NBER Working Paper Series

OCCUPATIONAL LICENSING AND THE INTERSTATE
MOBILITY OF PROFESSIONALS

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Working Paper No. __220__

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This paper attempts to measure the effect of occupational

licensing, restrictions on reciprocity, location specific investment in

reputation and earnings on the interstate mobility of professionals.

While 34 professional occupations are analyzed, special attention is

focused on the legal profession. The comparatively low interstate

mobility rate of lawyers may be due to state licensing and restrictions

on reciprocity or to the investments made by lawyers to develop local

reputations or to the investments made by lawyers in state specific law.

Tests are conducted to distinguish among these three hypotheses.

Introduction

The interstate migration of human resources has attracted the attention of an increasing number of economists. Recent advances in the theory of human capital have focused on the importance of age and education in explaining the migration of workers. An older literature in the field of industrial organization emphasized the importance of licensing and reciprocity to explain differences between occupations in earnings and mobility. Yet to be undertaken is a study which combines those determinants of mobility stressed by the human capital theorists with those advanced by students of industrial organization. Recent work in the field has slighted the effect of class of worker on interstate mobility. Many professionals are independent businessmen, either sole proprietors or partners. Dentists, lawyers, optometrists, physicians and veterinarians invest resources throughout their careers to develop business reputations and goodwill. Reputation and business contacts are to a large degree location specific and depreciate rapidly if the practitioner leaves the immediate market. On the other hand, professionals primarily employed by firms would suffer smaller losses in goodwill if they left the immediate geographical market. A serious study of the determinants of mobility of professionals, as this study purports to be, must take cognizance of reputation capital and measure its importance in explaining differences in occupational mobility.

This paper will focus special attention on the legal profession. The legal profession is granted special attention not only because licensing by state bar examination is common and because lawyers in large part are independent businessmen but also because the practice of law, unlike the practice of dentistry or medicine, has some state specific features. It can be and has

been argued that law and procedure vary from one state to the next, and that a seasoned lawyer is reluctant to launch a new practice in another state. Lesser interstate mobility of lawyers might be explained by any one or a combination of three hypotheses: (1) licensing with restrictions on reciprocity, (2) investments in reputation capital, and (3) investments in state specific law and procedure. A major endeavor of this paper is to formulate tests that distinguish between these three hypotheses.

Section I summarizes the existing theory of mobility, while Section II discusses the measurement of interstate mobility and licensing. The empirical results are presented in Section III. Tests of the state specific law hypothesis are reviewed in Section IV. The major results of the paper are summarized in the last section, and several possible extensions of the work are indicated.

I. Interstate Mobility: A Capsule Summary of the Existing Theory

The theory of mobility is in its formative stages. Schwartz (1976) has recently presented a theory to explain several known regularities in mobility patterns as revealed in census data.

Schwartz developed a theory of the effects of age and education on the area of search over a homogeneous plane by prospective employers and employees. Job seekers and employers substitute between a more intensive search of a given area (by expanding the share of population considered for the job) and a more extensive search over a larger geographical area. Two implications of the theory are of immediate interest: (1) the interstate migration rate, the proportion of employees that move a given distance, de-clines with age at a rate which increases with education, and (2) the expected

distance moved by a prospective employee increases with the level of education (and may either increase or decrease with age). Given the number of positions to be filled, employers have a greater incentive to search over a larger area for younger prospective employees than to search over a smaller area and to try and attract older prospective employees, the higher are educational requirements of the position. The job seeker also trades off between the waiting time before a position is found and the area of search. If waiting time increases with education and age given the area searched, there will be an incentive to search over a larger area (to reduce waiting time) the higher is educational attainment or age. Thus, firms and job seekers search over larger areas as education level increases. Consequently, the expected distance moved of successful applicants would be expected to rise with educational attainment. Given education, older individuals also search over a larger area but the pecuniary cost of transportation and the non-pecuniary cost of changing locations may rise with age so that the expected distance moved may or may not increase with age.

The objective of Schwartz was to advance a theory capable of explaining the known regularities in gross mobility patterns of broadly defined groups classified by age and education. The theory appears well suited for this purpose but is less well suited to analyze the mobility of occupations. Consequently, some extensions of the theory need to be considered if differences in mobility rates between occupations are to be explained. Schwartz assumed that job opportunities are homogeneous over space. The number of substitute employers or employees do not differ from one location to another. Of course, the distance between substitute employers differs appreciably from one occupation to another. Professors have fewer substitute employers within

a city than accountants. The higher interstate mobility of professors should
not be attributed to educational achievement until an adjustment for the
smaller number of educational institutions per state is made.

The class of worker can be safely ignored when explaining differences
in interstate mobility rates of all workers by education and age. But the
effect of private practice on mobility cannot be safely ignored in a study
of professional occupations. The cost of mobility is higher to those in
private practice selling directly to the public. Other factors considered,
lesser mobility may be expected in those occupations where it is relatively
more expensive to attract customers and to establish business reputations in
new markets. In these occupations comparatively fewer older practitioners
should be prepared to move and to establish a business in a new market than
in occupations with salaried members.[1]/

A final comment deserves mention. In large degree Schwartz's theory
is a supply theory of mobility. Once again, an analysis of occupations
requires some attention be paid to demand factors. Differential growth
rates between occupations and between states within each occupation should be
considered to determine how important are demand factors in explaining inter-
state mobility between occupations.

These observations indicate interstate mobility would differ between
occupations even in the absence of licensing and restrictions on reciprocity.
Licensing and restrictions on reciprocity impose added costs on potential
movers. There appear to be larger differences between occupations in the use
of licensing and the conditions for reciprocity than there are between states
within an occupation. This fact alone suggests that a study of occupations is

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[1]/Older lawyers, dentists, etc. should be more likely to stay put than
older engineers, accountants, etc.

an attractive method to determine the effect of licensing on mobility
in general and on the mobility of lawyers in particular. However, a study
of different occupations is not without important drawbacks. The major
determinants of mobility, other than licensing, must be included in the
analysis. An acceptable method must be discovered for ranking occupations
with regard to the use of licensing and to the practice of reciprocity.
these are considerable achievements that invite criticism given the scarcity
of information.

A study of occupations may for many purposes be a more efficient
method of detecting the effects of licensing and restrictions on reciprocity
on interstate mobility. Nevertheless, a study of states can provide some
useful tests of state specific law hypothesis. Indeed, tests of the impor-
tance of state specific law are difficult but not impossible to make without
state data. While most of the tests in this paper will use the occupation
as the unit of observation, a few will rely on state data to provide supple-
mental tests of the determinants of lawyer mobility.

II. The Measurement of Interstate Mobility and Licensing

Holen used two measures of interstate mobility in a pilot study of the
dental, medical and legal professions (Holen 1965). One measure was the inter-
state migration rate--the number of out-of-state movers over a period of time
relative to the total members in the occupation. The second measure was the
conditional probability of moving out of state given an out-of-county change
in residence--the number of out-of-state movers relative to the number of out-
of-county movers.[2] These two measures of mobility are retained for use and

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[2] The 1970 Census of Population identifies the number of individuals
whose residence in 1965 was in a different state than the residence in 1970.
Strictly speaking, the Census data do not enumerate the number of movers since
an individual who left and then returned to the state between 1965 and 1970 would
not be counted as a mover by the Census.

augmented by yet another measure—the <u>conditional</u> probability of remaining

in the county of residence given no interstate change in residence. This

measure is a retention probability, the opposite of a mobility probability.

It measures the number remaining in the county of residence (be they stayers

or intra county movers) relative to the number who remain in the state over

the period of measurement. This retention probability reflects the net

advantages of remaining in the same county relative to other locations in

the state. The formal definition of each measure and the symbol assigned to

each are presented below.

1. <u>Interstate Migration Rate</u> (I.M.R.)—Members of an occupation

   whose 1970 residence was outside the state of residence in

   1965 relative to all members of the occupation in 1970.[3]

2. <u>Probability of an Interstate Move Given an Out-of-County</u>

   <u>Move</u> (P.I.M.)—Members of an occupation whose 1970 residence

   was outside the state of residence in 1965 relative to those

   members who were living outside the county of residence in 1965.

3. <u>Probability of Remaining in County Given No Interstate Move</u>

   (P.I.C.)—Members of an occupation whose county of residence was

   the same in 1970 and 1965 relative to those members whose state

   of residence was the same in 1970 and 1965.

A numerical illustration will indicate how these measures are calculated

and will reveal the difference between them. The 1970 Census of Population

indicates 50,073 lawyers lived in a different county in 1970 than in 1965. Of

these, 22,342 or (P.I.M. =) .446 lived in a different state in 1970 than in

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[3] Individuals are excluded if abroad or if no information was supplied.

1965. The probability of an interstate move given an out-of-county move was .446 for lawyers. The 22,342 lawyers who moved across boundaries represented (I.M.R. =) .105 of all lawyers in 1970 (after excluding those abroad in 1965 and those lawyers submitting no response). The interstate migration rate of lawyers was slightly higher than 10%. A large number of lawyers--162,776 remained in the same county. This number represented (P.I.C. =) 85% of all lawyers whose residence was in the same state in 1965 and 1970.

Each of the three measures identifies a different aspect of migration. The interstate migration rate gives an indication of the relative importance of interstate migratory activity in an occupation. The probability of an interstate move is more closely related to the distance moved since it is the proportion moving out-of-state-relative to all out-of-county movers. The retention probability reflects the net advantage of locations within the county relative to locations elsewhere in the state and only reflects intra-state factors that determine location of residence within the state.

In principle, no relationship need exist between the three measures. This may be seen more clearly by considering the definition of each measure. If T denotes the total number of members in an occupation, S denotes members in the same residence (nonmovers), INC denotes movers who remain in same county, INS denotes movers in different county but in the same state and OUTS denotes movers located in a different state in 1965 than in 1970 then $T = S + INC + INS + OUTS$. The definitions of the three measures are:

a. I.M.R. $\equiv \dfrac{OUTS}{T}$

b. P.I.M. $\equiv \dfrac{OUTS}{INS + OUTS}$

c. P.I.C. $\equiv \dfrac{S + INC}{S + INC + INS}$

The interstate r ·ration rate can be low in an occupation because relatively few members move across state boundaries even though the probability of an interstate move is high because moves are of long distances when out-of-county moves are made. Similarly, a low I.M.R. could be associated with either a high or low P.I.C. because individuals might remain in the same county or might move into other counties within the same state. In fact, the measures are correlated as the correlation matrix below shows.

Simple Correlation Matrix[a]

Variable	P.I.M.	P.I.C.
I.M.R.	.87	-.58
P.I.M.		-.24

[a]34 occupations

Occupations where moves tend to be over longer distances are usually those where a relatively larger share of members are undertaking interstate moves. Similarly, occupations with relatively large amounts of interstate activity are ones where intrastate retention probabilities are relatively low. On the other hand, the correlation between the probability of an interstate move and the retention probability is small. A high retention probability should not affect the distance moved once an out-of-county move is made.

Table 1 shows the three measures for each of 34 professional occupations. The selected occupations have characteristics similar to the legal profession--higher educational attainment, primarily male members and above a minimum size. The selection was limited to those occupations classified as professional by the Census Bureau with 60% or more male members and with

at least 4,500 members.[4] Each of these occupations was classified further into one of three groups: (1) occupations without formal licensing requirements with few if any legal barriers to interstate mobility, (2) occupations with state licensing and with many states granting reciprocity, and (3) occupations with licensing and evidence of more restrictions on the use of reciprocity.[5] Occupations were classified after two somewhat dated publications on licensing published by the Council of State Governments (1952) (1964) were consulted.

Table 1 shows lower mean values for the interstate migration rate (I.M.R.) and probability of an interstate move (P.I.M.) of occupations with licensing than those without. Still lower means appear for occupations with

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[4]One occupation—coaches and physical education professors—was excluded.

[5]The classification of occupations among the three groups is not easily made and involves judgment. In some occupations the requirements for reciprocity differ across states. Developing a continuous measure of reciprocity for different occupations is difficult given the variety of conditions imposed by states before reciprocity is granted. A further difficulty is the lack of information of the implementation of the formal conditions imposed by the states. Under these circumstances a more promising approach is to merely assign each occupation to one of the three broad groups. The classification of the judicial profession was particularly difficult to make. While judges do not complete a formal test process, they are evaluated and recommended by a commission, and sometimes confirmed by a legislative body. Some are elected. Reciprocity has little applicability in this profession. These considerations provide some justification for classifying the judicial profession as a licensed one with limits placed on reciprocity. The classification of accountants may be questioned and with some justification. While C.P.A.'s are examined, the licensing of other accountants appears to vary across states and is of more recent vintage.

TABLE I

INTERSTATE MOBILITY BY OCCUPATION AND LICENSING STATUS
(Selected Occupations)

Occupation	Out-of-State Movers as a Proportion of All Out-of-County Movers (PIM)	Out-of-State Movers as a Proportion of All Members (IMR)	In-County Stayers as a Proportion of All In-State Stayers (PIC)
I. Occupations with Little State Licensing			
1. Accounting	.480	.119	.855
2. Clergy	.486	.281	.586
3. Agricultural Scientists	.597	.191	.840
4. Engineers	.614	.182	.860
5. Psychologists	.644	.281	.774
6. Chemists	.647	.189	.825
7. Biologists	.654	.276	.798
8. Math. Specialists	.654	.229	.843
9. Economists	.688	.292	.813
10. Physicists and Astronomers	.710	.276	.845
11. Geologists	.711	.295	.830
12. Atmospheric and Space Scientists	.742	.251	.883
Simple Average (1-12)	.636	.239	.813
13. College and University Teachers			
a. Business and Commerce	.654	.429	.907
b. Education	.658	.324	.751
c. Physics	.705	.316	.807
d. Mathematics	.719	.377	.763
e. Agriculture	.721	.228	.886
f. Sociology	.728	.426	.723
g. Biology	.740	.347	.814
h. Psychology	.742	.394	.774
i. Atmospheric, Earth and Marine	.748	.383	.791
j. Chemistry	.764	.348	.836
k. Engineering	.765	.297	.870
l. History	.770	.386	.812
m. Law	.790	.341	.863
n. Economics	.792	.436	.797
Simple Average (1-13)	.689	.304	.813
II. Occupations with State Licensing and Evidence of Some Reciprocity			
1. Pharmacists	.347	.071	.856
2. Optometrists	.441	.072	.902
3. Architects	.556	.125	.885
4. Veterinarians	.586	.166	.860
5. Physicians	.650	.186	.877
Simple Average	.516	.124	.876
III. Occupations with State Licensing and Little Reciprocity or with Little Reciprocity			
1. Judges	.300	.018	.956
2. Lawyers	.446	.105	.854
3. Dentists	.498	.098	.891
Simple Average	.415	.074	.900

SOURCE: 1970 U.S. Census of Population, Mobility for States and the Nation. PC(2) 2B, pp. 38-44.

lesser reciprocity than those with.[6/] College and university professors
have relatively high migration rates and probabilities. In contrast, judges
have very low migration rates and probabilities.

These comparisons, crude as they are, suggest that licensing and re-
strictions on reciprocity have reduced the interstate flow of human capital.
There is, however, evidence that the retention probability varies with the
use of licensing. The mean retention probabilities are higher in licensed
rather than unlicensed occupations. This is a curious finding. The value
of licensing and of restrictions on reciprocity to members of an occupation
would appear greater when retention probabilities are relatively low. This
finding may mean that licensing is a useful device to control the flow of
younger practitioners across state boundaries. In any event, the lower
interstate migration rates and probabilities of an interstate move in
licensed occupations may be caused in part by the higher cost of establishing
new practices in different markets, and at this point cannot be attributed
solely to licensing and restrictions on reciprocity.

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[6]It should be noted that differences between occupations in the
probability of an interstate move have narrowed over time.

		1950	1970	Percent Change
1.	Dentists	.385	.498	26%
2.	Lawyers and Judges	.363	.445	23
3.	Architects	.552	.556	1
4.	Optometrists	.520	.441	-15
5.	Pharmacists	.390	.347	-11
6.	Physicians	.683	.650	- 5
7.	Accountants	.487	.480	–
8.	Clergymen	.481	.487	1
9.	Engineers	.583	.614	5
10.	Chemists	.563	.647	15
11.	College Professors	.708	.731	3

These results suggest that restrictions on reciprocity have been declining
over time in dentistry and law.

The logit model has been employed to estimate the determinants of I.M.R. and P.I.M. If I_j denotes a measure of interstate mobility in the jth occupation, it is expressed as a function of x_j, though

$$(1) \qquad I_j = \frac{1}{1 + e^{f(x_j)+u_j}} \qquad j = 1, \ldots, 34$$

where u_j is a disturbance term and x_j is a vector of independent variables. A transformation of (1) yields

$$(2) \qquad H_j \equiv \ell n \left[\frac{I_j}{1 - I_j} \right] = -[f(x_j) + u_j] \quad .$$

The selection of the independent variables is dictated in part by the theory developed by Schwartz, by the importance of local goodwill in some occupations, by the importance of growth in producing interstate migration, and by the importance of licensing and restrictions on reciprocity.

The definition of and the symbols used for each of the independent variables are:

1. Age of Worker

    Two variables are employed to measure the effect of age.

    a. Median Age of Worker in Experienced Civilian Labor Force, 1970 (AGE).

    b. Percent of Workers in Experienced Civilian Labor Force Less than Thirty Years Old, 1970 (YOUTH).

        This variable was employed to determine if occupations with a larger percent of younger workers would record greater interstate

mobility because of the change in residency during the transition from college to work.[7]

2. Educational Attainment

The information on education attainment of professionals in the 1970 Census of Population is deficient. The highest measured attainment was the open-ended class with 17 or more years of formal education. The median educational attainment in many professional occupations exceeds 17 years. This is a serious limitation and one not easily overcome. Two substitute measures were employed although both are subject to their own limitations:

    a. Percent of Experienced Civilian Labor Force (16 years or older) with Five or More Years of College 1970 (EDU).

    b. Mean Earnings, Full-Time Workers, 1969 (F.T. EARNINGS)

The selection of full-time earnings was indicated because EDU contains greater measurement error in occupations with higher educational attainment. EDU does not distinguish sufficiently between dentists and lawyers on the one hand and physicians and college and university professors on the other hand. Given age, differences in earnings will better reflect differences in educational attainment as well as differences in mean quality of members across occupations.

3. Class of Worker

The Census of Population classifies workers into three groups:

    a. Percent of Workers in Private Practice, 1970 (PRI-PRACT).

    b. Percent of Workers Salaried in Government, 1970 (GOV).

    c. Percent of Workers Salaried in Firms and Other Nonprofit Institutions, 1970 (PRI-SAL).

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[7]YOU30 is negatively correlated with AGE (r = -.92).

Because the sum of these three variables equals unity, only the first two are included in the regressions. The coefficients of PRI-PRACT and GOV measure the effect of each of these variables relative to the effect of PRI-SAL.

4. Supply of Substitute Employers

The number of colleges and universities per state is typically smaller than the number of firms per state. Therefore, a location change by a professor has a higher probability of involving an interstate move. A variable is required to distinguish between academic occupations and other occupations.[8]

    a. Employed by College or University, 1970 (UNIVER):

        A dummy variable is assigned a value of one in the occupation

        is composed of college and university teachers.

5. Licensing and Reciprocity

Several dummy variables are used to determine the effect of licensing and the effect of restrictions on reciprocity on interstate flows of human capital.

    a. Licensed Occupations with Reciprocity (LIREC): This variable is assigned a value of one if the occupation is licensed and if reciprocity is granted by many states.

    b. Licensed Occupations With Little Evidence of Reciprocity (LICNREC): This variable is assigned a value of one if the occupation is licensed and if reciprocity is seldom granted or if reciprocity is granted only after many conditions are satisfied. The definition of LIREC and of LINREC implies the effect on interstate mobility of

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[8] It would also be desirable to distinguish between the availability of substitutes among nonacademic occupations.

adding restrictions on reciprocity in an already licensed

occupation is measured by the <u>difference</u> between the coeffi-

cients of LINREC and LIREC.

    c. Dummy Variables for Each Licensed Occupation with Restrictions

        on Reciprocity. These variables were introduced to determine

        if the effect of LINREC on mobility was solely due to the inclusion

        of judges in the LINREC class.

        1. Judicial Occupation (JUD): This variable is assigned a value

           of one if the occupation is the judiciary.

        2. Legal Occupation (LAW): This variable is assigned a value of

           one if the occupation is the legal profession.

        3. Dental Occupation (DENT): This variable is assigned a value of

           one if the occupation is the dental profession.

6. Growth in Market Demand

    There were substantial differences in the growth rates of occupations

between 1960-1970. If this national growth rate was experienced uniformly

across the states, there would be no reason to expect the growth rate in the

total number of members in the occupation to affect interstate mobility. If

the variability in state growth rates increases with the growth rate of the

occupation, then occupations with higher national growth rates would experience

greater interstate mobility as members leave slower growing states for faster

growing states. This assumption was verified by selecting a random sample of

16 states and 28 occupations, and then finding the variability in state growth

rates increased with the mean growth rate of the occupation.

    a. Growth Rate in the Number of Workers in C.L.F. between 1960

        and 1970 (GROWTH).

    A list of the variables and the assigned symbols is reproduced in

Chart I for the convenience of the reader.

CHART I

SUMMARY OF VARIABLES AND SYMBOLS EMPLOYED

1. I.M.R.   = Interstate Migration Rate

2. P.I.M.   = Probability of an Interstate Move Given an Out-of-County

                      Move

3. P.I.C.   = Probability of Remaining in County Given No Interstate Move

4. AGE   = Median Age of Worker, 1970

5. YOUTH   = Percent of Workers in C. L. F. Less than Thirty Years Old,

                      1970

6. EDU   = Percent of Workers in C. L. F. with Five or More Years of

                      College, 1970

7. F.T. EARNINGS   = Mean Earnings of Full-Time Workers (50-52 weeks), 1969

8. PRI-PRACT   = Percent of Workers in Private Practice, 1970

9. GOV   = Percent of Workers Employed by Government, 1970

10. PRI-SAL   = Percent of Workers Salaried by Firms and Nonprofit

                      Institutions, 1970

11. UNIVER   = Variable Assigned a Value of One if Occupation is Composed

                      of College and University Professors

12. LIREC   = Variable Assigned a Value of One if Occupation is Licensed

                      and if Reciprocity is granted by states

13. LINREC   = Variable Assigned a Value of One if Occupation is Licensed

                      and if Reciprocity is seldom granted by states

14. JUD   = Variable Assigned a Value of One if Occupation is the Judiciary

15. LAW   = Variable Assigned a Value of One if Occupation is the Legal

                      Profession

16. DENT   = Variable Assigned a Value of One if Occupation is the Dental

                      Profession

17. GROWTH   = Growth Rate of Workers in C. L. F. Between 1960 and 1970.

III. Empirical Results

The results of the regression analysis are presented in Table II,
where the dependent variable is log[I.M.R./(1 - I.M.R.)], and in Table III,
where the dependent variable is log[P.I.M./(1 - P.I.M.)]. The results
for those variables other than the licensing variable will be discussed first,
with comments on the effects of the licensing variables reserved for later.

Median age is inversely related to I.M.R. and P.I.M. It would
appear that interstate migration activity is lower and the distance moved
(as approximated by P.I.M.) is shorter in occupations with older members.
The coefficients of the other age variable, the percent of members less than
30 years old, are consistently negative. It may be recalled that YOUTH was
expected to increase mobility if members under 30 made interstate changes as
the transition between formal schooling and the job market was made. The
reason for the negative coefficient is not altogether clear, but the chief
culprit appears to be errors of measurement in the education variable. While
interstate mobility may in fact rise with educational attainment, this effect
may not appear in the regression results because of errors in the measurement
in EDU. Instead, interstate mobility will appear to be inversely related to
YOUTH if YOUTH is more closely correlated to the true but unobserved value of
educational achievement.[9] The errors of measurement in EDU may also be
responsible for the significant effect of earnings on interstate migratory
activity. Because the possibility of errors of measurement exists, it is not
possible to resolve the central issue of whether interstate migration is
determined by earnings or educational attainment.

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[9]The correlation between YOUTH and EDU is surprisingly low, r = .05.
This may be a sign of the seriousness of measurement errors in EDU and/or
because occupations with the highest growth rates were those with higher
educational requirements.

TABLE II

INTERSTATE MIGRATION RATE (I.M.R.),
DEPENDENT VARIABLE

$$\text{Log}\left[\frac{\text{I.M.R.}}{1 - \text{I.M.R.}}\right]$$

Independent Variable	Coefficient Estimates					
	(1)	(2)	(3)	(4)	(5)	(6)
1. CONSTANT	4.01**	6.76***	7.90**	5.90**	8.02***	11.06***
2. AGE	-.12***	-.14***	-.15***	-.11***	-.16***	-.19***
3. LIREC	-1.01***	-.83***	-.76***	-.60**	-.70***	-.55***
4. LINREC	-1.55***	-1.40***	-1.26***		-1.21***	-.980***
5. EDU	.011***	.005	-.56-03	.22-02	.45-02	-.45-02
6. F.T. EARNINGS	.26-03	.30-02*	.41-02**	.41-02**	.29-02*	.51-02***
7. PRI-PRACT.	.11	.34	.46	-.13	.01	.17
8. GOV	-.16	.40	.44	.40	.13	.38
9. YOUTH	-.04**	-.05***	-.05***	-.04**	-.06***	-.08***
10. UNIVER.			.29**	.18		.45***
11. P.I.C.		-2.81***	-3.47***	-3.26***	-2.75**	-4.40***
12. GROWTH					.18*	.13*
13. LAW				-1.03***		
14. JUD				-1.85***		
15. DENT				-.94**		
R^2	.939	.956	.964	.967	.972	.987
σ_u	.227	.196	.183	.181	.176	.124
N	34	34	34	34	28	28

*denotes t ratio between 1.60 and 1.99

**denotes t ratio between 1.99 and 2.99

***denotes t ratio greater than 2.99

TABLE III

PROBABILITY OF INTERSTATE MOVE (P.I.M.),
DEPENDENT VARIABLE
$$\log \left[\frac{P.I.M.}{1 - P.I.M.} \right]$$

Independent Variable	Coefficient Estimates					
	(1)	(2)	(3)	(4)	(5)	(6)
1. CONSTANT	4.75**	3.88**	4.62**	3.97	3.65*	6.02***
2. AGE	-.11***	-.10***	-.11***	-.10**	-.11***	-.14***
3. LIREC	-.61**	-.67**	-.62**	-.53*	-.69***	-.57***
4. LINREC	-1.11***	-1.15***	-1.06***		-1.16***	-.99***
5. EDU	.16-02	.35-02	.12-03	.11-02	.70-02**	.29-04
6. F.T. EARNINGS	.48-02***	.39-02**	.46-02**	.47-02**	.25-02	.42-02**
7. PRI-PRACT.	.08	.01	.08	-.20	-.39	-.26
8. GOV	.56**	.38	.40	.37	.05	.15
9. YOUTH	-.04**	-.04***	-.04**	-.04**	-.05***	-.07***
10. UNIVER.			.19	.14		.35**
11. P.I.C.		.88	.46	.47	2.25*	.96
12. GROWTH					.14	.09
13. LAW				-1.05**		
14. JUD				-1.23**		
15. DENT				-.81*		
R^2	.891	.894	.901	.403	.947	.966
σ_u	.211	.211	.209	.217	.168	.134
N	34	34	34	34	28	28

*denotes t ratio between 1.60 and 1.99

**denotes t ratio between 1.99 and 2.99

***denotes t ratio greater than 2.99

An important finding is that P.I.C. or local reputation has a signif-
icant effect in reducing the interstate migration rate but not the probability
of an interstate move. Hence, the interstate migration rate is lower in
occupations where local reputation appears to be important. Not surprisingly,
the distance moved, as approximated by P.I.M., is not related to local capital
as measured by P.I.C. Once a move is made out of the local market, the
importance of local reputation should not determine if the move is over a
short or long distance.[10/]

If the growth rate of an occupation has an effect, it is on I.M.R.
and not on P.I.M. There is some weak evidence that more rapidly growing
occupations experience higher interstate migration rates, but the t values
are lower and a cautious interpretation is suggested.

The coefficients of each of the licensing variables are of considerable
interest. In each table the coefficients of LIREC and LINREC are negative
and often have t ratios exceeding 3. The coefficient of LINREC, the
variable for licensed occupations with little reciprocity, is as expected,
algebraically smaller than the coefficient of LIREC, the variable for licensed
occupations with fewer restrictions on reciprocity. Column 4 of each table
indicates the difference in coefficients is not due solely to the lower inter-
state mobility of judges. The dummy coefficients for the three occupations,
law, dentistry and judiciary, indicate significantly lower interstate migration
rates with judges having substantially lower rates, followed by lawyers and
then dentists. In review, these results indicate licensing itself reduces the
interstate migration rate and the probability of an interstate move and the
restrictions on reciprocity reduce I.M.R. and P.I.M. still further.

[10/]While P.I.C. is related to I.M.R., the proportion of workers in
private practice is not. Surprisingly, the simple correlation between P.I.C.
and PRI-PRACT is only .29.

The quantitative effect of licensing and restrictions on reciprocity on the interstate migration rate is illustrated for the dental and legal professions in Table 4. If reciprocity was practiced in the dental and legal professions, the interstate migration rate would rise from .105 to .150-.153 in the legal profession and from .098 to .133-.150 in the dental profession. Elimination of the all licensing raises the migration rate to .248-.275 for the legal profession and to .218-.274 for the dental profession.[11/] These sample calculations show the largest effects on mobility spring from licensing itself. Hence, with smaller effects traceable to restrictions on mobility, the effects of licensing are not simply to reduce the numbers or to certify quality, effects which are frequently mentioned by economists, but to reduce the interstate flow of human capital.

Interestingly enough, the predicted interstate migration rates with the removal of licensing in dentistry and law would closely approximate the mean of the rates for nonlicensed, nonacademic professions. The reduced mobility due to the greater importance of local reputation and age is offset by the greater mobility caused by higher earnings, etc.

Two unresolved issues about the effects of licensing and restrictions on reciprocity on interstate mobility remain and require further comment and study. First, why should and do licensed occupations practicing reciprocity have lower interstate migration rates and lower probabilities of an interstate move than unlicensed occupations? The answer to this query is that the formal conditions about the practice of reciprocity are not in fact implemented and that reciprocity is not practiced in all states so that licensed occupations

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[11/]These predictions assume changes in licensing status would not change the other independent variables, e.g., age and earnings.

TABLE IV

ESTIMATED EFFECT OF LICENSING AND RESTRICTIONS ON
RECIPROCITY ON THE INTERSTATE MIGRATION RATE OF
DENTISTS AND LAWYERS

	Occupation			
	(1) Dentists		(2) Lawyers	
	Estimate Derived From Table II		Estimate Derived From Table II	
	Equation 3	Equation 4	Equation 3	Equation 4
1. Actual Interstate Migration Rate	.098	.098	.105	.105
2. Estimated Interstate Migration Rate	.097	.098	.097	.105
3. Predicted I.M.R. with Licensing and with Reciprocity	.150	.133	.150	.153
4. Predicted I.M.R. with Licensing Eliminated	.274	.218	.275	.248

with the apparent liberal use of reciprocity are a quantum jump away from

occupations free of licensing. Indeed, the empirical results imply the

licensed occupations practicing reciprocity have characteristics more similar

to licensed occupations that limit the use of reciprocity than to unlicensed

occupations. The second issue is whether the state specific law is capable

of explaining the lower interstate migration rate of lawyers. Evidence

bearing on this issue is presented in the next section of this paper.

IV. Investment in State Specific Law

Investments in state specific law may be made in law school if the

curriculum and the state bar exam stress   state law and procedure or through

experiences and practice. The results of tests of these two hypotheses

are summarized below.

A. Investment in Specific State Law and Law School Education

If the state bar examination emphasizes state law, the curriculum

of local law schools will be devoted in part to state law courses.[12/] If

the curriculum of law schools focused on state law, law professors as well

as lawyers should be less mobile since they too would have made investments

in state specific law. Table 5 shows the interstate mobility rate of law

professors is more like that of their academic counterparts than the rate

for lawyers is like that of their business counterparts. This indirect test

suggests that state specific investments are not made by law students during

the formal education process.

[12/]The presence of national law schools like Chicago, Harvard, Stanford,
Yale, etc., indicates a nonnegligible fraction of law students undertake
general investments and constitutes evidence against the state specific
investment hypothesis.

Table V

COMPARISON BETWEEN INTERSTATE MOBILITY OF
PRACTITIONERS AND PROFESSORS

		Interstate Migration Rate				
		Practitioner		Professor		(5)
	Field	(1) IMR	(2) Rank	(3) IMR	(4) Rank	Ratio (3)/(1)
1.	Law	10.5	1	34.1	2	3.25
2.	Engineering	18.2	2	29.7	1	1.63
3.	Chemistry	18.9	3	34.8	4	1.84
4.	Mathematics	22.9	4	37.7	.5	1.65
5.	Biology	27.6	5	34.7	3	1.26
6.	Psychology	28.1	6	39.4	6	1.40
7.	Economics	29.2	7	43.6	7	1.49

		Probability of an Interstate Move				
		Practitioner		Professor		(5)
	Field	(1) IMR	(2) Rank	(3) IMR	(4) Rank	Ratio (3)/(1)
1.	Law	44.6	1	79.0	6	1.77
2.	Engineering	61.4	2	76.5	5	1.25
3.	Psychology	64.4	3	74.2	3	1.15
4.	Chemistry	64.7	4	76.4	4	1.18
5.	Mathematics	65.4	5 1/2	71.9	1	1.10
6.	Biology	65.4	5 1/2	74.0	2	1.13
7.	Economics	68.6	7	79.2	7	1.15

SOURCE: 1970 U.S. Census of Population, Mobility for States
and the Nation. PC(2) 2B, pp. 38-44.

If specific state law is taught in law school and examined for on
the bar exam, graduates of law schools in each state should have a higher
pass rate on the state bar examination than graudates of out-of-state law
schools, holding quality of law student constant. A partial test of this
hypothesis is possible since California reports the pass rate of in-state
and out-of-state law school graduates. The data in Table VI show that
graduates of California law schools approved by the American Bar Association
did outperform graduates of A.B.A. approved out-of-state schools during the
fifties but that differences in pass rates have narrowed and disappeared
during the sixties and seventies. Table VII shows the pass rates of
graduates of a selected number of law schools of a more uniform and higher
quality. These figures indicate the pass rates of graduates from Stanford,
Harvard, and Yale law schools were comparable during the sixties and seventies
while the pass rate of graduates from the University of Michigan compare quite
favorably to those of graduates of the University of California (Berkeley).[13]
On the whole these data suggest that state specific law has not been tested
for on the California bar exam and probably has not been an important part
of the curriculum of California law schools during the last 10 to 15 years.

B. Investment in State Specific Law
   and Experience

Knowledge of state specific law and procedure may be gained through
practice. Lawyers who have made investments in state specific law will have
a lower probability of moving across state boundaries. Certain types of
practices are more likely to require investments in state specific law. The

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[13] Harvard, Stanford and Yale are usually identified as national law
schools. Hence, the performance of graduates of these three schools might
be expected to be similar.

TABLE VI

PASS RATES ON CALIFORNIA BAR EXAM OF GRADUATES
OF IN-STATE VERSUS OUT-OF-STATE LAW SCHOOLS
(First Examination)
(Percent)

Period	Graduates of California Law Schools, A.B.A. Approved	Graduates of Out-of-State Law Schools, A.B.A. Approved
April 1951 - Oct. 1953	72.0	47.0
March 1956 - Sept. 1959	78.7	59.2
March 1963 - Aug. 1965	74.2	69.4
1969 - 1971	70.6	70.3
1973 - 1975	72.4	73.7

SOURCE: California State Bar Journal, various issues.

TABLE VII

PASS RATES ON CALIFORNIA BAR EXAM OF GRADUATES FROM

SELECTED HIGHER QUALITY LAW SCHOOLS[a]

(Percent)

Period	Private			Public	
	Stanford	Harvard	Yale	U. of Michigan	U. of Calif.
1. April 1951-Oct. 1953	88.7 (274)	69.4 (72)	56.5 (23)	54.8 (31)	79.2 (197)
2. March 1956-Sept. 1959	86.1 (294)	75.6 (82)	81.3 (16)	77.4 (31)	88.0 (276)
3. March 1963-Aug. 1965	83.8 (260)	85.5 (159)	73.5 (34)	86.8 (53)	80.4 (606)
4. 1969-1971[b]	80.9 (293)	89.4 (170)	85.7 (56)	86.6 (67)	77.0 (639)
5. 1973-1975[b]	88.2 (338)	87.0 (207)	82.4 (68)	85.3 (75)	79.3 (716)

SOURCE: California State Bar Journal, various issues.

[a] Number in parentheses denotes number of applicants.

[b] Graduates - first exam.

practices of lawyers in private practice are more likely to involve state

law than salaried lawyers employed by firms. Nongovernment salaried lawyers

would include those lawyers working for firms and nonprofit institutions as

well as associate lawyers employed by law firms. Lawyers employed by firms

may devote a larger share of their time to federal law than lawyers in

private practice. Less can be said about the work load of associates.

Therefore, it is less clear whether associates make comparatively smaller

investments in state specific law than lawyers in private practice.[14/]

There is, however, a competing hypothesis which may also explain a

lower interstate mobility for self-employed lawyers than for salaried

lawyers. Self-employed lawyers develop local reputations and suffer a

greater loss in goodwill if they leave the immediate market. This loss of

goodwill suggests that self-employed lawyers will be less likely to change

residence and will be more likely to remain in the same market if a change

of residence is made. Under this hypothesis a smaller proportion of self-

employed lawyers than salaried lawyers should move out of county of residence,

given that they remain in the state. By limiting the analysis only to those

lawyers who remain in the state, the effect of state law on mobility is

eliminated and attention can be centered on the differential effect on mobility

of the higher cost of mobility for self-employed lawyers.

Table VIII shows (1) the interstate mobility rate (I.M.R.), (2) the

probability of an interstate move given an out of county move (P.I.M.), and

(3) the probability of remaining in the same county given no change in the

state of residence between 1965 and 1970 (P.I.C.) for three classes of

lawyers, salaried by private company (or nonprofit organization), government

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[14/]If a large fraction of associates are employed by the larger law
firm, their training would also reflect the type of practice of the larger
law firms.

Table VIII

INTERSTATE MOBILITY BY CLASS AND AGE OF LAWYER

Class and Age of Lawyer	Sample Size	Interstate Migration Rate I.M.R.	Probability of an Interstate Move P.I.M.	Probability of Remaining In-County Conditional On Remaining in State P.I.C.
I. Salaried-Private				
31-44 years old	230	.144	.384	.731
45-64 years old	140	.079	.550	.930
Total	652	.215	.500	.737
II. Government				
31-44 years old	135	.103	.359	.793
45-64 years old	115	.052	.353	.899
Total	388	.155	.435	.762
III. Self-Employed				
31-44 years old	542	.033	.240	.891
45-64 years old	622	.016	.303	.962
Total	1,502	.037	.309	.914
IV. All Lawyers				
31-44 years old	907	.072	.325	.240
45-64 years old	877	.031	.386	.949
Total	2,542	.101	.427	.850

15/ Public Use Sample, 1970 U.S. Census of Population.

lawyer, and self-employed. This table shows the interstate migration rate and the probability of an interstate move is highest for the self-salaried lawyer and lowest for the self-employed lawyer. The probability of remaining in the county of residence given that the lawyer remains in the state between 1965-1970 is lowest for the salaried lawyer employed by firms and highest for the self-employed lawyer. The lower interstate migration rate and probability of an interstate move for self-employed lawyers suggests that state law does depress the mobility of self-employed lawyers. However, among lawyers who remained in the state between 1965 and 1970, a higher proportion of self-employed lawyers remained in the same county of residence. Therefore, the loss in goodwill suffered by leaving the immediate market is also capable of explaining the lower interstate migration rate of lawyers. An additional piece of evidence suggests that state law is not responsible for lower lawyer mobility. Table IX shows I.M.R., P.I.M. and P.I.C. for Louisiana, a civil law state, and the three adjoining states, Mississippi, Texas and Arkansas presumably common law states. If there is investment in state specific law, Louisiana should be the ideal test case. Yet, the comparison among these states fails to reveal significant differences in mobility patterns.

Investments in state specific law are made over the years as a practice is developed. If so, interstate mobility would decline more rapidly with age in the legal profession than in other occupations once other determinants are held constant. Private practice is one such determinant. Out of market mobility should decline more rapidly with age in those occupations where private practice is important. It is first necessary to control for the effect of private practice on mobility before any effect of state specific law on the mobility of lawyers can be isolated.

Table IX

MOBILITY OF LAWYERS IN LOUISIANA AND THREE ADJACENT STATES[a]

State	Sample Size	Interstate Migration Rate I.M.R.	Probability of Interstate Move P.I.M.	Probability of Remaining in County Conditional on Remaining in State P.I.C.
Louisiana				
Total	32	.063 (2/32)	.333 (2/6)	.867 (26/30)
Self-Employed	26	.000 (0/26)	.000 (0/3)	.885 (23/26)
Mississippi				
Total	22	.046 (1/22)	.200 (1/5)	.810 (17/21)
Self-Employed	14	.000 (0/14)	.000 (0/1)	.929 (13/14)
Texas				
Total	142	.049 (7/142)	.206 (7/34)	.800 (108/135)
Self-Employed	83	.000 (0/83)	.000 (0/13)	.843 (70/83)
Arkansas				
Total	11	.091 (1/11)	.250 (1/4)	.700 (7/10)
Self-Employed	9	.111 (1/9)	.333 (1/3)	.750 (6/8)
Miss., Texas, Ark.				
Total	175	.051 (9/175)	.209 (9/43)	.795 (132/166)
Self-Employed	132	.009 (1/106)	.059 (1/17)	.848 (89/105)

[a] Numbers in parentheses denote the number of observations used to calculate each of the mobility rates and probabilities.

The regression analysis attempts to explain the interstate mobility rates of younger relative to older members of an occupation. The ratio of the I.M.R. for younger members of an occupation (between 25 and 44 years old in 1970) to the I.M.R. for older members (between 45 and 64 years old) is the dependent variable and is expected to be larger in occupations with higher proportion in private practice, PRI-PRACT, and in occupations with higher retention probabilities, P.I.C. A somewhat different method of determining the effect of private practice on relative interstate mobility is also adopted. The ratio of the retention probability of younger relative to older members of an occupation has been calculated to determine if occupations with higher ratios of the retention probabilities have lower ratios of the interstate migration rates. The symbol assigned to the ratio of the retention probabilities is R.P.I.C.

The effect of state specific law on mobility is detected by introducing a dummy variable for the legal profession. If state specific law reduces lawyer mobility, the ratio should be higher for lawyers and the coefficient of the dummy variable will be positive.

The results are shown in Table X and indicate the ratio of migration rates is higher in academic fields and in occupations where private practice predominates.[15] On the other hand, the ratio of retention probabilities is not related to the ratio of migration rates, a disappointing result.

The results on the importance of state specific law are of considerable interest. The ratio of interstate migration rates for lawyers appears no different from the ratios of other occupations once the effects of private practice and university connection are accounted for.

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[15] An unanswered issue is why PRI-PRACT affects the ratio of interstate migration rates but not the level of I.M.R.

TABLE X

THE RATIO OF THE INTERSTATE MIGRATION RATE FOR YOUNGER
AND FOR OLDER MEMBERS OF AN OCCUPATION

Independent Variable	Coefficient Estimates			
	(1)	(2)	(3)	(4)
1. CONSTANT	2.44***	-3.57**	-3.16	-3.99
2. UNIVER	1.17**	1.26**	1.12**	.42
3. PRI-PRACT	7.49***	7.05***	5.60***	
4. P.I.C.		7.28**	6.95**	
5. R.P.I.C.				9.16
6. LAW	-1.13	-1.07	-.33	2.28
7. DENT			2.65*	6.98***
8. DOC			1.52	4.38***
R^2	.695	.744	.780	.545
σ_u	1.185	1.103	1.059	1.498
N	34	34	34	34

*Denotes t ratio between 1.60-1.99

**Denotes t ratio between 2.00-2.99

***Denotes t ratio above 2.99.

In review, the results of these several tests point in one direction. The comparatively low interstate flow of lawyers cannot be explained by investments in state specific law.

Conclusions

Occupational licensing has had a quantitatively large effect in reducing the interstate mobility of professionals. Placing further restrictions on the interstate movement of human capital by limiting the use of reciprocity reduces interstate mobility still further, but by a diminishing amount. While licensing may serve the role of a certifying instrument, it has an important effect of restricting the flow of factors even in those occupations where reciprocity among the states is practiced in some degree.

While the lower interstate mobility of lawyers could be traced to investments in state specific law and procedure or to licensing through the state bar exam, the results of the tests suggest that the effects of investment in state specific law are apt to be small. The lower mobility of lawyers, like the lower mobility of dentists, appears traceable to licensing and limitations on the use of reciprocity.

There are two directions in which this study may be extended. A study of the effect of licensing and restrictions on reciprocity on earnings is feasible and is a natural extension. Further analysis of the dental and legal professions may be undertaken to determine if restrictions on the interstate flow of human capital coincide with greater intrastate control over the number and size of educational institutions than in licensed professions with reciprocity or unlicensed occupations. A study of the reasons for licensing in some and not other occupations would be valuable but progress is apt to be small. Yet, such a study is necessary if the relative merits of the cartel versus the certification hypothesis for licensing are to be evaluated.

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