Linked Migration Systems: Immigration and Internal Labor Flows in the United States*

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Abstract: We investigate the relationships between immigration and internal labor movements in the United States. Wedding the literatures on immigration and internal migration, we develop a mobility model linking these various flows on the basis of occupational status of worker, production and institutional relations in the economy, and economic restructuring. We test this model in an inferential framework and find that native blue-collar workers have been spatially displaced by recent immigration and that the process of capital accumulation, as manifested in economic restructuring, is the driving force behind the mobility system, affecting both immigration patterns and the destination choices of white-collar workers. As a result, we suggest that previous estimates of immigrant impacts on local labor markets may be underestimated.

Key words: immigration, immigrant impacts, internal migration, economic restructuring, labor markets, simultaneous equations model.

The political debate on United States immigration policy begun more than a hundred years ago remains alive today because the economic and cultural impacts of immigration continue to be disputed (e.g., Wilcox 1909; Higham 1955; Thomas 1972). The debate has grown perhaps even more contentious recently for three reasons. First, the lifting of discriminatory quotas and restrictive ceilings in 1965 resulted in substantial growth of migration to the United States, a radical change in origin countries, and a decline in the average skill level of immigrants (Wong 1985; Portes and Bach 1985; Borjas 1990). Second, the Immigration and Reform and Control Act of 1986 provided amnesty to undocumented immigrants residing continuously in the United States since 1 January 1982 and legislated sanctions against employers of illegal immigrants. Third, in the 1980s the Immigration and Naturalization Service (INS) annually apprehended about one million illegal migrants near the Mexican border.

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Controversy over the economic impact of immigration centers largely on concerns about employment opportunities and wages. Some claim that immigrants take jobs and depress wages of resident United States workers (e.g., Briggs 1975; Fogel 1980; Johnson 1980). Others argue that skilled immigrants invest savings and add entrepreneurial talent to the economy, while unskilled immigrants accept jobs unwanted by resident workers (e.g., Chiswick 1982; Greenwood and McDowell 1986; Bailey 1987; Simon 1989; Borjas 1990). Whatever the position taken, the immigration debate rarely takes place within a spatial context. Indeed, many assessments of immigration impact are implicitly aspatial and focus only on employment and wage effects at immigrant destinations. Although immigrant impact on wages and employment opportunities of resident workers appears minimal (Borjas 1990), such impacts may be mitigated by the migration system. For example, when immigrant labor substitutes for native labor, natives may move as wages fall (or grow too slowly) and job vacancies are filled by immigrants. Outmigration offsets to a certain degree the downward pressure on wages exerted by the immigrants, thereby dampening the observable wage impact at the immigrant destination.

The particular goal of this paper is to analyze the association between immigration and domestic flows of labor. A more general objective is to demonstrate the openness of the United States space economy with respect to internal population movements. Even though the United States presently gains approximately eight hundred thousand legal and illegal immigrants a year, most of whom concentrate in a handful of large metropolitan areas (Waldinger 1989), little research has addressed the impact of immigration on interregional flows of natives. That few studies acknowledge an association between internal migration and immigration is surprising, not only because the volume of present immigration is so large but also because the linkages between internal population movements and immigration have been observed for some time. African-American migration to the northern industrial core during the early part of this century was evidently related to immigration from southern and eastern Europe (Vance 1938; Myrdal 1944; Reder 1963; Thomas 1972), in that African-American mobility increased dramatically after World War I with the imposition of restrictive national immigration quotas. Recruitment efforts directed at African-Americans during this period suggest employers were substituting labor from the American South for European labor.

Despite some awareness of these linkages between national and international population movements, Long (1988, 145) notes in his treatise on migration and residential mobility in the United States that "[I]t seems plausible to assume that in many contexts immigration may substitute for and reduce the volume of internal migration, but this hypothesis has not been extensively researched." Similarly, Plane and Rogerson (1991) have recently made a plea for more attention to be focused on the interaction of immigrant flows and internal migrant streams.

An important premise of much recent research by geographers on trade and industrial location is that the United States economy is intimately woven into a global system and that the process of restructuring is reshaping the social and economic landscape of the country. We argue here that research on domestic migration ought to acknowledge that interregional population flows are deeply rooted in a broader system of population exchange at the international level and that economic restructuring plays an important role in defining the manner in which population flows, both national and international, are related (see also Evans 1990; Burnley 1992; Salt and Kitchen 1992).

Linked Migration Flows

Population mobility stems in large part from labor market dynamics, which must

be explicitly addressed in any effort to identify the structure of labor flow relationships. We note the by-now familiar distinction between primary and secondary labor markets (Edwards, Reich, and Gordon 1975). Further refinement involves resolving the primary labor market into independent and subordinate jobs (Edwards 1979; Piore 1979). Independent primary jobs (typically professional and technical) are highly valued by employers, while subordinate primary jobs obtain favored status through struggles by organized labor (Morales 1983). The secondary sector can also be divided into informal and formal jobs. Castells and Portes (1989, 12) characterize informal work as lacking institutional regulation, both legal and social.

Labor Market Interactions

Explanations of immigrant impacts on natives within the context of these broad labor force categories generally divide into two opposing perspectives (see Greenwood and McDowell 1986; Borjas and Tienda 1987; Borjas 1990). One holds that immigrants take jobs from natives and depress wages by entering formal secondary or subordinate primary labor markets. This view lacks empirical support, and theoretically it relies on a restrictive set of assumptions (Borjas 1990). An alternative perspective holds that immigrants have either positive effects or no impacts whatsoever on the labor market experience of natives. Positive effects occur when immigrants invest skills and capital in job creation. A total absence of impact results primarily from immigrant concentration in the informal sector, or from the creation of enclave economies in which immigrants, in effect, develop ethnically based economic structures covering a wide range of jobs.

While concern focuses on possible impacts of immigration on native labor markets, a growing body of literature suggests that observed patterns of immigration may be explained, in part, by ongoing dynamics in native labor markets associated with economic restructuring. For example, the personal service requirements of managers and professionals, highly concentrated in so-called global cities (Castells 1989; Cohen 1981; Hymer 1972), together with deskilling in both manufacturing and service sectors, have created labor demands that many immigrants from developing countries fill (Sassen 1988).

The concentration of managers and professionals in global cities is linked to new modes of capital accumulation involving a shift away from heavy manufacturing to services and high-technology production. Moreover, increasingly complex and spatially diffuse operations tend to centralize corporate service, control, and management functions (Cohen 1981; Hymer 1972). The concomitant manifestation of financial capital in key urban places further accentuates these forces of concentration. In such cities, out-migration of native blue-collar workers occurs together with stagnant wages. Of course, the fall in relative wages derives from factors other than simply an increase in immigrant labor supply. In particular, the declining marginal product of labor is associated with restructuring and its growing reliance on subcontracting and temporary work (Scott 1988). Under restructuring, the in-migration of professionals and managers creates opportunities for immigrants, who frequently take jobs in the informal sector of the secondary labor market or in newly created formal jobs. In this situation, the mobility of managers and professionals has a positive impact on immigration, while the out-migration of less-skilled natives, though correlated with immigration, is actually the result of technological switching to the restructured modes of production.

Interactions: Observed and Theoretically Implicated

Clearly, observed and hypothesized interactions between immigrant flows and native labor flows cover a wide range of possibilities. We propose to systematize

these interactions in the interests of a structured theory and empirical analysis. The discussion so far has indicated three broad interaction modes, which we label with respect to the direction of impact. Thus, we posit immigrant-on-native impacts, native-on-immigrant impacts, and immigrant-neutral impacts. These general labels in turn cover various particular forms of interaction, to which we now turn.

Immigrant-on-Native Impacts. The *displacement* effect, easily the most widely discussed potential impact, incites the greatest concern by native workers. When immigrant labor substitutes for resident workers, natives may literally be displaced. Muller and Espenshade (1985) documented considerable increases in immigrant employment in formal sector manufacturing and services in the Los Angeles economy during the 1970s, along with a simultaneous loss of blue-collar natives. During this period in Los Angeles manufacturing gained 113,000 net jobs, while by 1980 immigrants held 168,000 manufacturing jobs. Muller and Espenshade (1985, 58–59) concluded that a net decline of 55,000 jobs occurred among other workers, evidently through displacement. Although services experienced substantial expansion beyond the numbers of arriving immigrants employed in that sector, the data indicate high turnover of the resident work force (Muller and Espenshade 1985, 53).

Muller and Espenshade's (1985, 53) data also indicate that Mexican immigrants and natives leaving California are similar with respect to socioeconomic characteristics and therefore, presumably, to skill levels and job class. Skill similarities between immigrants and natives need not lead to direct displacement, but can affect destination choices by native migrants. Consequently, high-volume immigration to specific destinations may reduce the number of native migrants to these places. Card (1990) indicates this may have occurred in Miami during the 1980s. Fleisher (1963) observed that movements of native workers to New York City appeared to drop in the 1950s with increased Puerto Rican immigration.

Relationships between immigrant and domestic labor flows do not exist exclusively within similar skill grades. With respect to immigrant-on-native impacts, complementarity between skill grades may induce native labor flows among professionals, highly skilled workers, and managers. For example, in a three factor context involving capital, low-skilled workers, and high-skilled workers, if immigrants accept lower than equilibrium wages labor is substituted for capital. Nevertheless, pure profits at immigrant destinations attract both capital and high-skilled workers by virtue of *production* complementarity between skilled workers and both capital and low-skilled workers.[1]

Wage and productivity trends in Table 1 indicate that profit potential may indeed be improving in relative terms at major immigrant destinations, which we see as a precondition to inflows of skilled migrants due to complementarity in production. The average wage increment in high-immigration SMSAs is 20 percent below that of the United States, while for the low-immigration group it is 18 percent

[1] Empirical support for these various factor relations has been provided by Berndt and Christensen (1975). Nevertheless, Greenwood and McDowell note (1986, 1748) that the issue is by no means settled, and some researchers have found little difference in substitutability between capital and various skill grades (e.g., Weiss 1977; Chiswick 1985). However, the hypothesized effect on factor rewards is theoretically possible under a three factor Constant Elasticity of Production (CES) technology, with identical elasticities of substitution between all pairs of factors (Greenwood and McDowell 1986, 1748). Thus, immigration of unskilled labor may lead to lower wages for the unskilled work force and higher earnings for the skilled (and owners of capital), even if both classes of labor are equally substitutable with capital. Multisectoral models of regional production may indicate ambiguous effects of immigration on resident worker earnings in higher-skill grades (Gerking and Mutti 1983). We argue on the basis of an assumed aggregate production function.

Table 1

Wage and Productivity Changes, 1970–78

	Wage Increment (production workers) (in dollars)	Productivity Increment (value added per production hour) (in dollars)
United States	$2.94	$12.49
High-immigration SMSAs		
Houston	$3.45	$22.37
Los Angeles	2.39	12.05
Miami	1.92	7.94
New York City	2.04	11.78
San Antonio	1.92	9.81
Mean value	2.34	12.79
(Mean without Houston)	2.07	10.40
Low-immigration SMSAs		
Birmingham	$3.46	$10.39
Dayton	3.46	11.89
Memphis	2.84	14.24
Minneapolis	3.13	13.83
Pittsburgh	4.47	13.26
Mean value	3.47	12.72

Sources: U.S. Bureau of the Census (1973, 1983a).

greater. Productivity increments (value added per production hour) in both groups exceed that for the United States as a whole, but the average increase in the high-immigration SMSAs surpasses the low-immigration group. Thus, productivity has generally increased in high-immigration SMSAs while wages have decreased in relative terms.[2]

In addition to the fact that the skill levels typically associated with immigrants of the present era are complementary with both capital and high-skilled workers, large concentrations of unskilled immigrants with many dependents impose considerable demand on public services for education and health care (Reimers 1985, 105). Job creation in the public sector to provide such services tends to favor professional, white-collar occupations, as has been the case in Southern California (Muller and Espenshade 1985). We hypothesize, therefore, that ***institutional*** complementarity induces flows of high-skilled native workers to immigrant destinations.

Tables 2 and 3, based on information in the Public-Use Micro-Data Sample "A" (PUMS) (U.S. Bureau of the Census 1983c), contain data consistent with the immigrant-on-native impacts of displacement and complementarity. Table 2 gives the occupational distribution of resident migration to and from Southern California,[3] a prime destination of Mexicans and the place where about 20 percent of all post-1965 immigrants resided upon entry

[2] The cities in Tables 1 and 3 were chosen on the basis of immigration data on Mexican, Central American, and Caribbean immigrants, as published by the INS. The number of such immigrants per 1,000 residents (in 1975) arriving between 1970 and 1979 are 87.50 for Miami, 20.35 for New York City, 16.96 for San Antonio, 11.55 for Houston, 10.22 for Los Angeles, 0.17 for Dayton, 0.17 for Memphis, 0.14 for Minneapolis, 0.10 for Pittsburgh, and 0.06 for Birmingham. Houston's wage figures differ from other high-immigration cities because of the economic boom of the late 1970s.

[3] Southern California is here defined as the area consisting of San Luis Obispo, Santa Barbara, Ventura, Los Angeles, San Bernadino, Orange, San Diego, and Imperial counties.

Table 2

Migration Flows for Southern California SMSAs, 1975–80 (2.5% Sample)

	In-Migrants		Out-Migrants	
	N	%	*N*	%
Professional/managerial	6,409	28.6	5,532	23.6
Other white collar	3,656	16.3	3,539	15.2
Clerical/service	7,326	32.7	7,648	32.7
Skilled blue collar	2,189	9.8	2,796	12.0
Other blue collar	2,489	11.1	3,249	13.9
Total	22,405		23,358	

Source: U.S. Bureau of the Census (1983c).

to the United States (Waldinger 1989). These data reflect labor demands in receiving areas (i.e., Southern California as well as the rest of the country). Table 3 takes into account occupational supplies in sending areas for resident migration to and from a sample of SMSAs.

The five occupational categories used in Tables 2 and 3 are aggregates of standard job classes used by the census; they are similar to those of Muller and Espenshade (1985), but with the addition of the disaggregated nonprofessional white-collar category. The in-migrant and out-

Table 3

The Ratio of Migration Rates By Occupation to Total Migration Rates for all Occupations

	High-Immigration-Rate Cities					
	Miami	New York	San Antonio	Houston	Los Angeles	Mean
Professional/ managerial	1.33 *1.13*	2.01 *1.24*	1.46 *1.31*	1.37 *1.19*	1.44 *1.10*	1.52 *1.19*
Other white collar	1.24 *1.10*	1.06 *1.18*	1.36 *1.11*	1.27 *1.09*	1.14 *1.15*	1.21 *1.13*
Clerical/ service	1.03 *0.96*	0.94 *0.87*	0.95 *0.93*	0.88 *0.92*	0.99 *0.99*	0.90 *0.93*
Skilled blue collar	0.74 *0.95*	0.38 *0.94*	0.76 *0.78*	0.98 *0.90*	0.74 *0.99*	0.72 *0.91*
Other blue collar	0.59 *0.83*	0.37 *0.79*	0.50 *0.84*	0.62 *0.92*	0.60 *0.77*	0.54 *0.83*
	Low-Immigration-Rate Cities					
	Dayton	Memphis	Minneapolis	Pittsburgh	Birmingham	Mean
Professional/ managerial	1.48 *1.31*	1.43 *1.46*	1.50 *1.23*	1.65 *1.60*	1.46 *1.53*	1.50 *1.43*
Other white collar	1.15 *1.24*	1.21 *1.08*	1.17 *1.11*	1.21 *1.19*	1.30 *1.11*	1.21 *1.15*
Clerical/ service	0.94 *0.96*	0.89 *0.93*	0.99 *0.97*	0.86 *0.91*	0.91 *1.00*	0.92 *0.95*
Skilled blue collar	0.54 *0.80*	0.73 *0.90*	0.55 *0.83*	0.59 *0.69*	0.69 *0.75*	0.62 *0.79*
Other blue collar	0.78 *0.69*	0.75 *0.72*	0.64 *0.74*	0.65 *0.58*	0.66 *0.67*	0.70 *0.68*

Source: U.S. Bureau of the Census (1983c).

Note: Each entry for a city-occupation pair consists of two numbers. The upper number is an in-migration ratio, and the lower number (in italics) is an out-migration ratio (see footnote 5).

migrant numbers in Table 2 are gross counts by occupational class and percentage breakdowns over the total for each migration flow. The gross counts were obtained by summing all individuals in the PUMS file within a particular occupational class in 1980 who either left or entered Southern California.[4] The data in Table 2 reveal that the in-migration stream has relatively (and absolutely) more professionals and managers than the out-migration stream. Alternatively, unskilled workers (*other* blue collar) and less-skilled individuals more generally form a larger component of out-migration than in-migration. A similar conclusion arises from Table 3, which presents in-migration and out-migration propensities for various skill classes to and from selected SMSAs.[5] These data imply that in high-immigration areas professionals possess a higher relative propensity to in-migrate than to out-migrate. Just the opposite is observed for low-skilled, blue-collar workers (operatives, fabricators, and laborers), for whom the relative propensity to out-migrate is higher. Although in-migration propensities are greater than out-migration propensities in low-immigration SMSAs for professionals/managers, the differences are substantially less than in high-immigration areas. Moreover, on average, "other" blue-collar workers show a lower propensity to out-migrate than to in-migrate, the opposite of the high-immigration sample.

Native-on-Immigrant Impacts. Under restructuring, concentrating populations of highly skilled professionals and managers increase the demand for certain skills, particularly those associated with the provision of personal services. In such a situation, the inflow of native professionals may induce or reinforce immigration to the sites of white-collar concentrations, typically large cities.

The process of technological change associated with restructuring, which leads in large part to the concentrations of managers and professionals in the first place, also requires skill levels at the production site consistent with those typical of immigrants from developing countries. In effect, restructuring creates demands for immigrants both directly, through technological impacts on the production process (i.e., deskilling), and indirectly, through the increased personal service demands of managers and professionals. The relative strength of these two impacts on immigration is not known; for our purposes, the relevant point is that in this scenario immigration is induced by native flows and also by economic phenomena at destination cities.

Apart from restructuring, native labor flows can affect flows of immigrant labor

[4] Internal migration is indicated in the PUMS file by individuals living in a particular location in 1980 who lived elsewhere in the United States in 1975. Thus, the analysis addresses those who were U.S. residents over the five-year period from 1975–80. As such, foreign born individuals may be included. Multiple migrations within the five-year sample period cannot be identified given the nature of the data. This aspect of the data restricts our ability to distinguish between immigrants to a place who reside there for short or moderate periods of time (up to five years) before moving elsewhere in the United States and residents of the region who out-migrate. Using sample data, Portes and Bach (1985, 166–67) show that Mexican men have a clear idea of where they want to reside at the time of entry into the United States and after three years the majority are resident in these places. On this evidence, we conclude that any bias in our results due to a port-of-entry effect is minimal.

[5] Each entry is a relative propensity to migrate to or from a particular SMSA. For example, the in-migration entry for professional and managerial movers to New York City is 2.01—a quotient whose numerator is the relative frequency with which professional and managerial migrants chose NYC over other destinations between 1975 and 1980, and whose denominator is the relative frequency with which all movers in the labor force selected NYC during the same period. Thus professionals and managers that move are a little more than twice as likely to choose NYC as any mover.

when such flows cease for one reason or another, particularly if the skills of immigrants and natives are similar. Some of the best examples of this type of linkage occur in agriculture. For example, the Bracero program brought more than four million Mexicans to the United States when the Great Depression "Okies," who had earlier sought menial agricultural work in California, began to obtain better-paying work in the 1940s in the burgeoning defense industries of Southern California (Reimers 1985). Native outflows from cities or regions create opportunities for immigrants in similar skill classes.

Immigrant-Neutral Impacts. Immigration does not necessarily affect native population movements. A lack of impact occurs when the labor markets in which immigrants and natives function are decoupled and immigrants do not generate complementary inflows of natives indirectly through investments. The most obvious situation, widely hypothesized and observed, occurs when immigrants take jobs natives would otherwise leave vacant, as is often the case with personal services (Piore 1979).

In addition, enclave economies may emerge, funded by immigrant capital, in which the total work force, across a diversity of skill grades in both formal and informal labor markets, is composed of immigrants (Piore 1979; Wilson and Portes 1980; Portes 1981; Castells, Portes, and Benton 1989; Marshall 1984). For example, Portes and Bach (1985, 193–95) found that more than 20 percent of recent Cuban male immigrants were self-employed and more than half worked in Cuban-owned enterprises. More generally, the size of resident ethnic populations dominates other variables as an influence on the destination choices of recent immigrants from Asia and Latin America, reflecting the so-called family/friends effect (Walker and Hannan 1989).

Toward a Theoretical Framework

The possible interactions between immigrants and native population flows are complex. One key implication of the discussion to this point is that native responses are related in large part to the skill levels of the workers involved. With respect to immigrant-on-native impacts, theory and some empirical evidence indicate a displacement effect of immigration on less-skilled native workers, while the opposite effect, immigration leading to corresponding movements of highly skilled workers such as managers and professionals to similar destinations, is possible by virtue of production and institutional complementarity.

The correlation between immigration and the in-migration of skilled native workers is also observed in the native-on-immigrant impacts stemming from restructuring. In this situation, however, immigrants select destinations that attract native white-collar workers rather than native white-collar movers choosing cities that appeal to immigrants. Blue-collar out-migration can also induce compensatory immigration flows, as has occurred in agricultural labor markets.

The reciprocal pathways of impact suggest that endogeneity is a feature of the migration system, whereby immigration and internal population movements each affect the other. In particular, inflows of immigrants and white-collar workers appear to be mutually reinforcing on the basis of arguments about complementarity and restructuring. Blue-collar out-migration, in turn, is related to immigration to the extent that the displacement effect is pronounced. Moreover, blue- and white-collar movements of natives are likely to be related by virtue of complementarity and restructuring. In the terminology of statistical testing, these three categories of population flows constitute an endogenous system of jointly dependent variables.

We have argued that capital accumulation influences both immigration and the migration of white-collar natives. An opposing argument holds that, to a certain degree, the availability of cheap labor concentrated in urban enclaves actually set in motion the transformations we call

restructuring. In particular, with such labor supplies, manufacturers have downgraded production technologies by substituting labor for capital (Sassen 1988). If immigration does facilitate these technological shifts, then capital accumulation in the United States is itself influenced by dynamics in labor markets at the international scale. In such a situation, the attribution of immigrant-neutral effects to enclave economies would have to be modified appreciably.

In the next section we give the results of an econometric analysis of linkages between the population movements of immigrants, white-collar workers, and blue-collar workers. Our statistical model identifies these three flows as jointly dependent; in addition, we implement a *growth in value added* variable as a measure of the intensity of capital accumulation and restructuring. The intent of the analysis is primarily descriptive, although we seek to answer a number of specific questions. In particular, we address the existence, nature, and intensity of complementarity between white-collar natives and immigrants and of substitutability between blue-collar natives and immigrants. We also address the role of restructuring in determining immigrant and internal migrant destinations. Finally, we seek to describe the relative strengths of these relationships in order to reveal the manner in which the United States migration system has functioned in the recent past, with its heavy immigration of relatively low skill workers and their dependents.

A Model of Immigration, Internal Migration, and Capital Accumulation

The main empirical analysis consists of an econometric estimation of a system of jointly dependent variables. We have discussed the joint dependency of the three mobility groups (immigrants, native white-collar, and native blue-collar workers) and the mechanism of capital accumulation (i.e., restructuring). Migration theory and previous empirical analyses suggest a number of additional factors besides the labor market interactions described above that influence mobility decisions; variables representing these factors are included in the estimation to avoid specification bias. These variables comprise measures of economic conditions (wage rates, unemployment rates, labor force growth, house prices, local taxes) and amenity provision (educational spending, crime rating, arts rating, climate rating) (Greenwood 1981; Graves 1976). Immigrant stock and previous inflows are also included to account for ethnic enclave effects (Walker and Hannan 1989).

The immigration variable is total immigration to a particular SMSA between the years 1975–80. In the aggregate, recent immigrants to the United States fill relatively unskilled jobs (Borjas 1990; Portes and Rumbaut 1990). While certain immigrants are highly skilled (see Walker and Hannan 1989, 181), they often spend several years underemployed before they find jobs commensurate with their skill levels. Both native mobility measures (for managers and professionals and for the blue-collar category that includes operators, fabricators, and laborers) are net migration by SMSA between 1975–80. The migration and immigration data for the analysis are drawn from the 1980 Public-Use Micro-Data Sample "A" (PUMS) 5 percent sample. The SMSA economic and amenity variables were taken from the *Places Rated Almanac* (1981). The observations are the 232 SMSAs for which we had complete data.

The estimation strategy required identification of significant variables in reduced form equations over all the independent variables for three migration equations (i.e., one for each mobility group). We used ordinary least squares (OLS) regression to determine the independent variable set for each migration equation, while setting growth in value added as a function of regional dummies and the three mobility variables. With the

system so identified we used three-stage least squares regression (3SLS) to estimate the final model.[6] We also estimated models using other sets of independent variables suggested by migration theory, but these estimations provided no additional insight; the results based on the OLS identification process, presented in Table 4, were stronger.

Each column in Table 4 represents an equation in the migration system. Column headings indicate the dependent variables, and independent variables are given to the left. We restrict our comments primarily to an assessment of the relationships among population flows and value added growth. Table 5 presents these main results in summary form, indicating significant relationships and their direction between the components of the migration system.

Important features of the migration system function as expected, although with varying intensity. Internal net migration of unskilled blue-collar workers is strongly and negatively related to the number of immigrants in an SMSA. The coefficient predicts a net loss of one unskilled blue-collar worker for every seven immigrants to an SMSA. Alternatively, the net migration of blue-collar natives is insignificant in the immigration equation, indicating that internal movements of native blue-collar workers do not affect the destination patterns of immigrants.

We observed no significant results in the relationships between immigration and net migration of professionals and managers. The coefficient for the immigration variable in the professionals/managers equation is positive, however, suggesting that complementary labor market flows may exist.

Growth in value added performs strongly in all three mobility equations; moreover, coefficients are of the expected signs given our arguments about the impacts of restructuring. Relatively intense processes of capital accumulation, as reflected in this variable, attract professionals, managers, and immigrants, while native blue-collar workers are displaced, ceteris paribus. Alternatively, none of the mobility variables have any effect on the growth of value added.

Other factors outside the endogenous four variable migration system show estimated relationships that are generally consistent with expectations. Southern cities with expensive real estate seem particularly attractive to professionals, while blue-collar workers tend to leave large cities and places with high unemployment, all things being equal. Immigrants are attracted to large cities that have experienced high rates of immigration in the recent past. Finally, value added growth processes are pronounced in the South and West, relative to the Northeast—the excluded dummy (see Bluestone and Harrison 1982).

Discussion

We have investigated linkages between the mobility of immigrants and native workers. The econometric analysis and the data presentations provide evidence that these relationships are structured by labor markets and in particular by workers' skills. The estimations support those who argue that restructuring has created labor demands for immigrants. Growth in value added is statistically significant in all mobility equations, with the hypothesized signs. Immigration to an SMSA is significantly associated with a net loss of unskilled blue-collar workers. The negative coefficient for professional/managerial migration in the immigration equation is not consistent with the argument that growth in white-collar employment in major cities, such as Los Angeles and New York, has stimulated a complementary immigrant inflow to satisfy workplace service needs and the consumption wants of the expanding professional class (e.g., Sassen 1988). However, the positive coefficient for immigration in the professional/

[6] Three-stage least squares estimators are more efficient (have lower variance) than those of two-stage least squares (Johnston 1984).

Table 4

Models of Internal Migration, Immigration, and Value Added Growth: Three-Stage Least Squares Estimates

	Dependent Variables			
	Number of Immigrants 1975–80	Net-Migration Blue Collar 1975–80	Net-Migration Professionals and Managers 1975–80	Growth in Value Added 1972–77
Constant	−452.521	211.003	−540.264	1.603
	(3.939)[a]	(2.313)	(3.668)	(18.169)
Number of immigrants[b] 1975–80		−0.144	0.189	−0.0002
		(1.998)	(1.166)	(0.478)
Net-migration blue collar 1975–80[b]	0.015		1.847	−0.0005
	(0.037)		(6.196)	(0.331)
Net-migration professionals and managers 1975–80[b]	−0.116	0.431		0.0005
	(0.0650)	(5.991)		(0.819)
Growth in value added 1972–77[c]	174.509	−89.527	239.413	
	(3.708)	(2.189)	(3.638)	
SMSA population 1980[b]	0.006	−0.0011	0.0018	
	(6.423)	(1.649)	(1.357)	
Immigration rate 1970–74[b]	20359.8			
	(4.814)			
Proportion foreign born[b]	−3230.2			
	(2.951)			
Unemployment rate[d]		−5.046	8.871	
		(1.694)	(1.502)	
Wages[d]		0.0007	−0.0015	
		(0.472)	(0.535)	
Labor force growth 1970–80[d]		−0.00003	0.0002	
		(0.403)	(1.775)	
House price[e]			0.0008	
			(1.274)	
Educational spending[e]			−0.0101	
			(0.496)	
Local taxes[e]		−0.0028		
		(0.969)		
Crime rating[e]		0.0041		
		(0.363)		
Arts rating[e]			−0.0039	
			(0.698)	
Climate rating[e]	0.141			
	(1.678)			
West				0.316
				(2.467)
South				0.312
				(2.979)
Midwest				0.149
				(1.652)

[a] t-statistics in parentheses.
[b] *Source:* U.S. Bureau of the Census (1983c).
[c] *Source:* U.S. Bureau of the Census (1972, 1977).
[d] *Source:* U.S. Bureau of the Census (1983b).
[e] *Source: Places Rated Almanac* (1981).

managerial equation, although insignificant, suggests that immigrants may stimulate a complementary inflow of white-collar workers. Furthermore, wage and productivity trends in Table 1 indicate that profit potential may be improv-

Table 5

Summary of Parameter Effects Among the Endogenous Variables

	Explanatory Variables			
Dependent Variable	Immigration	Net-Migration Blue Collar	Net-Migration Professionals and Managers	Growth in Value Added
Immigration		0	0	+
Net-migration blue collar	−		+	−
Net-migration professionals and managers	0	+		+
Growth in value added	0	0	0	

Note: The signs indicate significant positive or negative effects. A zero indicates no significant effect. Based on parameter estimates in Table 4.

ing in relative terms at immigrant destinations, a precondition for inflows of professionals. Table 2 shows that native in-migrants to Southern California tend to be more skilled in both relative and absolute terms than native out-migrants.

The results indicate a fairly strong substitution effect between immigrants and native blue-collar workers. In the estimated model, displacement occurs as an immigrant-on-native effect, and the coefficient is negative and statistically significant. Table 3 shows that unskilled blue-collar workers have a higher propensity to out-migrate than to in-migrate to high-immigration-rate cities, the opposite of what is observed in low-immigration-rate cities. While our principal concern is the relationship between immigration and internal labor flows, we note the strong complementarity between the internal labor flows themselves. Everything else being equal, the destination choices of native blue- and white-collar workers are strongly related in that positive and significant coefficients are observed for the appropriate variable in each equation.

Conclusions

In the immigration debate, the finding on displacement is important. Conventional estimates of labor market impacts of immigration are understated when measured at the SMSA level because they fail to recognize that the native occupational classes most likely in competition with immigrants move from centers of heavy immigration, ceteris paribus. One implication of this migration system impact is that the effects of immigration will be transmitted away from the immigrant destination to the final destinations of blue-collar out-migrants. Such effects, in turn, will be concentrated to the extent that the destination choice set of blue-collar out-migrants is limited.

The neoclassical theory of mobility suggests that migrants, including internal migrants within an interregional system, improve their situations by moving (Sjaastad 1962; Borts and Stein 1964; Clark 1983). In particular, if a native is able to improve his or her labor market position by moving, out-migration from an immigrant destination need not represent diminished earning potential. Nevertheless, such mobility improves welfare only in a static context, because conditions at the destination of the out-migrant might not be better than initial conditions at the origin. While migration incentives may arise from an individual's evolving expectations over the life cycle or from the availability of new information regarding economic opportunity, they may also stem from deteriorating conditions in the home labor market (Clark and Ballard 1980).

The neoclassical perspective assumes that migrants possess low search costs and perfect information (Amrhein 1985). Unfortunately, cost and information restric-

tions may limit the destination choice set, diminishing the prospects of employment gain (Kau and Sirmans 1977; Goodman 1981), particularly if out-migrants are in the secondary labor market and relatively poor (Clark 1983). Should a large number of out-migrants share the same limited choice set, as with African-Americans leaving Los Angeles (Johnson and Roseman 1990), displaced workers may concentrate in locations far from areas of immigrant concentration and not be diffused evenly through the space economy. Such migration may transmit the wage and job effects of immigration to cities with relatively few immigrants.

Our analysis calls into question the welfare implications of the neoclassical paradigm. It also points to the importance of structural determinants in the migration decision, in contrast to the reductionist behavioral paradigm of neoclassicism. Finally, our approach emphasizes the need to regard spatial context in assessing the labor market impacts of immigration. Failure to do so leads to serious bias, since the impacts remain hidden in the migration system.

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