DOCUMENT RESUME

ED 422 616 EA 029 258

AUTHOR Beaudin, Barbara Q.
TITLE Teacher Interdistrict Migration: A Comparison of Teacher, Position, and District Characteristics for the 1992 and 1997 Cohorts.
PUB DATE 1998-04-00
NOTE 30p.; Paper presented at the Annual Meeting of the American Educational Research Association (San Diego, CA, April 13-17, 1998).
PUB TYPE Reports - Research (143) -- Speeches/Meeting Papers (150)
EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Administrators; Elementary Secondary Education; Enrollment Trends; *Faculty Mobility; *Institutional Characteristics; Librarians; *Professional Personnel; Reading Consultants; *Salary Wage Differentials; *School Districts; School Psychologists; Social Workers; *Teacher Supply and Demand
IDENTIFIERS *Connecticut

ABSTRACT

Using data from two cohorts of public school educators, this paper examines the interdistrict migration within Connecticut of public school classroom teachers, support staff (librarian/media specialists, counselors, school psychologists, social workers, and reading specialists), and administrators. The purpose is to identify characteristics of educators who change districts and migration-related factors affecting the quality of district-level school staffs. For fall 1992 and 1997, the paper examines the magnitude of migrating teachers, compares characteristics and salaries of both migrants and nonmigrants, and compares patterns of movement between advantaged and disadvantaged districts in the state. In both years, Connecticut districts filled about 20 percent of their professional vacancies with "migrants" from another Connecticut district. Migrants were younger and less experienced and had lower average salaries that nonmigrating colleagues, but received larger salary and percentage increases. Educators making vertical moves into support and administrative positions accounted for only 8 percent of migrant pools. In 1997, disadvantaged districts lost more migrating educators than did advantaged districts. (Contains 30 references.) (MLH)

Teacher Interdistrict Migration: A Comparison of Teacher, Position, and District Characteristics for the 1992 and 1997 Cohorts

Barbara Q. Beaudin
Hillyer College
University of Hartford
(860) 768-4945
beaudin@uhavax.hartford.edu

Teacher Interdistrict Migration: A Comparison of Teacher, Position, and District Characteristics for the 1992 and 1997 Cohorts

Whether or not there will be a teacher shortage throughout the next decade is still open to debate. The evidence suggests that the demand for public school teachers will increase. Student enrollments are projected to continue to climb from 49.8 million in 1994 to 54.6 million in 2006, an increase of 4.8 million elementary and secondary students (N.C.E.S., 1996a). The enrollment increase will occur in tandem with national and state policies to raise entry standards for new public school teachers (Archer, 1998) and to reduce class sizes to forward the goal of improving student performance (Fetler, 1997a). During the same period a large portion of the current teaching force will be eligible to retire. Approximately 40 percent of the public school teaching force employed in 1993-94 who expected to remain in teaching until retirement planned to retire within ten years. Another 20 percent expect to do so within 15 years (N.C.E.S., 1996b). The National Commission on Teaching and America's Future (1996) estimates that the nation's schools will need more than two million new teachers by 2006.

If public school teacher demand increases, employment opportunities will expand for new educators to enter the public school teaching profession. Moreover, experienced educators will encounter a growing number of options to make career moves within the field of education. Some educators will be able to make lateral career changes by 'migrating' to the same or similar positions in different district swhere the benefits and working conditions may be more attractive. Others will be able to advance their careers and make use of graduate training by moving into new administrative or professional support staff positions in different public school districts. Districts benefit when they hire migrants from other districts rather than novices because they can staff vacant positions with experienced educators who have already developed expertise. Although migrants make attractive new hires, there is a limited amount of research on them as a component of the educator supply pool.

Using data from two cohorts of public school educators, this paper examines the interdistrict migration within Connecticut of public school classroom teachers, support staff (librarian/media specialist, counselor, school psychologist, social worker, reading consultant), and administrators. For the purpose of this paper, 'migrants' are defined as continuing educators who move from one school district to another within the state during consecutive school years, those who make 'lateral' career changes move to the same or a similar assignment in another school district, and those who make 'vertical' career changes move into new support staff or administrative positions. The paper's purpose is to increase

our understanding of the characteristics of educators who change districts and identify factors related to migration that may affect the quality of district level public school staffs. It first examines the magnitude of the contribution that migrants made to district-level new hire pools in the fall of 1992 and 1997. Then, the characteristics and salaries of the Connecticut public school teachers, support staff, and administrators, who migrated to different Connecticut public school districts in September of 1992 and in September of 1997 are compared to those of their counterparts who did not change districts. Finally, the paper compares patterns of movement in 1992 and 1997 between advantaged and disadvantaged districts within the state.

Why Examine Interdistrict Migration?

When experienced teachers leave their position, districts often hire inexperienced novices to replace them. Research on student learning indicates that student outcomes are better in classrooms where teachers have some prior experience rather than no experience (Murnane & Philips, 1981; Murnane et al. 1991). Experienced teachers are likely to be more knowledgeable about curricular options, instructional tools, school policies and procedures and, therefore, require less administrative support than novices to implement instruction effectively. Experienced teachers have acquired an array of general teaching competencies to motivate and discipline students, communicate with parents, and work cooperatively with colleagues, that novices typically do not possess. In addition, they are valuable to their district because they also have acquired district-specific competencies regarding curriculum and instruction and have demonstrated that they are effective in getting the job done.

Experienced teachers have learned to integrate curriculum and pedagogy; they know what works and what does not work in the classroom. Copeland et al. (1994) asserted that "(a)s people gain education and experience in teaching, the understanding they express of classrooms they observe is characterized by an increase in quantity and complexity of linkages among ideas and by a shift in the focus of these linked ideas toward issues more central to classroom teaching, including content taught and learned, pedagogical processes used and experienced, and basic educational purposes (p. 176)."

Compared with novice teachers, experienced teachers typically are more effective in creating a classroom climate to foster learning because they have well established strategies for solving discipline problems. This is due to experienced teachers' greater attention to clearly defining the problem, checking and testing out their hypothesizes about discipline problems, and prioritizing intervention strategies. Novices, who have not developed a repertoire of problem-solving strategies, are primarily concerned with problem solution

rather than systematically testing hypotheses about a range of potential solutions (Swanson, et al., 1990).

Teacher experience and educational qualifications affect school-wide educational outcomes as well. Fetler (1997b) found that teacher education qualifications and experience were related to school dropout rates, independent of the school's poverty level, size or location. Schools that had a large percentage of teachers with minimal educational qualifications and limited teaching experience had higher dropout rates than schools with well-qualified, experienced teachers.

Prior national and state level research suggests that experienced teachers' career decisions do not favor schools in disadvantaged districts. Experienced teachers are twice as likely to move from central city schools with a large proportion of minority students to other school districts than they are to migrate from districts with small proportions of minority students (N.C.E.S., 1997). When teachers who interrupt their careers return to the profession, they are more likely to return to the district they left if the district was more affluent, with higher salaries and funding for education, than if it was poor (Beaudin, 1995). As teachers gain experience, they tend to leave lower SES schools for more middle class schools (Beaudin, 1991; N.C.E.S, 1997). When experienced teachers leave a school or district, districts are often forced to fill their positions with inexperienced novices (N.C.E.S., 1996e). As the demand for well-qualified public school educators increases over the next decade, it is likely that the ramifications will be greater for poor urban districts in most states than for other districts. As a result, the classroom door will continue to revolve in less advantaged schools.

The fact that experienced teachers are more likely to leave and less likely to return to schools in disadvantaged districts than schools in other districts exacerbates the problem of staffing all schools with well-qualified professionals. Larger urban districts serving predominately poor children continue to fill many positions with uncertified or underqualified applicants (Darling-Hammond, 1990b; Oakes, 1990; N.C.E.S., 1996c; Shen, 1997). Teachers in schools that serve students from the lowest socioeconomic stratums tend to be younger and less experienced, and typically have completed fewer college semester hours than teachers at higher SES schools (Oakes, 1990). Moreover, in core academic subjects such as English, mathematics, physical science, life science and history, schools in low income neighborhoods had higher levels of out-of-field teaching than do schools in more affluent neighborhoods (N.C.E.S., 1996c).

To expand the pool of candidates, many districts and states have turned from traditional teacher preparation to alternative routes (Stoddart & Floden, 1989; Darling-Hammond, 1990a; Feistritzer, 1990). In 1986, 18 states allowed alternative routes to public school

teacher certification; by 1992 the number of states sanctioning alternative certification had grown to 40 (Feistritzer, 1993; Stoddart & Floden, 1995). Feistritzer and Chester (1996) estimated that by 1996 nearly 50,000 prospective teachers had become certified through state administered alternate route programs.

Shen's (1997) study comparing traditionally and alternatively certified public school teachers using a national sample of teacher explored some issues related to the impact of alternative certification policies on educational quality and equity. Shen found that, on average, teachers taking an alternative rather than traditional certification route had lower academic qualifications, were new college graduates with little or no work experience in education or other fields, and were less committed to teaching as a career. The fact that a larger proportion of alternatively certified teachers (20.9%) than traditionally certified teachers (10.6%) had teaching assignments in large central cities that are among the nation's most disadvantaged school districts raises the question of whether or not all children has equal access to high quality education.

These findings raise a critical question: Will students in disadvantaged districts have the same access as students in schools in other districts to the well-qualified, experienced teachers who are essential to achieving improvements in public school education? The importance of this question will increase over the next decade as public school enrollments rise and many current teachers approach retirement age while the number of traditional college graduates who are preparing to teach decreases (Moody & Christoff, 1992; N.C.E.S., 1997). Policy advances, such as state level and national decisions to raise the standards for public school teacher certification and reduce class sizes in the lower elementary grades, will further reduce the supply and increase the demand for new teachers (Fetler, 1997a). Less advantaged districts, where the most difficult working conditions and the greatest educational challenges exist (Corcoran, et al., 1988; Kozol, 1991), will be forced to compete more aggressively with other districts for experienced candidates to fill vacant positions.

Teacher Supply Pools

Most states and the National Center for Educational Statistics monitor the balance between teacher supply and demand aggregating their findings to the state or national levels, respectively. The research focuses on issues of teacher quantity, sometimes on quality, but rarely on the issue of equitable distribution. Teachers who migrate between districts are viewed in the same manner as those who continue to teach in the same district during consecutive years.

There is a body of evidence, however, to suggest that the geographic radius of a public school district's supply pool of potential teachers, support staff, and administrators does not coincide with its state boundaries. States comprise many overlapping supply pools. In a survey of college graduates from California's teacher preparation programs, Tierney (1993) found that most planned to teach in public schools within the state following graduation and preferred a teaching position that was within 25 miles of their home. The proximity of the public school position, close to home, was a critical factor in their decision to apply for and accept a job. The California findings are consistent with those for newly hired Connecticut public school educators. When asked to identify the most important reason for accepting their current position rather than a position in another school, nearly one-quarter noted that the school because it was in their hometown, they had student taught/substituted in the school, or it was located close to their home (Beaudin, 1993).

The depth of district level supply pools also vary according to the demographics of the student populations schools serve. In 1992, the more than three-fourths (80.8%) of Connecticut's newly hired teachers reported that they submitted applications to suburban districts, compared with only half (51.2%) who submitted applications to the state's large cities (Beaudin, 1993). The fact that school location and demographics play a significant role in prospective teachers application for and acceptance of positions implies that aggregating supply estimates to the state and national levels camouflages the breadth and depth of the teacher supply pool that is actually available to districts with different characteristics. Some districts may find an abundance of well qualified candidates for assignments in all subject area specialties, while shortages may exist in other districts.

Theoretical Framework

Teachers migrate between districts for a variety of reasons. Some teachers are forced to move involuntarily when teaching positions are eliminated because of enrollment decreases, changes in curricular emphasis, or budgetary constraints. Other teachers choose to move voluntarily. Higher salaries, more attractive working conditions, a more convenient location, or greater opportunities for professional development and advancement are some of the factors that influence their decisions to move to a different district (Beaudin, 1991).

The human capital branch of economic theory provides a theoretical framework for examining teachers' career decisions to migrate from one district to another. The theory proposes that individuals treat career decisions as investment decisions. They weigh the benefits and costs of the employment options, choosing the option that maximizes benefits and minimizes costs. In the case of migrants, educators compare the benefits they will

accrue by changing districts to the costs they endure by moving rather than continuing in the same district.

The following hypotheses emanate from the human capital perspective:

1. Educators who specialize in disciplines with high demand and relatively short supply, are more likely to migrate between districts than their colleagues who specialize in other disciplines.
2. Educators who migrate will, on average, earn higher salary increases than their counterparts who continue in their original districts.
3. Educators who make lateral career moves when they change districts (continuing in the same assignment or a similar assignment) will be more likely to move from less advantaged to more advantaged districts than educators making vertical career moves (teacher to administrator or support staff).

Research Questions

The research questions listed below propose a structure for examining the hypotheses. They explore the educator, assignment, and original and receiving district characteristics for the 1992 and 1997 cohorts of public school educators who have migrated from one Connecticut public school district to another.

1. What proportion of district level vacancies do migrants fill??
2. Does the proportion vary across assignment areas?
3. Has the proportion of the migrant educators who continued in the same or similar lateral assignments or moved vertically out of the classroom to support staff or administrative assignments changed as student enrollments increased between 1992 and 1997?
4. Do migrants differ in personal and salary profiles from their counterparts who continued in the same districts during the two year time periods? Has the salary differential between migrant and continuing educator changed between 1992 and 1997?
5. Are particular subgroups of migrants more likely than others to more from advantaged to disadvantaged districts?

Data

The data for this research project are drawn from annual data the Connecticut State Department of Education (CSDE) collects from school districts to monitor the condition of education in the state. It is well-suited for examining the proposed research questions for two reasons. First, the 1997 CSDE data is more current than the most recent national data available. This permits a comparison of current educator migration patterns when student enrollments are increasing to past patterns. Second, while Connecticut is a small state

geographically, it is a state of contrasts in the socioeconomic composition of its schools, with schools in some of the nation's most affluent communities within a very small radius of schools in the nation's poorest communities. The examination of this data allows us to explore issues of equity in students' access to experienced teachers.

The 1992 cohort was created in the following manner. The CSDE Staff Files for the 1991-92 and 1992-93 school year were merged by social security number to identify educators who migrated between public school districts and their counterparts who continued in the same public school district for the consecutive school year periods. The data file includes demographic information about each educator (sex, age, race, education level, CT experience), and information about the positions educators held during each year (assignment, school level, district, FTE, salary). The data from the Staff Files were used to develop profiles of subgroups of migrants who made lateral and vertical career changes, to compare with those of non-migrant educators continuing in the same district. The procedure was replicated to create the 1997 cohort.

The Connecticut State Department of Education groups the state's public school districts into nine 'education reference groups' (ERG) for the purpose of comparing educational inputs and outcomes of districts with similar demographic and economic characteristics. ERG composition is based upon measures of socio-economic status (median family income, percentage of children with at least one parent with at least a bachelor's degree, and percentage of children with a parent holding an executive, managerial, or professional occupation), need (percentage of children in single-parent homes, percentage of students receiving free lunch, and percentage of students from non-English speaking homes), and enrollment (district size). Districts for this study were classified into two categories: disadvantaged and advantaged. The districts categorized as the 20 'disadvantaged' districts include all of the state's large and small cities, and are in the eighth and ninth ERGs. The remaining 149 districts, from ERGs 1 through 7, were designated as 'advantaged' and range from the state's most affluent suburbs to its small rural communities.

Migrants: A Substantial Component of Districts' Annual Newly Hired Educator Pool

To determine the magnitude of contribution that migrant educators make to the pool of new educators that districts hire annually, Table 1 disaggregates the number of newly hired educators and the number of migrants hired in the 1992 and 1997 cohorts into 24 assignment areas. 'Newly hired' educators are those teachers, support staff, and administrators who were not employed in professional positions in Connecticut public schools in September of the previous year (1991, 1996), but were the following September (1992, 1997). Migrants are educators who worked in a different Connecticut public school districts during the two school

years. The 'Total' column indicates the sum of newly hired and migrants for each assignment area and the '% Migrant' column identifies the migrant proportion of the total district-level new hires (newly hired plus migrants). Any move between classroom teaching assignments was considered a 'lateral' career move.

(Insert Table 1)

The migrant columns for support staff and administrative assignments contain two sets of entries. If the upper entry in the column contains two numbers; the first number represents the number of educators making lateral career moves in the assignment (i.e. administrator to administrator) and the second number, in parentheses, represents the number of educators making vertical career changes into the particular assignment area (i.e. teacher to school counselor). The '% Migrant' for the upper row indicates the proportion of total new hires who were migrants from other districts making a lateral career change. The lower entry in the migrant column represents the total number of individuals making lateral and vertical career changes in the assignment area. The adjacent '% Migrant' value indicates the proportion of the district-level new hires in the assignment who were either lateral or vertical migrants.

For both cohorts migrants account for approximately one in five of Connecticut districts new hires. At the beginning of the 1992-93 school year Connecticut public school districts filled a total of 3060 professional positions, 2480 (81.0%) with "newly hired educators" and 580 (19.0%) with "migrant" educators who transferred to their district in 1992 from another Connecticut public school district. Migrants filled a total of 396 teaching (15.1%), 69 support staff (librarian/media specialist, counselor, school psychologist, social worker, reading consultant) (28.2%), and 115 (58.7%) administrative positions. The vast majority of the migrants, 534 (92.1%) made lateral career moves when they changed districts, moving to the same as, or a similar position to, the one they left.

In the fall of 1997, Connecticut public schools filled a total of 4127 vacant positions, 3353 (81.2%) with newly hired educators and 774 (18.8%) with migrants. The 1997 total represents a 1067 (34.9%) increase in the number of district level new hires over 1992. In 1997, migrants filled a similar proportion of the classroom teaching (15.7%), a smaller portion of support staff (22.8%), and a larger proportion of administrative positions (63.2%) than they filled in 1992. Again, most migrants, 718 (92.7%) moved laterally to positions in their new district that were similar to those they held the previous year.

For both cohorts, migrants accounted for more than half of the new administrators districts hired and nearly one-fourth of their new support staff. The proportion of migrants filling classroom teacher vacancies varied widely across disciplines. During both years

	1992 Cohort				1997 Cohort			
	Newly Hired	Migrant	Total	% Migrant	Newly Hired	Migrant	Total	% Migrant
Assignment								
Classroom Teachers								
Art	74	14	88	15.9	97	24	121	19.8
Bilingual	50	7	57	12.3	70	4	74	5.4
Biology	30	4	34	11.8	60	10	70	14.3
Business	28	3	31	9.7	31	8	39	20.5
Chemistry/Physics	23	7	30	23.3	35	5	40	12.5
Earth/Gen. Science	38	7	45	5.6	77	20	97	20.6
Elementary	819	47	866	5.4	993	86	1079	8.0
English	126	15	141	10.6	196	44	240	18.3
Foreign Language	82	18	100	18.0	123	42	165	25.5
Industrial Arts	33	14	47	29.8	27	22	49	44.9
Mathematics	97	14	111	12.6	200	50	250	20.0
Music	79	23	102	22.5	113	51	164	31.9
Other Teacher	136	4	140	2.9	38	10	48	20.1
Physical Education	62	13	75	17.3	135	25	160	15.6
Special Education (and Remedial)	323	118	441	26.8	487	118	605	19.5
Speech/Hearing	52	14	66	21.2	72	31	103	30.1
Social Science	98	15	113	13.7	173	16	189	8.5
Vocational	73	59	132	44.7	99	16	115	13.9
Total Teachers	2223	396	2619	15.1	3126	582	3708	15.7
Support Staff								
Counselor	43	13 (3)	56	23.1	81	22 (5)	103	21.4
		16	59	27.1		27	108	25.0
Librarian/Media	33	14 (3)	47	29.8	41	14 (1)	55	25.5
		17	50	34.0		15	56	26.8
Psychologist	45	22	67	32.8	65	16	81	19.8
Reading Consultant	16	3 (5)	19	15.8	9	4 (6)	13	30.7
		8	24	33.3		10	19	52.6
Social Worker	39	6	45	13.3	63	6 (1)	69	8.7
						7	70	10.0
Total Support Staff	176	58 (11)	234	24.8	259	62 (13)	321	19.3
		69	245	28.2		75	334	22.5
Administrative Positions								
Total Administrator	81	80 (35)	161	49.7	68	74 (43)	142	52.1
		115	196	58.7		117	185	63.2
Total	2480	534 (46)	3014	17.7	3353	718 (56)	4071	17.6
		580	3060	19.0		774	4127	18.8

Table 1: Comparison of the Proportion of Newly Hired Educators and Migrating Educators, Making Lateral (and Vertical) Career Changes, by Assignment Area for the 1992 and 1997 Cohorts

migrants accounted for relatively small proportions of the new elementary, bilingual, and social science teachers. In 1992 migrants made lateral career moves to fill relatively large proportions of the teaching vacancies in vocational, industrial arts, special education, chemistry/physics, music, and speech/hearing assignments. In 1997, migrants accounted for relatively large proportions of the new hires in industrial arts, music, speech and hearing, foreign language, earth/general science, business and mathematics. Among these areas, the state of Connecticut has identified special education, speech and hearing, and vocational specialties like industrial arts as relative teacher shortage areas. Many public school districts in the state have found difficulty filling positions requiring these certifications, even during years when the state has had no general teacher shortage. Over the last decade there has been a growing concern nationally for the adequacy of the supply pool of teachers specializing in mathematics and the sciences.

Lateral Career Moves

Table 2 compares educator characteristics of classroom teachers, support staff, and administrators in the 1992 and 1997 cohorts who made lateral career moves, to the same or similar assignments in different Connecticut public school districts, to their colleagues in corresponding assignments who continued in the same district for the two-year time frames. The table also includes comparative salary information, actual salaries and FTE salaries, for 'migrant' and 'continuing' educators.

(Insert Table 2)

Classroom teachers who moved from a teaching assignment in one Connecticut public school district to a teaching assignment in another district in the state accounted for the largest group of migrants in 1992 and 1997. The 'Classroom Teachers' columns of Table 2 compares teacher characteristics and salary information of migrating classroom teachers to teachers who remained in the same district for the 1992 and 1997 cohorts. The migrant pool paralleled the gender and racial composition of the continuing teacher pool in 1992 and 1997. Migrants, on average, were more likely to be younger, with fewer years of Connecticut public school experience, and less likely to hold a master's degree than teachers who remained in the same school district for the consecutive year periods. Migrants' lower salaries during both years reflect their lower experience and education levels. Yet, by changing districts, migrant classroom teachers in both cohorts averaged larger actual dollar and percentage increases than classroom teachers who remained in the same district. When FTE salaries are examined, to account for changes from part-to-full or

	Classroom Teachers				Support Staff				Administrators			
	1992 Cohort		1997 Cohort		1992 Cohort		1997 Cohort		1992 Cohort		1997 Cohort	
	Migrant	Continuing	Migrant	Continuing	Migrant	Continuing	Migrant	Continuing	Migrant	Continuing	Migrant	Continuing
Teacher Characteristics												
Number	396	33,104	582	35,191	58	2,982	62	3,205	80	2,295	74	2,313
Percent Female	70.5	71.2	72.3	73.2	79.3	69.6	87.1	74.1	43.8	35.0	52.7	43.8
Percent White	93.9	94.1	95.7	93.5	89.7	93.2	95.2	91.9	88.8	92.5	94.6	89.0
Percent M.A.or above	56.5	75.3	58.9	78.0	94.8	95.2	95.2	98.5	96.1	95.7	94.6	98.7
Average Age (years)	36.6	44.3	36.5	45.3	42.6	47.5	41.8	48.5	46.2	48.8	47.8	50.8
Average CT. Public School Exper. (years)	5.0	13.9	4.5	14.9	6.1	13.9	6.5	14.9	14.5	19.2	15.3	20.6
Salary Change Between Years												
Average Salary (91, 96)	$31,425	$46,065	$33,180	$50,194	$36,731	$49,158	$38,147	$53,675	$64,981	$69,600	$72,237	$79,339
Average Salary (92, 97)	$34,950	$48,497	$37,023	$51,944	$40,994	$51,601	$41,828	$55,414	$70,554	$73,063	$76,255	$81,640
$ Increase	$3,525	$2,432	$3,843	$1,750	$4,263	$2,443	$3,681	$1,739	$5,573	$3,463	$4018	$2,301
% Increase	11.2	5.3	11.6	3.5	11.6	5.0	9.6	3.2	8.6	5.0	5.6	2.9
FTE Salary Change Between Years												
Average FTE Salary (91, 96)	$34,935	$46,761	$37,343	$51,004	$41,192	$50,248	$40,492	$54,800	$64,981	$69,791	$72,702	$79,666
Average FTE Salary (92, 97)	$36,903	$49,147	$39,812	$52,699	$43,249	$52,617	$44,123	$56,465	$70,554	$73,303	$77,311	$81,975
FTE $ Increase	$1,968	$2,386	$2,469	$1,695	$2,057	$2,369	$3,631	$1,665	$5,573	$3,512	$4,609	$2,309
FTE % Increase	5.6	5.1	6.6	3.3	5.0	4.7	9.0	3.0	8.6	5.0	6.3	2.9

Table 2: Characteristics of Migrant Who Made Lateral Career Changes and Continuing Classroom Teachers, Support Staff, and Administrators Who Remained in Comparable Positions, for the 1992 and 1997 Cohorts

full-to-part time positions, migrants still garner higher percentage and dollar increases. The magnitude of the difference in percentage and dollar increases between migrant and continuing teachers is considerably greater in 1997 than it was in 1992.

Fifty eight support staff members (school counselors, librarian/ media specialists, psychologists, reading consultants, and social workers) changed Connecticut public school districts between the 1991-92 and 1992-93 schools years to take a lateral assignment in another district, compared with 62 support staff members who made a similar career moves between the 1996-97 and 1997-98 school years. The 'Support Staff' columns of Table 2 compares the characteristics of migrating support staff and salaries to those of support staff who remained in the same district for the 1992 and 1997 cohorts. For both cohorts female, and younger educators had greater representation in the migrant pools than in the continuing support staff pools. Similar proportions of migrant and continuing support staff had completed at least a master's degree, reflecting certification requirements for support staff assignments. Like migrating classroom teachers, migrating support staff had fewer years of Connecticut public school experience and, as a result, earned lower average salaries and FTE salaries than support staff who remained in the same district for two consecutive years. By changing districts, migrating support staff also garnered larger actual dollar increases and larger percentage increases in salary and FTE salary.

The 80 school administrators making lateral career changes in the fall of 1992, to another administrative position in a different Connecticut public school district, compared with 74 in the fall of 1997, accounting for approximately half of the administrators who were new to their district in the fall of 1992 and 1997. The 'Administrators' columns of Table 2 compares migrating and continuing administrators' characteristics and salaries. Migrating administrators were more likely to be female, slightly younger and less experienced than their administrative colleagues who remained in the same district during the two year periods. For the 1992 cohort, white administrators had proportionally greater representation in the continuing pool than in the migrant pool, while migrants had a greater proportion of administrators with at least a master's degree; these proportions reversed in 1997. For both cohorts, migrating administrators earned lower average salaries during each year than continuing administrators, but the differential between their salaries was considerably smaller than those for classroom teachers and support staff. Like the other migrating educators making lateral career moves, migrating administrators earned larger actual and FTE salary increases and percentage increases than administrators who did not migrate between districts.

Lateral Migration Between Disadvantaged and Advantaged Public School Districts

Figure 1 delineates the movement of classroom teachers, support staff, and administrators who made lateral career moves between disadvantaged and advantaged districts in Connecticut for the 1992 and 1997 cohorts. For each diagram, the first column identifies the number of educators who left disadvantaged and advantaged districts. The second column disaggregates the first number into two parts: the horizontal arrow identifies the number of educators who moved to the same type of district, and the oblique arrow identifies the number who moved to the other type of district.

(Insert Figure 1)

The 'Classroom Teachers' columns of Figure 1 compares the types of communities that migrating classroom teachers left and moved to when they changed districts in 1992 and 1997. By the end of the 1991-92 school year, 110 of the migrating classroom teachers left disadvantaged districts; 34 (30.9%) moved to other disadvantaged districts in the state by the beginning of the next school year and 76 (69.1%) moved to positions in more advantaged districts in the state. During the same time period, 286 classroom teachers left advantaged districts; 235 (82.2%) moved to other advantaged districts and 51 (17.8%) moved to disadvantaged districts. In the fall of 1992, 85 classroom teachers had migrated into disadvantaged districts and 311 into advantaged districts. This transfer represents a net loss of 25 experienced teachers for disadvantaged districts and a net gain of 25 experienced classroom teachers for advantaged districts. If the 110 positions in disadvantaged districts that teachers left in 1991 translate into vacancies for 1992, then disadvantaged districts were only able to fill 85 of them with experienced teachers from within the state. The remaining 25 vacancies, in addition to other vacancies created when teachers retired or left the profession or new positions were created, would need to be filled through other sources. In contrast, advantaged district hired 313 experienced teachers in 1992, filling the equivalent of all 1991 vacancies that migrants created with experienced teachers and 25 other vacancies.

The magnitude of out-migration of classroom teachers increases for the 1997 cohort with 140 classroom teachers leaving disadvantaged districts, 34 (24.3%) migrating to another disadvantaged district and 106 (75.7%) to advantaged districts. This compares with 442 classroom teachers leaving advantaged districts, 376 (85.1%) moving to another advantaged district and 66 to a disadvantaged district. This represents a net loss for disadvantaged districts of 40 experienced classroom teachers, or 28.6 percent fewer teachers than needed to the positions migrants vacated the previous year.

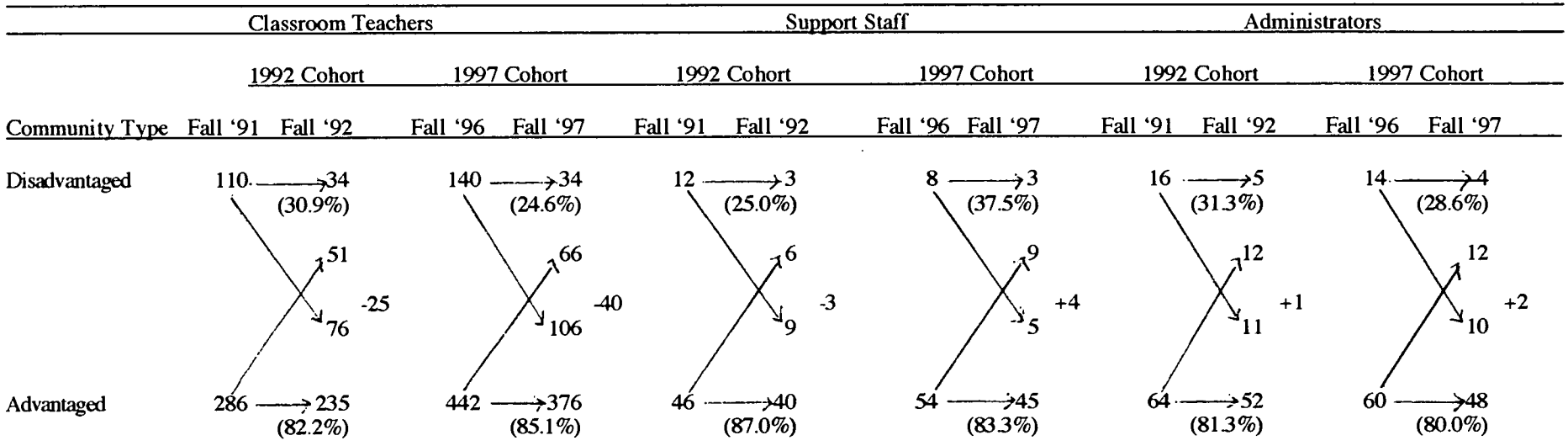

Figure 1: Comparison of the Types of Communities that Migrant Classroom Teachers, Support Staff, and Administrators Left and Moved to When Making Lateral Career Changes, for the 1992 and 1997 Cohorts

The 1992 cohort support staff migration pattern in and out of disadvantaged and advantaged districts parallels that of both cohorts of migrating classroom teachers. Between the 1991-92 and 1992-93 school year, 12 support staff members left disadvantaged districts, three (25%) migrating to other disadvantaged districts and nine to advantaged districts. During the same period, 46 support staff members left advantaged districts, 40 (87.0%) transferring to positions in other advantaged districts and six transferring to disadvantaged districts. Urban districts realized a net loss of three experienced support staff members. In the 1997 cohort, only eight support staff members left the state's most disadvantaged school districts; three (37.5%) moved to other disadvantaged districts in the state while five moved to advantaged districts. Meanwhile, 54 support staff members left advantaged districts for similar positions; 45 (83.3%) moved to other advantaged districts and 9 to disadvantaged districts. This represents a net gain of four experienced staff members for disadvantaged districts.

The 'Administrators' columns of Figure 1 compare administrative migration patterns between disadvantaged and advantaged districts for the 1992 and 1997 cohorts. Of the 16 administrators who left urban districts in the 1992 cohort, five (31.3%) transferred to an administrative position in a different disadvantaged district in the state and twelve to advantaged districts. Fifty-two of the 64 (81.3%) administrators transferring from advantaged districts in the 1992 cohort moved to another advantaged district in the state, while the remaining 12 moved to disadvantaged districts. While the proportion of administrators transferring to the same type of district they left is similar to those for classroom teachers and support staff, urban districts realized a net gain of one administrator in 1992. The 1997 statistics for migrating administrators reflect similar patterns. Four of the 14 (28.6%) administrators in the 1997 cohort who began in a disadvantaged district made lateral career moves to another disadvantaged district, with the remaining 10 moving to advantaged districts, while 48 of the 60 (80%) administrators transferred between advantaged districts in the state, and 12 moved from advantaged to disadvantaged districts. In 1997, disadvantaged districts realized a net gain of two experienced administrators.

Regardless of assignment area, when educators from both cohorts migrated between districts to make lateral career moves, approximately 3 in 10 of those who left disadvantaged districts moved to other disadvantaged districts in the state, while more than 8 in 10 of the educators who left advantaged districts moved to other advantaged districts. Classroom teachers show a more pronounced pattern of migration from disadvantaged to advantaged districts in the state than do support staff or administrators, with disadvantaged districts realizing a net loss in the number of experienced classroom teachers in 1992 and 1997. As student enrollments increased between 1992 and 1997, a larger number of

experienced classroom teachers migrated between districts, a smaller proportion of those who left disadvantaged districts moved to other disadvantaged districts, and the net loss of experienced teachers from disadvantaged districts increased in magnitude.

Vertical Career Moves

A small proportion of the migrating educators in the two cohorts made vertical career changes. Table 3 compares individual characteristics and salary information for educators who migrated between districts to make vertical career moves into support staff and administrative positions to educators who made comparable career changes, but continued in the same district for the two year time periods.

(Insert Table 3)

The 'Support Staff' column of Table 3 indicates that in 1992, 11 educators changed districts to take new positions as support staff members while 74 others assumed new support staff responsibilities in the district in which they worked the previous year. For both cohorts, educators who migrated to take support staff positions were more likely to be female, white, younger, and less experienced, and less likely to hold at least a master's degree than those who move to support staff positions in their original district. Migrants earned lower salaries, smaller salary increases, and lower percentage increases than continuing educators who assumed support staff positions. The patterns remained consistent when FTE salaries were examined. A portion of the lower migrant salaries can be explained by the composition of the migrant cohorts. For the 1992 cohort two of the eleven educators moved from year-round administrative positions to support positions, while three educators did so in the 1997 cohort. For some of the educators, the opportunity to move from an administrative to a support position, and move from a calendar year to a school year schedule, outweighed the loss in salary associated with those career changes.

The 'Administrators' column of Table 3 compares the individual characteristics and salary information for the two cohorts of educators who migrated between Connecticut districts to move into new administrative positions to new administrators who continued in the districts in which they worked the previous year. For both cohorts of educators those who migrated between districts to secure new administrative positions had a higher proportion of female, white, and younger educators, who had fewer years of Connecticut public school experience and were more likely to hold a master's degree than educators who took on administrative responsibilities in the same district where they worked the

	Support Staff				Administrators			
	1992 Cohort		1997 Cohort		1992 Cohort		1997 Cohort	
	Migrant	Continuing	Migrant	Continuing	Migrant	Continuing	Migrant	Continuing
Number	11	74	13	48	35	118	43	68
Percent Female	81.8	71.6	92.3	75.0	65.7	52.5	60.5	58.8
Percent White	100	93.2	92.3	91.7	85.7	52.5	95.3	85.3
Percent M.A. or above	90.9	93.2	84.6	91.7	97.0	92.4	97.7	95.6
Average Age (years)	41.6	44.3	42.8	45.1	42.2	45.1	43.2	46.6
Average CT. Public School Exper. (years)	6.2	14.7	9.3	14.9	11.5	16.2	12.3	17.7
Average Salary (91, 96)	$40,815	$49,176	$44,488	$54,922	$50,294	$52,943	$53,005	$60,505
Average Salary (92, 97)	$41,943	$52,499	$44,084	$57,937	$57,577	$63,072	$67,237	$68,321
$ Increase	$1128	$3323	-$404	$3,015	$7,283	$10,129	$14,231	$7,816
% Increase	2.8	6.7	-0.9	5.5	14.5	19.1	26.8	12.9
Average FTE Salary (91, 96)	$43,635	$49,840	$50,407	$56,351	$50,294	$53,090	$53,005	$60,736
Average FTE Salary (92, 97)	$44,613	$53,206	$45,769	$58,517	$60,229	$63,072	$67,237	$68,321
FTE $ Increase	$978	$3,366	-$4,638	$2,166	$9,935	$9,982	$14,231	$7,585
FTE % Increase	2.2	6.8	-9.2	3.8	19.8	18.8	26.8	12.5

Table 3: Characteristics of Migrating and Continuing Educators Who Made Vertical Career Changes into Support Staff and Administrative Positions, for the 1992 and 1997 Cohorts

previous year. During both years migrants earned lower salaries than their counterparts who continued in the same district, but the differential was smaller than for migrating support staff. In 1992 they also gained smaller salary increase when they moved into their administrative position and a smaller percentage increase. When salaries were adjusted to reflect FTEs, migrants in 1992 garnered about the same dollar and percentage increase as their continuing counterparts. In 1997 migrants experienced greater actual and FTE dollar and percentage increases than their new administrator counterparts who remained in their original districts.

Vertical Migration Between Disadvantaged and Advantaged Public School Districts

Figure 2 compares the migration patterns between disadvantaged and advantaged districts for the two cohorts of support staff and administrators who made vertical career moves.

(Insert Figure 2)

In 1992, only one educator migrated from an disadvantaged district to take a support staff position and did so in another disadvantaged district. Nine of the 10 educators who transferred from advantaged districts to support positions moved to other advantaged districts, while one moved to a disadvantaged district, giving disadvantaged districts a net gain of one experienced support staff member. In 1997, none of the four educators who migrated from disadvantaged districts to assume new support staff assignments moved to other disadvantaged districts. Of the nine educators who migrated from advantaged districts, eight (88.9%) moved to other advantaged districts and one moved to a disadvantaged district. The movement reflects a net loss of three experienced educators from disadvantaged districts.

The 'Administrators' columns of Figure 2 examines the patterns of interdistrict migration for the two cohorts of educators who moved into new administrative positions. For the 1992 cohort, neither advantaged nor disadvantaged districts realized a net gain or loss of administrators. Two (25%) of the eight educators in disadvantaged districts moved to administrative positions in another disadvantaged district, while six moved to administrative positions in advantaged districts. For educators who worked in advantaged districts during the 1991-92 school year, 21 (77.8%) moved to administrative positions in other advantaged districts and six moved to positions in disadvantaged districts. In 1997, disadvantaged districts realized a net loss of seven educators. None of the nine educators who left disadvantaged districts to move to administrative positions moved to another

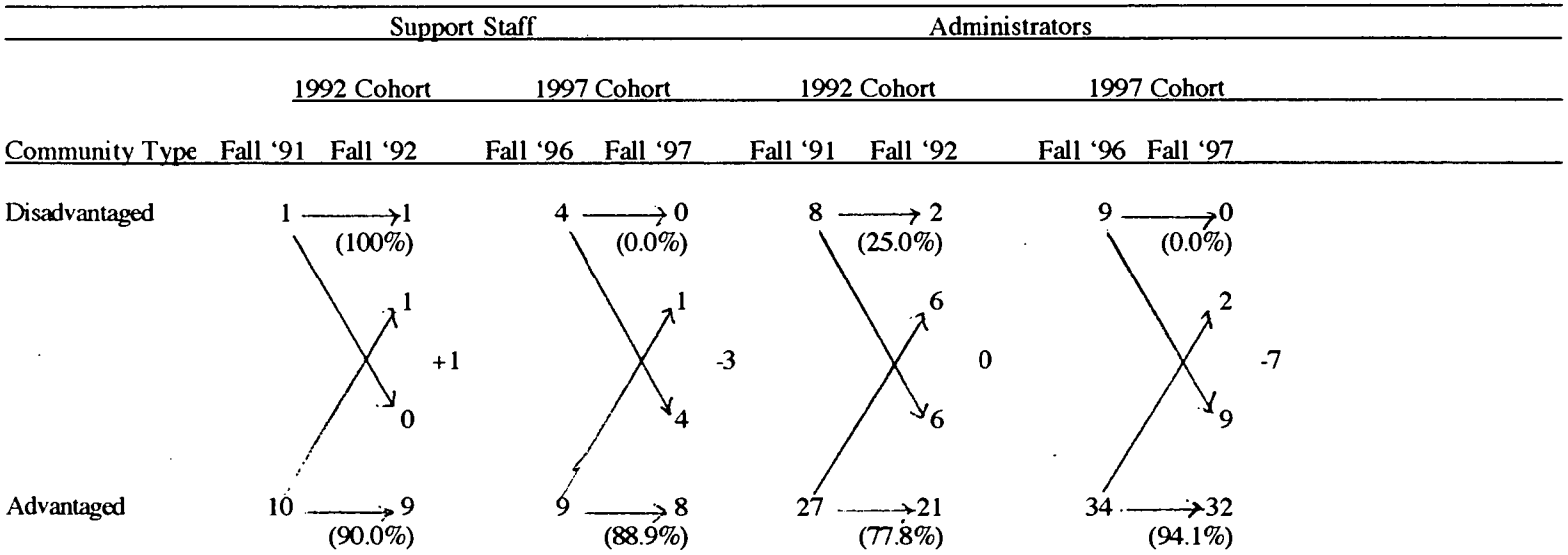

Figure 2: Comparison of the Types of Communities that Migrating Educators Left and Moved to When Making Vertical Career Changes into Support Staff and Administrative Positions, for the 1992 and 1997 Cohorts

disadvantaged district, while 32 of the 34 (94.1%) of the educators who left advantaged districts moved to another advantaged district to take an administrative position.

Since the number of migrants in each category and cohort is small, generalizations are tenuous. In 1992, the numbers of educators who migrated into disadvantaged districts balanced the number who migrated out to take new support staff and administrative position. In 1997, disadvantaged districts realized a net loss of educators making vertical career changes to take on support and administrative positions. Vertical migration paths are not consistent with those for educators making lateral career changes and may simply indicate that educators go where opportunities are available when they are ready to advance their careers.

Conclusions

Migrants have been and continue to be a substantial component of annual district-level new educator supply. In 1992 and 1997, public school districts in Connecticut filled approximately one in five of their professional vacancies with educators who migrated to them directly from another public school district in the state. For classroom teachers there is considerable variation across assignment areas in the proportion of vacancies that migrants filled. The proportion of vacancies that migrants filled in 1997 in the technical disciplines, foreign languages, mathematics and some of the sciences increased over those filled in 1992. Migrants filled nearly one-fourth of the support staff vacancies and more than half of the administrative vacancies during both years.

Migrants who make lateral career moves to the same or a similar position in another district in Connecticut accounted for approximately 92 percent of both cohorts. They tend to be younger and have fewer years of Connecticut public school experience than their colleagues who continued in the same district. As a result they had lower average salaries during both years. However, by changing districts they received larger salary and percentage increases than educators who continued in the same district. For both cohorts, about 3 in ten of the migrants who left disadvantaged districts in the state moved to other disadvantaged districts, compared with 8 in 10 of the migrants who moved between advantaged districts. For educators moving between disadvantaged and advantaged districts, classroom teachers showed a greater preference in moving from disadvantaged to advantaged districts than did support staff or administrators. In 1992, disadvantaged districts realized a net loss of 25 classroom teachers; by 1997 the number increased to 40. For support staff and administrators making lateral career moves, the number of educators who moved into disadvantaged districts balanced the number who moved out.

The educators who made vertical career moves into support staff and administrative positions accounted for only about eight percent of the migrant pools. The new support staff and administrators who migrated between districts contained larger proportions of female, white, and younger educators who had fewer years of Connecticut public school experiences than support staff and administrators who took new positions in the districts in which they had worked the previous year. The migrant support staff in both cohorts did not fare as well financially as continuing new support staff, earning lower salaries, salary increases, and percentage increases. This does not necessarily suggest that salaries are not important but, for some educators, the opportunity to make the career change outweighed their financial considerations. Migrant new administrators earned lower average salary increases in 1992 and substantially larger salary increases and percentage increases in 1997. In 1992, the number of new support staff and administrators who moved into disadvantaged districts nearly balanced the number who moved out, with disadvantaged districts realizing a net loss of two educators. By 1997, the balance tilted in favor of advantaged districts with disadvantaged districts loosing 10 educators who moved to three new support staff and seven new administrative positions in more advantaged districts.

This examination of the movement of educators between public school districts raises some concern about whether students in less advantaged districts will have the same access to experienced teachers as students in more advantaged districts, particularly as teacher demand continues to increase throughout the next decade. If teacher shortages occur in specific assignment areas, will more advantaged districts drain talented younger teachers with some experience from disadvantaged districts? In addition, it raises questions about the costs associated with inducting and developing new teachers, support staff, and administrators: Will less advantaged districts become training grounds for inexperienced teachers who, once they have gained four or five years of experience and developed expertise as teachers, move on to more advantaged communities? Will disadvantaged districts have bear the cost associated with developing and supporting novice teachers without gaining the benefit of their service for more than a few years? Will more advantaged districts reap the benefits of having more stable, experienced teaching staffs without contributing to the development costs? If these patterns remain consistent over the next decade, a general or subject area shortage would have little effect on advantaged districts. These districts would continue to retain and attract experienced, qualified educators -- making effective schools even better. It is likely that schools in disadvantaged communities would bear the burden of any reduction in the supply pool's quantity or quality.

The analysis in this paper also leads to some questions that need further investigation. First, do the proportions of newly hired and migrant teachers that advantaged and disadvantaged districts hire vary across subject area assignments? Further disaggregation of the assignment area subgroups of both cohorts of newly hired and migrant classroom teachers (Table 1) by advantaged and disadvantaged districts would allow us to determine if there are certain classroom assignment areas for which disadvantaged districts are most likely to loose experienced teachers who will need to be replaced by new hires. Second, does the profile of migrant teachers who move from disadvantaged districts to advantaged districts differ from those who move to other disadvantaged districts?

Two additional questions focus on administrators who make lateral career changes to another administrative position and educators who moved vertically into administrative positions. The administrative certification contains a wide range of administrative assignments, from assistant principals to assistant superintendent. Further disaggregation of the newly hired, migrant and continuing administrators by administrative assignment would permit investing the answers to two questions. First, do the career paths that administrators take to higher level positions in advantaged districts differ from those they take in disadvantaged districts? Second, does the profile of newly hired, migrant, and continuing administrators differ across assignment area in advantaged and disadvantaged districts?

The answers to these questions may provide useful information for district personnel directors and building administrators, charged with staffing schools in disadvantaged districts. They could contribute to decisions that lead to changes in recruitment, selection, and induction policies, as well as to the incentive package districts offer to their teachers, support staff, and administrators.

Bibliography

Archer, J. (1998). States raising bar for teachers despite pending shortage. Education Week Vol. XVII, No. 28, 6.

Beaudin, B. Q. (1991). *Interdistrict migration: Preliminary findings from Connecticut.* Paper presented at annual meeting of the Eastern Educational Research Association, Boston, MA.

Beaudin, B. Q. (1993). Newly hired Connecticut public school educators: September 1992. *Research Bulletin.* Connecticut State Department of Education Bureau of Research and Teacher Assessment. No. 3

Beaudin, B. Q. (1995). Former teachers who return to public schools: District and teacher characteristics of teachers who return to the districts they left. *Educational Evaluation and Policy Analysis.* Vol. 12, No. 4, 462-475.

Copeland, W. D., Birmingham, C., DeMeulle, L., D'Emidio-Caston, M., and Natal, D. (1994). Making meaning in classrooms: An investigation of cognitive processes in aspiring teachers, experienced teachers and their peers. *American Educational Research Journal.* Vol. 31, No. 1, 166-196.

Corcoran, T. B., Walker, L. J., & White, J. L. (1988). *Working in urban schools.* Washington, DC: Institute for Educational Leadership.

Darling-Hammond, L. (1990a). Teaching and knowledge: Policy issues posed by alternative certification for teachers. *Peabody Journal of Education.* Vol. 67, No.3, 123-154.

Darling-Hammond, L. (1990b). Who will speak for the children? How " Teach for America" hurts urban schools and students. *Phi Delta Kappan* . Vol. 76, No. 1, 21-34.

Feistritzer, C. E. (1990). *Alternative teacher certification: A state-by-state analysis, 1990.* Washington, D.C.: National Center for Education Information.

Feistritzer, C. E. (1993). National overview of teacher certification. *Education and Urban Society.* Vol. 26, No. 1, 18-28.

Feistritzer, C. E. & Chester, D. T. (1996). *Alternative teacher certification: A state-by-state analysis, 1996* . Washington, D.C.: National Center for Education Information.

Fetler, M. (1997a) Where have all the teachers gone? *Educational Policy Analysis Archives.* Vol. 5, No. 2, 1-13.

Fetler, M. (1997b) Staffing up and dropping out: Unintended consequences of high demand teachers. *Educational Policy Analysis Archives.* Vol. 5, No. 16, 1-15.

Kozol, J. (1991). *Savage inequalities: Children in America's schools.* New York: Crown Publishers.

Moody, A. C., & Christoff, D. (1992). *A study of U.S. teacher supply and demand.* Evanston, IL: Association for School, College and University Staffing, Inc.

Murnane, R. J., & Phillips, B. R. (1981). Learning by doing, vintage, and selection: Three pieces of the puzzle relating teaching experience and teaching performance. *Economics of Education Review,* Vol. 2, 453-465.

Murnane, R. J., Singer, J. D., Willett, J. B., Kemple, J. J. and Olsen, R. J. (1991). *Who will teach? Policies that matter.* Cambridge, MA: Harvard University Press.

National Center for Educational Statistics (1996a). *Projections of eduacational statistics to 2006.* Washington, DC: Author.

National Center for Educational Statistics (1996b). *Schools and Staffing in the United States: A Statistical Profile, 1993-94.* Washington, DC: Author.

National Center for Educational Statistics (1996c). *Out-of-field teaching and educational equity* . Washington, DC: Author.

National Center for Educational Statistics (1996d). *Teachers working conditions.* Washington, DC: Author.

National Center for Educational Statistics (1996e). *The condition of education 1996.* Washington, DC: Author.

National Center for Educational Statistics (1997). *Characteristics of stayers, movers, and leavers: Results from the teacher follow-up survey: 1994-95.* Washington, DC: Author.

National Commission on Teaching and America's Future (1996). *What matters most: Teaching for America's future.* New York, Teachers College, Columbia University.

Oakes, J. (1990). *Multiplying inequalities: The effects of race, social class, and tracking on opportunities to learn mathematics and science* (Report No. R-3928-NSF). Santa Monica, CA: The RAND Corporation.

Shen, J. (1997). Has the alternative centification policy materialized its promise? A comparison between teaditionally and alternatively certified teachers in public schools. *Educational Evaluation and Policy Analysis.* Vol. 19, No. 3, 276-283.

Stoddart, T., & Floden, R. E. (1989). *School district-based teacher training: An alternate route to teacher certification.* Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.

Stoddart, T. & Floden, R. E. (1995). *Traditional and alternate routes to teacher certification.: Issues, assumptions, and misconceptions.* East Lansing, MI: National Center for Research on Teaching and Learning.

Swanson, H. L., O'Connor, J. E., and Cooney, J. B. (1990). An information processing analysis of expert and novice teachers' problem solving. *American Educational Research Journal.* Vol. 27, No. 3, 533-556.

Tierney, D. (1993). A study of the employment patterns of recent graduates of California teacher education programs and the employment decisions of a selected sample of California school districts. Unpublished study. Sacremento, CA: California Commission on Teacher Credentialing.

EA029258

U.S. Department of Education
Office of Educational Research and Improvement (OERI)
National Library of Education (NLE)
Educational Resources Information Center (ERIC)

REPRODUCTION RELEASE

(Specific Document)

I. DOCUMENT IDENTIFICATION:

Title: Teacher Interdistrict Migration: A Comparison of Teacher, Position and District Characteristics for the 1992 and 1997 Cohorts

Author(s): Barbara Q. Beaudin

Corporate Source: A.E.R.A. Annual Mtg.

Publication Date: 4/16/98

II. REPRODUCTION RELEASE:

In order to disseminate as widely as possible timely and significant materials of interest to the educational community, documents announced in the monthly abstract journal of the ERIC system, *Resources in Education* (RIE), are usually made available to users in microfiche, reproduced paper copy, and electronic media, and sold through the ERIC Document Reproduction Service (EDRS). Credit is given to the source of each document, and, if reproduction release is granted, one of the following notices is affixed to the document.

If permission is granted to reproduce and disseminate the identified document, please CHECK ONE of the following three options and sign at the bottom of the page.

The sample sticker shown below will be affixed to all Level 1 documents	The sample sticker shown below will be affixed to all Level 2A documents	The sample sticker shown below will be affixed to all Level 2B documents
PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL HAS BEEN GRANTED BY Sample TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)	PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL IN MICROFICHE, AND IN ELECTRONIC MEDIA FOR ERIC COLLECTION SUBSCRIBERS ONLY, HAS BEEN GRANTED BY Sample TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)	PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL IN MICROFICHE ONLY HAS BEEN GRANTED BY Sample TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
Level 1 ↑	Level 2A ↑	Level 2B ↑
☒	☐	☐
Check here for Level 1 release, permitting reproduction and dissemination in microfiche or other ERIC archival media (e.g., electronic) *and* paper copy.	Check here for Level 2A release, permitting reproduction and dissemination in microfiche and in electronic media for ERIC archival collection subscribers only	Check here for Level 2B release, permitting reproduction and dissemination in microfiche only

Documents will be processed as indicated provided reproduction quality permits.
If permission to reproduce is granted, but no box is checked, documents will be processed at Level 1.

I hereby grant to the Educational Resources Information Center (ERIC) nonexclusive permission to reproduce and disseminate this document as indicated above. Reproduction from the ERIC microfiche or electronic media by persons other than ERIC employees and its system contractors requires permission from the copyright holder. Exception is made for non-profit reproductio n by libraries and other service agencies to satisfy information needs of educators in response to discrete inquiries.

Sign here, → please

Signature: Barbara Q. Beaudin	Printed Name/Position/Title: Barbara Q. Beaudin, Associate Prof of Math
Organization/Address: Hillyer College, University of Hartford, 200 Bloomfield Avenue, West Hartford, CT. 06117	Telephone: 860-768-4945 FAX:
	E-Mail Address: beaudin@mail.hartford.edu Date: 4/16/98

(over)