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**Determinants of In-Migration of College
Students to the State of New York**

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Ms. Kyung is a Ph.D. candidate in Regional Science at Portland State University. The present study was conducted in Spring 1991 when she was Research Assistant in Urban Studies. The author would like to thank Dr. James Strathman for a number of helpful suggestions and Dr. William Rabiega and Dr. Morton Paglin for their valuable comments. However, the author is solely responsible for any possible shortcomings.

INTRODUCTION

This paper analyzes factors affecting the migration of college students. Its purpose is to provide a better understanding of the relationship between student migration and state characteristics, including state education policy. The paper begins with an examination of previous migration studies of college students. This is followed by a brief description of the methodology employed in this study. A model for migration to the state of New York is estimated to identify the major determinants which are associated with the student migrant's home state characteristics acting as push factors. The paper concludes with a discussion of the empirical results and corresponding policy implications.

REVIEW OF STUDENT MIGRATION STUDIES

Differences among the characteristics of origin states and destination states constitute the pull and push forces of interstate migration for students. Differentiation in education quality and costs among states are the major contributing factors affecting student migration. Studies indicate that the quality of a state's institutions is a significant pulling force (Christal, 1982; Bayer, 1968; Lankford and Taylor, 1971; Ferriss, 1973; Fenske et al., 1972, 1974; Carbone 1973). Abbott and Schmid (1975), however, found that the quality factor alone was a modest determinant of interstate migration of first-time undergraduates in major U.S. universities. When they controlled the effects of state size and distance the quality factor represented a modest significant variable.

Availability and quality of private institutions and costs (i.e., tuition) appear significantly influential to student migrants. The 1963 and 1968 reports of the U.S. Office of Education (Lankford and Taylor, 1971) showed that Virginia was an exporter of college students, losing to the neighboring states such as the District of Columbia, North Carolina and Tennessee. The presence of high quality private institutions in the District of Columbia is probably a major pull factor for Virginians.

The migration rate is higher for undergraduate students attending private institutions than for students attending public institutions (Gossman et al., 1968; Lankford and Taylor, 1971). Gossman and his associates (1968) found a positive relationship between the lack of private institutions in origin states and the out-migration rate of students. The out-migrants from Virginia showed a strong tendency to attend private institutions (Lankford and Taylor; 1971). The Virginia State Council of Higher Education (1981) reports that 87 percent of out-migrants from Virginia who were in professional programs attended private institutions in the District of Columbia.

On the basis of 1963 survey data on student migration, Abbott and Schmid (1975) found that the majority of first-time undergraduates in major private universities in the U.S. were migrants, whereas migrants represented a low percentage in major public universities. Importance of education quality seems to increase with the level of education because it is considered as part of the career (Abbott and Schmid, 1975). Thus graduate student migrants are more concerned about the quality of institutions. A concomitant finding is shown in Bayer's study (1968) on science doctorate recipients, which found that those who migrated attended better universities than those who did not.

The characteristics of migrant and non-migrant students appear to be clearly differentiated (Ferriss, 1973; Fenske et al, 1974). In general, migrants are more responsive to quality, whereas non-migrants tend to consider cost factors more for their education. In their study of characteristics of undergraduate migrants, Fenske et al. (1972, 1974) found that migrants obtained higher ACT (American College Test) composite scores relative to local attendees and emphasized institutional quality as a basis for their choice of college, while putting less importance on cost factors. A similar finding was also obtained by Ferriss (1973). Prestige plays a key role drawing student migrants. Carbone (1973) suggests that migrants put a greater importance on the prestige and reputation of an institution and are thus willing to pay higher tuition.

The contrasts between migrants and non-migrants may be explained by students' socio-economic characteristics, academic abilities, and education objectives. Studies of migrants and non-migrants reveal that migrants are more academically talented, have higher educational expectations, and have a better socio-economic background (Ferriss, 1973; Fenske et al., 1972, 1974). This indicates that geographic mobility is higher for students with academic talents, high education goals, and high family income. This is supported by Gossman et al. (1968). Using factor analysis, they found a positive relationship between out-migration of undergraduate students attending private institutions and high socio-economic urban areas. Alternatively, low income students are more likely to attend home state institutions. In their regression analysis, McPherson and Schapiro (1991) found that cost was statistically significant for low-income student groups, but was insignificant for other income groups.

The geographical proximity factor affecting student migration appears significant. The out-migrants from Virginia primarily migrated to bordering states such as the District of Columbia, North Carolina and Tennessee (Lankford and Taylor, 1971). A similar finding was provided by the report of the Virginia State Council of Higher Education (1981). For the case of Virginia, over 51 percent of the out-migration in the fall of 1979 was to states neighboring Virginia (e.g., District of Columbia, Maryland, North Carolina, Tennessee, Kentucky, and West Virginia). According to Christal (1982), the majority of out-migrant first-time freshmen migrated to adjacent states and stayed in the same region. A negative relationship between distance and the percentage of student migrants was also found by Gossman and his associates (1968); migration volume declined fast initially, then slowly with distance.

Effects of state population size are also of substantial importance (Gossman et al., 1968). A positive relationship between the number of out-migrating students and origin state sizes was found, indicating population size acted as a push factor.

Interstate migration of students influences college admissions policy, student composition, and the provision of educated labor force for a state, as noted by Abbott and Schmid (1975). Admission and tuition policies can act as interstate migration barriers. Policies

such as restrictive admission requirements, quotas and higher nonresident tuition tend to inhibit student interstate mobility (Ferriss, 1973; Carbone, 1973).

Proponents of enrollment limits for out-of-state students claim that state taxpayers should not bear education costs for non-residents. However, charging higher fees to out-of-state students may have a significant influence on the type of enrolled students. The presence of non-resident students can contribute to diversity, and their extra charges support public higher education institutions (Lankford and Taylor, 1971). Carbone (1973) notes possible negative effects of differential tuition policies. During 1970-1973, the increased tuition rate differential between resident and nonresident caused some reduction of nonresident enrollments. Also, the effect of student migrants on enrollment was noted by Virginia State Council of Higher Education (1981). It reported that in-migration of students may help maintain enrollment levels in the face of an expected decline of Virginia's college age population.

State educational policies influence student interstate migration (Christal, 1982). State financial aid policies also play a significant role. Fenske et al. (1972) noted that migrants placed greater reliance on scholarships. In his study of graduate student migration, Ferriss (1973) also found that scholarship availability was a pull factor for graduate students. A similar finding was obtained by Fenske et al. (1974). Using a 1963 sample of graduate student migrants and non-migrants, Fenske and his associates found that migrants tended to be more academically talented, based on undergraduate GPA (grade point average), as compared to non-migrants. Migrants were also more likely to be awarded graduate assistantships.

METHODOLOGY

This paper analyzes the factors influencing the number of student in-migrants from other states. Since the New York State Education Department provided detailed data of student migration flow from other states to the state of New York, this study chose New York as the only destination. For purposes of this analysis, the unit of analysis is the origin state. Considering

student migrants to the state of New York, 50 jurisdictions are analyzed, including the District of Columbia.

To portray the elasticities of the variables on the student's migration, a model in log form is specified. Considering in-migration patterns, the student migration process is viewed as a function of the characteristics of the origin states. Consequently, factors that contribute to the in-migration rate are socioeconomic characteristics, population size, geographic distance, college quality and costs, and admission policies of the migrants' home states. For purposes of this study, first-time students include undergraduates (freshmen and transfers), first professionals, and graduates.

The Variables

The model in the present analysis includes variables that represent institutional quality, college costs, admission policy, state size, economic and distance factors. In the present analysis, SAT scores are chosen as an indicator of quality of state's institutions. According to Rushton and Meltzer (1981), SAT scores of students were highly correlated with quality of faculty. Cost is measured as the resident tuition in public four year institutions in the state of origin. Per capita disposable income is used as a proxy for economic status of state's residents. To examine the effects of college admission policies on student migration, the ratio of full-time-equivalent enrollment (FULL) variable is used: This ratio is measured as full-time-equivalent enrollment in four-year institutions of origin state for fall 1987 to that enrollment for fall 1986. The distance variable is a proxy for the geographical proximity, and its reference points are based on states' largest cities (Rand McNally Road Atlas, 1985) rather than geographic centers, assuming that the majority of migrants come from the state's largest population centers. The distance variable is measured in miles based on the state maps and mileage charts.

The Model

This model is specified in double-log form, which shows the effects of elasticities of the migration determinants on the in-migration variable. The model is specified as follows:

$$\log \text{INMIG}_i = \beta_1 + \beta_2 \log \text{SAT}_i + \beta_3 \log \text{FULL}_i + \beta_4 \log \text{PINC}_i + \beta_5 \log \text{TUI}_i + \beta_6 \log \text{POPU}_i + \beta_7 \log \text{DIST}_i$$

where:

INMIG_i = the number of in - migrating students from origin state i ;

SAT_i = the average SAT scores of freshmen for 1987 - 1988 in higher education institutions of origin state i ;

FULL_i = the ratio of full - time - equivalent enrollment in four - year institutions of the origin state i for fall 1987 to that enrollment for fall 1986;

PINC_i = the per capita disposable income of origin state i ;

TUI_i = the average in - state tuition and fees per student in public four - year institutions during 1986 - 1987 in origin state i ;

POPU_i = the population of origin state i ;

DIST_i = the distance in miles from the origin state i 's largest city to New York.

Model Results

The findings in Table A indicate that the model well explains college student in-migration to the state of New York. As the table shows, the estimated double log model has a high adjusted R-square value and a very low standard error of estimate. Also, the Breusch-Pagan statistic indicates that heteroskedasticity is not present.

Table A
Ordinary Least-Squares Estimates of the Determinants of In-Migration

intercept	-52.76 * (-4.64)
independent variables	
PINC	3.91 * (7.20)
FULL	-2.70 (-0.79)
POPU	0.61 * (7.62)
TUI	0.51 ** (1.88)
DIST	-0.47 * (-5.26)
SAT	1.64 (1.07)
N = 50 S.E. : 0.53 adj. R-square : 0.86 B.P. statistic : 10.04	

Note: T-statistics are shown in parentheses below the estimated beta coefficients.

* indicates t-test significance at the 0.05 level.

** indicate t-test significance at the 0.10 level.

The results in Table A show that the origin state's per capita income (PINC) is statistically significant, acting as a very strong push factor. Consequently, states with high per capita income are expected to experience a higher out-migration of students than states with relatively low per capita income. A very high elasticity of the income is obtained (i.e., the estimated elasticity of 3.91, indicating that an increase of 1 percent of the origin state's per capita income would result in an out-migration increase of 3.9 percent).

The cost factor (TUI) was found to be statistically significant at the 10 percent level, and indicates that states with high resident tuition were more likely to lose students to New York. This finding supports the observations made by Lankford and Taylor (1971), whose study on the migration of Virginia students into the North Carolina and Tennessee suggested low tuition as a significant contributing factor.

A statistically significant coefficient was also estimated for the state size (POPU) variable. The numbers of student in-migrants may show more responsiveness to the changes of

young adult population, such as the early to mid twenties, since the migration propensity tends to be high for the young adults as evidenced by the findings of population migration studies (Greenwood, 1985; Sandefur and Scott, 1981; Browne, 1979; Morrison, 1975).

The distance (DIST) variable shows statistically significant coefficient with a negative sign, indicating a deterrent effect on the interstate migration of students. The elasticity estimated for the DIST variable is -0.47.

Admission policies do not appear to have an influence on migration in the present analysis. Origin states' admission policies (FULL) were found statistically insignificant. It thus appears that the minor differences of a state's admission policies result to an insignificant determinant (FULL) to account for the student's in-migration into the state of New York.

Despite prior claims of the importance of institutional prestige as a significant pull factor, the SAT variable, a proxy of origin state's institutional quality, was not significant.

DISCUSSION AND CONCLUSIONS

The present analysis, based on 1986 New York migration data, provides evidence of the state characteristics influencing student migration. States with higher per capita income are likely to experience more out-migration, reflecting an increased demand for quality education by high income residents. This interpretation is also supported by the findings of Abbott and Schmid (1975): Private institutions are drawing more out-of-state students despite their often higher college costs than the public institutions. Just as the population migration studies have generally noted that limited geographic mobility is evident for low income people, the same observation seems to hold for the case of college student migration. This result supports the findings of the migrating students from higher income families as compared to non-migrants (Ferriss, 1973; Fenske et al., 1972; 1974).

On the whole, the present results show the importance of factors such as income, college costs, distance, and state's size to the student's in-migration size. In addition, the findings presented in this study indicate the comparable nature of migration forces affecting college

student and labor migration. Just as economic factors (e.g., income, wages, and employment opportunities) are the major migration determinants of labor migration (Browne, 1979; Sommers and Suits, 1973; Morrison, 1975; Muth, 1971), economic factors were found to be the most statistically significant determinants of student migration.

Policy Implications

The results of this study are particular interest because it indicates the effect of high income on the high propensity for college student migration. The present findings of origin states with a high per capita income experiencing more student out-migration are possibly attributable to the increased demand for educational quality by the high income residents. This interpretation is also supported by the observations of student migrants with an important concern for educational quality, whereas non-migrants tend to consider cost factor for their education (Fenske et al., 1972, 1974; Carbone, 1973).

This has the important policy implications since the differences on migration determinants between migrants and non-migrants are probably due to the different educational motive, i.e., high income students with a high propensity to migrate are more responsive to quality education. On the contrary, students with low income have a greater concern for the cost factor as discussed above. It thus suggests that states with higher educational policy objectives for quality and low costs are expected to gain the different outcomes. For example, educational policy with emphasis on quality education would have a greater influence on highly mobile and high income students. On the other hand, students with low income and the less mobile students may be largely affected by cost emphasized educational policy.

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