***	0.0283
	(0.2450)	(0.1804)	(0.2457)	(0.1804)	(0.3107)	(0.2158)	(0.3569)	(0.2464)
Union Member (=1)	-0.5589**	-0.5360***	-0.5582**	-0.5323***	-0.6427**	-0.4785**	-0.0941	-0.4706*
	(0.2509)	(0.1935)	(0.2505)	(0.1935)	(0.2744)	(0.2114)	(0.3409)	(0.2575)
Part Time Teacher (=1)	0.5762	0.0724	0.5026	0.0962	0.7155	0.1796	2.6315***	0.8827
	(0.5399)	(0.5192)	(0.5654)	(0.5182)	(0.6658)	(0.5522)	(0.8106)	(0.7029)
Log Yearly Earnings	-1.9460**	-1.0090*	-1.9916**	-1.0183*	-2.3433**	-1.0574*	0.2147	0.2975
	(0.8833)	(0.5587)	(0.9437)	(0.5641)	(1.1367)	(0.6273)	(1.2779)	(0.8268)
Age 20-24 yrs (=1)	0.5908	-0.0631	0.6292	-0.0577	0.7038*	-0.0020	0.9729**	-0.0741
	(0.3836)	(0.3057)	(0.3828)	(0.3050)	(0.4116)	(0.3335)	(0.4862)	(0.3690)
Age 25-29 yrs (=1)	0.6074	-0.2709	0.6319*	-0.2579	0.5685	-0.2116	0.8689*	-0.4146
	(0.3753)	(0.3008)	(0.3699)	(0.3013)	(0.4149)	(0.3280)	(0.4871)	(0.3769)
Age 30-34 yrs (=1)	0.5811	-0.2245	0.6615	-0.2124	0.6751	-0.0854	0.6529	-0.2961
	(0.5444)	(0.4297)	(0.5448)	(0.4320)	(0.5692)	(0.4621)	(0.6572)	(0.5173)
Age 35-39 yrs (=1)	0.9773*	-0.7955	0.9935*	-0.7686	1.0871*	-0.6350	1.2329	-0.9325
	(0.5858)	(0.5008)	(0.5969)	(0.5001)	(0.6419)	(0.5377)	(0.7869)	(0.5920)
Age 40-44 yrs (=1)	0.8821	-0.9848*	0.9269	-0.9722*	1.0364	-0.7709	1.7530**	-0.7322
	(0.6319)	(0.5764)	(0.6365)	(0.5760)	(0.6986)	(0.6332)	(0.7651)	(0.7131)
Age 45-49 yrs (=1)	1.5970**	-0.8948	1.6536***	-0.8879	1.6046**	-0.7768	2.1043***	-1.0173
	(0.6360)	(0.5949)	(0.6326)	(0.5950)	(0.6642)	(0.6357)	(0.8073)	(0.6799)
Age 50-54 yrs (=1)	0.9068	-0.4453	0.9239	-0.4588	1.1179	-0.4569	1.1616	-0.6760
	(0.8113)	(0.7058)	(0.8184)	(0.7030)	(0.7992)	(0.7743)	(0.9738)	(0.9080)
Age 55-59 yrs (=1)	0.9242	-0.2515	0.9752	-0.2311	0.6923	0.0218	0.6470	0.0384
	(0.9640)	(0.7442)	(0.9745)	(0.7597)	(1.0056)	(0.7789)	(1.0381)	(0.8479)
Age 60-64 yrs (=1)	1.5669	-13.0758***	1.7191	-13.1015***	0.8324	-11.8311***	0.7554	-12.3516**
	(1.1552)	(0.9019)	(1.1318)	(0.9114)	(1.0108)	(0.8942)	(1.2766)	(0.9854)
Black (=1)	-0.5938	0.0340	-0.7380*	0.0319	-0.2851	-0.0350	-0.5393	0.0682
	(0.4062)	(0.2886)	(0.4200)	(0.2908)	(0.5267)	(0.3955)	(0.5542)	(0.4495)
Married Dec. 2003	-0.4744	-0.0007	-0.4763	0.0066	-0.5519*	-0.1552	-0.8067**	-0.2544
	(0.2994)	(0.2540)	(0.3021)	(0.2540)	(0.3334)	(0.2754)	(0.3985)	(0.3168)
Separated/Divorced Dec. 2003	-0.8752	0.0964	-0.8590	0.1116	-1.1631**	-0.1506	-1.5556***	-0.3842
	(0.5365)	(0.4176)	(0.5322)	(0.4146)	(0.5504)	(0.4451)	(0.5809)	(0.4775)
Household Income $50,000-$75,000	0.5438*	0.0744	0.5366*	0.0729	0.5758*	0.0894	0.8651**	0.2513
	(0.2847)	(0.2488)	(0.2842)	(0.2489)	(0.3078)	(0.2672)	(0.3477)	(0.2835)
Certication: None (=1)			1.1953***	0.1721	1.2207***	0.1923	1.7305***	0.3662
			(0.4015)	(0.3889)	(0.4719)	(0.4195)	(0.5557)	(0.4576)
Certification: Other (=1)			0.0819	-0.1559	-0.0217	-0.1672	0.4115	0.1328
			(0.2442)	-0.1904	(0.2679)	(0.2041)	(0.3514)	(0.2395)

Table 5. Multinomial Logit Estimates of Mobility for All New Voluntary Leavers/Movers (cont)

	Model I		Model II		Model III		Model IV	
	Leave	Switch	Leave	Switch	Leave	Switch	Leave	Switch
Teacher Agrees Satisfied with Teaching at School					-0.4490***	-0.2832*	-0.6173***	-0.3744**
					(0.1703)	(0.1546)	(0.2104)	(0.1676)
Teacher Agrees School Run Well					-0.2170	0.2739*	-0.4514*	0.2059
					(0.2113)	(0.1632)	(0.2498)	(0.1840)
Teacher Agrees Thought about Transferring					0.2357	0.7483***	0.1316	0.7756***
					(0.1561)	(0.1309)	(0.1704)	(0.1498)
Teacher Agrees other Teachers Enforce Rules					-0.3256**	0.0702	-0.3601**	0.1124
					(0.1577)	(0.1197)	(0.1731)	(0.1294)
Teacher Has Control over Teaching Technique					-0.6265***	0.1107	-0.7552***	0.1211
					(0.2116)	(0.1906)	(0.2371)	(0.2069)
Teacher Has Control over Material					0.1581	-0.0174	0.1656	0.0065
					(0.1372)	(0.1045)	(0.1517)	(0.1189)
Teacher Has Control over Discipline					0.1362	-0.0886	0.1670	-0.1446
					(0.1978)	(0.1582)	(0.2164)	(0.1672)
Percent Students on IEP					0.4399	-0.0430	0.5448	-0.0521
					(0.3591)	(0.2794)	(0.4189)	(0.3201)
Percent Students on LEP					0.9930**	-0.0589	0.6431	-0.3360
					(0.4878)	(0.4444)	(0.5181)	(0.4944)
Ave. Class Size					-0.0041	-0.0154*	-0.0053	-0.0231**
					(0.0106)	(0.0086)	(0.0109)	(0.0104)
Percent Students on School Lunch					-0.5362	0.0808	-1.1197*	0.0548
					(0.5960)	(0.4240)	(0.6736)	(0.4755)
Percent Students Hispanic					0.2002	0.5585	1.3813	0.6357
					(0.7800)	(0.6308)	(1.0508)	(0.8437)
Percent Teachers Black					-1.0511	-0.7328	-1.5370	-1.0776
					(1.2040)	(0.7923)	(1.2684)	(0.8460)
Percent Teachers Hispanic					-1.1352	-1.0706	-1.1729	-0.9065
					(1.1060)	(0.8106)	(1.3293)	(0.8757)
Percent Teachers Other Ethnicity					-3.1018	0.3377	-2.2433	1.8416
					(3.0941)	(1.5369)	(3.9905)	(1.7611)
School is for Problem Children (=1)					-0.1846	-2.3138**	-0.3236	-2.6116**
					(1.0396)	(1.0144)	(1.0802)	(1.1509)
School Has Admissions Requirements (=1)					-0.6971*	-0.1585	-0.5777	0.0011
					(0.3902)	(0.2815)	(0.4028)	(0.3099)
School Has Teachers without Classrooms (=1)					-0.5366**	-0.3223	-0.4612	-0.2159
					(0.2614)	(0.2077)	(0.2955)	(0.2258)
School Has Block Scheduling (=1)					-0.1312	0.1575	-0.2791	0.2849
					(0.2448)	(0.1967)	(0.3046)	(0.2186)
School Has 12 Month Schedule (=1)					0.2184	0.3922	0.4032	0.1938
					(0.7113)	(0.4342)	(0.7237)	(0.4178)
School Has Interdisciplinary Teaching (=1)					-0.4236	-0.0909	-0.4695	-0.2001
					(0.2651)	(0.2102)	(0.3141)	(0.2304)
School Has Team Teaching (=1)					0.2632	-0.1055	0.3709	0.0171
					(0.2542)	(0.1980)	(0.2970)	(0.2123)
City (=1)							-0.4366	-0.4854
							(0.4049)	(0.3331)
Suburb (=1)							-0.2616	0.1256
							(0.3613)	(0.2874)
State Effects & Urbanicity	No	No	No	No	No	No	Yes	Yes
Constant	15.5126**	7.5099	17.5120*	11.7088**	25.8742**	10.7333	2.4448	-2.0362
	(6.7827)	(4.8666)	(9.7265)	(5.8935)	(12.0127)	(6.6379)	(13.4520)	(8.5799)
Observations	750	750	750	750	750	750	750	750

Standard errors in parentheses

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

Reference category is stay at school.

Other controls include hours per week, female, Hispanic or other ethnicity, number of children under 5, number of family members, if the teacher got married or divorced between Dec 03 and Sept 04, marital status, household income categories above $75,000. None of these were significant in the

5.3 Marginal Effects

While it is informative to understand how charter status and college competitiveness affect mobility decisions in general, it is also informative to analyze the marginal effects of these variables. Given the previous analysis on model specification, this study estimated the average marginal effects for the full specification (Model IV) for all four populations: all teachers, new teachers, all voluntary movers and leavers, and new voluntary leavers and movers[6].

The average marginal effects for the variables of interest are presented in Table 6[7]. Charter status does not have an effect on the mobility decision for all teachers nor for all voluntary leavers and movers. For new teachers, the average marginal effect of teaching at a charter school decreases the probability of staying in the school by roughly 11.0 percentage points, and it increases the probability of leaving by nearly 11.9 percentage points. Among new teachers who voluntarily left teaching or switched schools, teaching at a charter school increases the probability of leaving teaching by 9.6 percentage points. It no longer significantly affects the probability of staying. These results suggest that while new charter teachers are more likely to leave teaching, some of this effect is due to school staffing issues. That is, the marginal effect appears bigger for all new teachers, including those who were forced to attrit, than it is for those teachers who voluntarily left. This may reflect that charter schools are exerting their power to control staffing and to choose to keep those teachers who are the better fit for their schools. A caution in this finding, however, is that among those who were forced to attrit, it is unclear if these teachers would have chosen to stay, leave, or switch schools regardless of the school's decision.

[6] The average marginal effects were calculated for all models for all populations and are available upon request.

[7] The average marginal effects for all other controls and variables are available upon request.

Table 6. Average Marginal Effects of Multinomial Logit of Mobility for Variables of Interest, by Sample

	All Teachers			New Teachers		
	Stay	Leave	Switch	Stay	Leave	Switch
Charter (=1)	0.0118	0.0431	-0.0549	-0.1097*	0.1187***	-0.0089
	(0.0380)	(0.0325)	(0.0360)	(0.0662)	(0.0426)	(0.0654)
Most Competitive College (=1)	0.1612*	0.0809	-0.2422**	0.0237	0.0451	-0.0688
	(0.0959)	(0.0684)	(0.1085)	(0.1214)	(0.0759)	(0.1332)
Highly Competitive College (=1)	-0.0054	0.0392	-0.0339	-0.0201	-0.0490	0.0690
	(0.0501)	(0.0407)	(0.0476)	(0.0820)	(0.0623)	(0.0847)
Very Competitive College (=1)	-0.0113	0.0087	0.0027	-0.0377	-0.0242	0.0619
	(0.0380)	(0.0313)	(0.0364)	(0.0716)	(0.0524)	(0.0746)
Competitive College (=1)	0.0340	-0.0078	-0.0262	0.0207	-0.0463	0.0256
	(0.0331)	(0.0263)	(0.0316)	(0.0653)	(0.0471)	(0.0684)
Less Competitive College (=1)	-0.0097	0.0262	-0.0165	-0.0545	0.0084	0.0461
	(0.0340)	(0.0272)	(0.0328)	(0.0703)	(0.0508)	(0.0732)
Graduate Degree (=1)	0.0270	0.0384**	-0.0114	-0.0080	-0.0001	0.0081
	(0.0182)	(0.0159)	(0.0180)	(0.0460)	(0.0358)	(0.0436)
State Effects & Urbanicity	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3500	3500	3500	970	970	970
	All Voluntary Leavers/Switchers			New Voluntary Leavers/Switchers		
	Stay	Leave	Switch	Stay	Leave	Switch
Charter (=1)	0.0161	0.0107	-0.0268	-0.1063	0.0961*	0.0102
	(0.0414)	(0.0357)	(0.0380)	(0.0716)	(0.0513)	(0.0677)
Most Competitive College (=1)	0.1478	0.0853	-0.2332*	-0.1498	0.0765	0.0733
	(0.1069)	(0.0706)	(0.1215)	(0.1401)	(0.0860)	(0.1455)
Highly Competitive College (=1)	0.0064	0.0558	-0.0623	-0.0505	-0.0358	0.0863
	(0.0555)	(0.0428)	(0.0512)	(0.0931)	(0.0712)	(0.0965)
Very Competitive College (=1)	-0.0172	0.0110	0.0062	-0.1314	-0.0059	0.1373
	(0.0413)	(0.0327)	(0.0386)	(0.0832)	(0.0633)	(0.0861)
Competitive College (=1)	0.0265	-0.0051	-0.0214	-0.0475	-0.0458	0.0933
	(0.0361)	(0.0276)	(0.0336)	(0.0766)	(0.0573)	(0.0792)
Less Competitive College (=1)	-0.0114	0.0292	-0.0177	-0.0982	-0.0186	0.1169
	(0.0371)	(0.0284)	(0.0349)	(0.0834)	(0.0614)	(0.0848)
Graduate Degree (=1)	-0.0351*	0.0380**	-0.0030	-0.0649	0.0455	0.0194
	(0.0195)	(0.0167)	(0.0188)	(0.0548)	(0.0407)	(0.0464)
State Effects & Urbanicity	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3050	3050	3050	750	750	750

Standard errors in parentheses

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

Reference category for original multinomial logit is stay at school.

Average marginal effects reported for Model IV specification.

With respect to college competitiveness, among all teachers, the average marginal effect of graduating from a Most Competitive college increases the probability of staying in their schools by 16.1 percentage points and it decreases the probability of switching schools by 24.2 percentage points. It does not

significantly affect the decision to leave. Among voluntary leavers and movers, the average marginal effect of graduating from a Most Competitive college decreases the probability of moving schools by roughly 23.3 percentage points. The average marginal effects of college competitiveness are not significant for new teachers. Therefore, it appears that teachers graduating from the top colleges are less likely to move schools than are teachers graduating from lower-ranked colleges. This may be indicative of the fact that these teachers were able to find a better match with their schools as they may have been the most desirable teachers and able to choose their ideal schools.

Thus, the marginal effects indicate that among new teachers, teaching at a charter school increases the probability of leaving teaching by 9.6 to 11.9 percentage points. Part of the attrition from charter schools may be charters exercising their ability to keep only teachers who are the best fit for their schools. Graduating from a better college does not affect the mobility decision of new teachers, but it significantly reduces the probability of moving schools by roughly 23 to 24 percentage points. Furthermore, among all teachers, including voluntary and involuntary leavers, teachers graduating from a Most Competitive college are 16.1 percentage points more likely to stay at their current schools than to switch schools or to leave teaching.

6 CONCLUSIONS

This study investigates teacher mobility in the public school system. It attempts to clarify ambiguity in the literature. In particular, this study investigates attrition, as measured by leaving teaching and moving schools, in charter and public schools. It finds that different specifications of the model and different samples of teachers contribute to the ambiguity in the literature. Household characteristics enter into the teacher mobility decision, though these are often overlooked in the literature.

In the fully specified model for all teachers, charter status does not affect teacher mobility. Among new teachers, charter teachers are more likely to leave teaching versus to stay in teaching compared to traditional public school teachers. The odds increase by a factor of 2.13 for all new teachers and by a factor

of 3.04 for new teachers who voluntarily leave. A potential limitation to this analysis is that it treats all charter schools the same, although they do vary quite significantly, even from charter to charter within states.

The marginal effect analysis indicates that among all new teachers, the average marginal effect of teaching at a charter school increases the probability of leaving teaching by 11.9 percentage points. Meanwhile, among new teachers who voluntarily left, the average marginal effect of teaching at a charter increases the probability of leaving teaching by 9.6 percentage points. The difference in the two rates may reflect charter schools exercising their freedom to let go of teachers that are not a good fit for their schools.

The marginal effect analysis also indicates that graduating from a Most Competitive college does not increase the probability of leaving teaching but it does reduce the probability of moving schools. College competitiveness does not affect mobility decisions of new teachers.

In sum, charter status appears to affect the mobility decisions of new teachers, while college competitiveness affects decisions of more tenured teachers. The multinomial logit results suggest that household characteristics do enter into teachers' mobility decisions, even though these characteristics are often ignored in the literature. Furthermore, teachers who have the greatest opportunity costs of teaching are more likely to leave than those with lower opportunity costs. These include high school teachers, teachers with graduate degrees, and teachers with greater responsibilities outside of the classroom (e.g., more children under the age of five). Ambiguities in the literature are due to different model specifications and different teacher populations, including newer and older teachers as well as voluntary and involuntary leavers.

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