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Mobility of Section 8 families in Alameda County ☆

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Abstract

During the early 1990s, Section 8 vouchers were touted by the US Department of Housing and Urban Development (HUD) as the way to provide greater housing choice for the poor while also deconcentrating them. Toward the end of the 1990s, however, evidence mounted that the voucher system was not deconcentrating the poor. In response, HUD developed a set of five major demonstration programs that supplemented the vouchers with various arrays of social services. While waiting for results of these programs to return, HUD discovered that Section 8 participants in local housing authorities in Alameda County, California, were experiencing an unexpected amount of interjurisdictional mobility toward suburban locations. Using a local database of 16,951 Section 8 families and both logit and multinomial logit analysis, this paper presents a cursory examination into the motivations of their suburban mobility.

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1. Introduction

During the last couple of decades, the US Department of Housing and Urban Development (HUD) housing authorities dropped publicly owned housing alternatives in favor of programs that enable low-income families to find safe, sanitary, privately owned housing of their own choosing (Stanfield, 1995). That is, HUD's preference for housing authorities followed the general federal government trend away from place-based assistance and toward assistance target toward the individual or household. As a result, HUD's preferred policy option became the Section 8 Housing Certificate and Housing Voucher programs, which provide assistance to families. The main difference between the two programs is that the Housing Certificate program mandated a rent ceiling, which specifically was omitted from the Housing Voucher program. In 1998 they were combined into a single program called the "Housing Choice Voucher" program. Feins et al. (1997a) present a summary of the evolutions of these programs and their differences.

A main reason for this significant change in HUD policy was not only the general trend toward streamlining the array of federal government-provided services but also HUD's preference for policies that promote the deconcentration of poor families. [2] Hence when HUD got feedback saying that many participating families seemed to be renting units in neighborhoods with high concentrations of families in poverty (Goering et al., 1995; Hartung and Henig, 1997; Husock, 2000; Pope, 1995; Turner, 1998), it became concerned. [3] As a result, HUD housing authorities recently have been adjusting Section 8 policies to advance poverty deconcentration. HUD believes that moving poor families into more affluent neighborhoods is likely to yield the families a better quality of life in the long run through more and better job oppor-

[2] While stated explicitly in the Housing and Community Development Act of 1974, which established the Section 8 program, an ever-increasing body of literature housing authorities reinforced the concept of deconcentrating poor families. The best-known components of this literature, which certainly started before Jencks and Mayer (1990), are the experiences of Chicago's HUD-funded Gautreaux Program (Popkin et al., 1993; Rosenbaum and Popkin, 1991).

[3] Goering et al. (1995) and Turner (1998) suggest that the ability of assisted households to move to better neighborhoods is significantly affected by their race and their lack of knowledge of alternative housing markets. Hartung and Henig (1997) surmise that increasing use of vouchers in suburban jurisdictions is likely due to the willingness of suburban communities to obtain and make available vouchers for their own low-income residents. There is also some evidence that suburban jurisdictions are delaying the voucher portability process to use up the search time of participating families (Sard, 2000; Tegeler et al., 1995). Cunningham et al. (1999) also found that not all housing authorities explain the portability feature of the voucher program to their clients. This is compounded by the perception of some landlords that a large amount of red tape and bureaucracy is involved in their side of voucher administration (Turner et al., 2000).

tunities as well as through a higher quality education for their children (Rosenbaum, 1995; Turner, 1998). [4]

Residents of poverty-concentrated neighborhoods are cognizant of the many advantages of better neighborhoods but are also painfully aware of obstacles to making a move there (Furstenberg et al., 1999). Hence, one avenue of change HUD has been pursuing for the Housing Choice Voucher program is an enhanced level of counseling and support services for participating families as suggested by Goering et al. (1995). The purpose of these services is to encourage Section 8 families to move to low-poverty neighborhoods, mostly in suburban areas (Feins et al., 1997b; Goering et al., 1999; Rosenbaum and Harris, 2001).

While HUD was undertaking demonstration programs on these services (see, e.g., Hanratty et al., 1998; Katz et al., 2001; Leventhal and Brooks-Gunn, 2001; Ludwig et al., 2001; Rosenbaum and Harris, 2001), it observed among Section 8 recipients high levels of mobility between housing authority jurisdictions in Alameda County, California, during the mid to late 1990s. Of most interest to HUD were those moves from inner-city Oakland and Berkeley to the suburban portion of the county, which was administered by the Housing Authority of the County of Alameda (HACA). Indeed, HUD learned that, due to a new voucher-portability feature of the Section 8 program, about a quarter of the program participants administered by the HACA originally had received their vouchers from the housing authorities in Oakland or Berkeley. For a thorough, case-study-based investigation of this HUD-sponsored investigation, see Varady and Walker (2000).

The current paper takes advantage of the relatively large number of observed moves in the Alameda data to identify factors that encourage residential mobility among Section 8 program participants. We are particularly interested in the factors influencing participants' decision to move from cities and into suburban jurisdictions, since these moves would be expected to further the objective of poverty deconcentration. As we show in the following section, while there is no exact precedent in the literature for this analysis, there is a body of work addressing intraurban mobility choices, as well as a key set of works examining the spatial choices of the urban poor. From these works we develop a model to test the effect of household and neighborhood characteristics on three choices: (1) to change neighborhoods, (2) to change jurisdiction, and (3) to move from city to suburb (of those with an initial city address).

In Section 3, we discuss the nature of the data available for the investigation, including its advantages and limitations. In Section 4, we present the results of logit and multinomial logit regressions that reflect the set of pos-

[4] In particular research by Brooks-Gunn et al. (1997), Ellen and Turner (1997), and Leventhal and Brooks-Gunn (2000) demonstrates that being raised in a neighborhood with a concentration of poverty tends to enhance ones propensity to drop out of school, give birth while a teen, and engage in illegal activities.

sible choices listed above and discuss the results of the analyses. The paper concludes with a summary and observations on the implications of the findings for policy prescriptions.

2. Toward a theory of the suburbanization of the poor

A rich literature on urban location theory and empirics has emerged within regional science and economics based on the classic Alonso–Wingo models (Alonso, 1964; Wingo, 1961) of monocentric urban form and bid-price location decisions that help to inform any theory of suburbanization. [5] Most of the literature, however, is concerned primarily with describing urban structure with reference to income and land rents, rather than modeling the micro-level behavior of households. Nonetheless, the central concept of an income "gradient" has potentially important implications for determining the residential choices of poor residents.

Meanwhile, the literature on intraurban residential location and the poor tends to focus on the utility gains from living in non-poor areas rather than on the move decision (Stoll, 1999; Wilson, 1996). A number of recent studies in particular have analyzed the impact of public programs that were designed to remove the deleterious effects of distressed neighborhoods as a barrier to social and economic improvement. Foremost among these are evaluations of Chicago's Gautreaux program, dating from the 1970s, which aimed to open up the relatively affluent, job-abundant suburbs to inner-city residents (Rosenbaum, 1995); and HUD's "Moving to Opportunity" demonstration projects in Baltimore, Boston, Chicago, Los Angeles, and New York (again, for examples see Hanratty et al., 1998; Katz et al., 2001; Leventhal and Brooks-Gunn, 2001; Ludwig et al., 2001; Rosenbaum and Harris, 2001).

Explicit analyses of intraurban mobility in a spatial choice framework developed somewhat later than the research inspired by Alonso and Wingo (Dietz, 1998; Freedman and Kern, 1997; McFadden and Quigley, 1997; Weinberg, 1979). Choice models specifically designed to address the behavior of racial or income subgroups were virtually absent until Gabriel and Rosenthal (1989). They estimate a multinomial logit model of intercounty mobility within the Washington, DC metropolitan area to test the effects of socioeconomic characteristics on residence choice, finding that these char-

[5] Muth (1969) brought this model to the fore in the housing literature. In his tome, Muth mentions Kain (1962) and Mohring (1961) as two others who deserve credit for transforming von Thünen's (1826) model to the modern urban setting. Although Lahr and Miller (2001) suggest that it is likely that all four authors — Alonso, Kain, Mohring, and Wingo — were informed by a line of research that was at least partially reported in early issues of the Journal of Regional Science and either authored or coauthored by Benjamin H. Stevens (Herbert and Stevens, 1960; Stevens, 1958; Stevens and Coughlin, 1959).

acteristics explain only a small part of the observed racial segregation in the area (see also Gramlich et al., 1992).

Gabriel and Rosenthal incorporate both human capital and life-cycle theories of migration to explain destination choice, thereby approaching intra-urban mobility with a perspective similar to that employed by interregional migration modellers. By increasing earnings capacity, higher levels of human capital translate into the ability to move to neighborhoods with more social and physical amenities, such as well-maintained parks, low crime, and good schools. Gabriel and Rosenthal proxy this human capital effect using both education and income.

The relative value of amenities, as well as the net benefits of moving, however, changes according to the life situation of migrants. The negative relationship between age and propensity to move is one of the most well-established findings in the broader migration literature (Greenwood, 1985; Schwartz, 1976). Older residents are more likely to be embedded in social networks, to be more "settled" than younger residents, and thus less likely to move. Other features associated with life cycle events also play a role both in the mobility decision and destination choice. Families with young children are more likely to seek out areas with good schools than are families without children, for instance. Married couples are compelled to make joint mobility decisions, reducing the propensity to move and increasing the value of neighborhoods with family-oriented amenities.

Finally, racial and ethnic discrimination constrain destination choices. Gabriel and Rosenthal demonstrate that Black and White movers with otherwise similar human capital and demographic attributes still tended to choose different locations. At least some of this tendency arises from the increasingly subtle but active discriminatory practices that can occur in real estate and financial markets.

In a series of articles published in the late 1990s, South and Crowder (1997a,b, 1998) develop a theoretical framework to explain intra-urban mobility choice with special reference to the poverty and racial/ethnic characteristics of the origin and destination neighborhoods. Especially relevant to our study, they apply this framework to the special case of spatial choice among female-headed households, which experience relatively high rates of poverty and public assistance use (South and Crowder, 1998). South and Crowder's model eschews the utility-maximization problem inherent in the assumptions of idealized urban form and full employment. Rather, they draw upon sociological theories of urban ecology and spatial assimilation in which residents choose a location based upon the interaction between personal and neighborhood attributes. Their most complete enunciation of this framework, for example, considers the factors influencing the decision to move between poor and non-poor neighborhoods (South and Crowder, 1997a).

This approach seems appropriate to the question under examination here, in which an unexpectedly large numbers of low-income residents in

Section 8 housing, many without stable employment, cross juridical boundaries. In this context, we adapt the framework of South and Crowder by delineating three broad sets of factors involved in movers' residential choice. Note that our discussion separates the selection of destination from the decision to move/not move per se.

As in Gabriel and Rosenthal's model, human capital and life-cycle factors exert a critical influence on neighborhood selection (Long, 1988). Residents sort themselves into the best neighborhoods possible given their income-generating ability and social status. Even among the relatively homogeneous subgroup residing in Section 8 housing, income differences may well be large enough to produce significant variation in the quality of housing and neighborhoods chosen by movers, with higher-income participants able to afford better housing and neighborhoods. Nonetheless, higher-income residents may be less likely to move if income proxies significant wage and salary earnings. Employed participants are, by definition, tied to a location-specific job, and must take the work location into account in the mobility decision calculus.

Among life-cycle factors, age may also proxy the importance of kinship and social networks among poor families. Strong networks help provide the material and emotional assistance needed to survive by many low-income residents, and the possibility of their dissolution is a deterrent to mobility (Hogan et al., 1990; South and Crowder, 1997a). The strength of networks (and thus the commitment to the current residence) may also be reflected in residential tenure, where a greater length of time in residence is associated with the development of local ties.

South and Crowder amplify other life-cycle-related factors from the earlier literature, drawing out distinctive implications for low-income families. Young parents may be deterred from moving by the prospects of disrupting their children's schooling and social ties, and low-income single mothers may also depend on social and familial networks for child care. Nonetheless, among movers, those with children are likely to place a higher value on good schools and safe streets, and are more likely to choose non-poor destinations (Long, 1988).

South and Crowder also parallel Gabriel and Rosenthal's emphasis on the structural constraints on access caused by racial and ethnic discrimination (South and Crowder, 1997a; South and Deane, 1993). The historical reality of American urban development has led to a pattern of relatively large concentrations of racial/ethnic minorities in inner city neighborhoods (many of which have high poverty rates and high rates of assisted housing) and majority-white populations in the suburbs. While legal overt discrimination has been abolished, the legacy of past discrimination continues to restrict locational choice. Thus, racial minorities will find movement from the inner city to the suburb more difficult than will whites, both because of lingering discriminatory real estate practices, and hesitance to move to areas with few residents of the same racial group.

The third class of forces governing residential mobility is the set of localized characteristics that differentiate neighborhoods from one another. The link between mobility and neighborhood characteristics has been explored in a number of studies, and to some degree parallels the findings that emerged from amenity-driven migration models in the larger regional literature (Boehm and Ihlanfeldt, 1986; Graves and Linneman, 1979; Linneman and Graves, 1983; South and Deane, 1993). Higher house prices will, of course, discourage low-income residents from remaining in particular neighborhoods, although these will be partially offset by the value of local amenities offered, such as higher school quality, low crime, and access to employment, shopping, and recreation — attributes often ascribed to the typical suburban neighborhood. Amenity-related characteristics are strongly associated with neighborhood income and poverty levels, which are themselves related to demographic features such as the relative frequencies of family size and composition, income, and poverty. Neighborhoods with relatively high concentrations of minorities are also statistically associated with lower amenity levels, but this relationship is much weaker once income is controlled, and its effect on mobility is therefore unclear. In general, then, demographic factors associated with a low level of amenities will tend to increase the chance of leaving the area of origin, and make an area less likely to be selected as a destination.

Finally, we place in this third set the availability of housing across the metropolitan area. South and Crowder (1997a) posit that mobility is stimulated by a higher general level of residential construction activity as well as by high vacancy rates. For our purposes, this insight implies that areas with relative high rates of new housing construction will tend to be more attractive than areas where the housing stock is older and more static.

To summarize our expectations, we view age and presence of children as having negative effects on the propensity to move within an urban area. Income's effect is ambiguous, since it enables households to consider superior alternatives to the current housing situation, but also may proxy employment. Minority and female-headship may work primarily through confining destination choices to areas with less robust employment markets, rather than through the mobility decision itself. Holding these individual characteristics constant, living in neighborhoods perceived to have lower amenities increases the likelihood of moving; however, we have no strong a priori arguments for the type of moves made vis a vis origin characteristics based on the reviewed literature.

3. The study dataset

The Berkeley Housing Authority (BHA), Oakland Housing Authority (OHA), and Housing Authority of the County of Alameda (HACA) col-

lect data on all clients on Form HUD 50058, Family Report. The data are collected for the purposes of determining and issuing the value of housing vouchers. The OHA and BHA data files, both of which are maintained by the OHA, are complete with information on both present and past clients. Old data are retained with each new lease generating a separate record. Thus, these files provide a historical record of significant administrative actions, as well as a veritable fountain of information on client addresses, incomes, family sizes, race, ethnicity, and so on. Thus some client's precise movement patterns can be traced over time. Moves into other housing authority jurisdictions also can be traced until the new housing authority adopts (more technically, "absorbs") the client as its own.

The HACA's files are more limited in scope, including records on present clients only. Further, unlike those files maintained by the OHA, the HACA does not maintain historical records of client moves. While these features had the potential to limit the capacity of the database composed of the files of the three housing authorities, most clients entering or exiting the HACA were contained in the files of the BHA and OHA. [6]

As is often the case when matching point addresses across multiple sources, identifying the records of a particular client over time was part science and part art. Social security numbers served as a main identifier but often names and addresses were needed as well. Quite often the addresses in the files were for numbers or streets that could not possibly exist or were strictly post office box numbers. As a result, zip codes and phone-number exchanges sometimes were the only reliable indicator of clients' residential locations. Since we were frequently faced with this reality during the address-matching process, our ability to follow a series of point-to-point moves of clients was severely constrained.

When selecting clients from the database, we picked those who were identified as housing voucher or certificate recipients only. Further, we traced them from when they were first identified as being part of these programs (although they conceivably could have been clients of one of the three housing authorities as early as 1976) through the spring of 1999 or whenever they left "the system" (the set of three files).

[6] Since data on only active clients were available from the HACA, we were not able to get follow-up information on families that ported into HACA from Oakland and Berkeley and then again ported out of the three Alameda County housing authorities entirely. That is, unless families moved back to Berkeley and Oakland from the HACA region, we were unable to track any further moves and socio-economic changes of families that formerly participated in the HACA. Moreover, after 1996 when the HACA began absorbing clients with portable vouchers, any moves within that jurisdiction could not be identified. Only the client's latest address was available. Hence, we were unable to verify whether or not a full quarter of the HACA's clients derived from Berkeley and Oakland as reported to HUD.

Table 1
General characterization of database and of observed ports by Public Housing Authority (PHA)

PHA area	First database		First address		First address of non-movers		First address untracked out-of-region movers		First address of missing tracking data		First address of movers		First address of ports	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Alameda County	4425	26.1	4231	25.0	3837	31.0	18	27.3	—	—	394	9.7	207	26.0
Berkeley	3097	18.3	2355	13.9	1925	15.5	13	19.7	—	—	430	10.5	157	15.9
Oakland	9429	55.6	8660	51.1	5492	44.3	33	50.0	—	—	3168	77.7	555	56.2
Other	—	—	1705	10.1	1134	9.2	2	3.0	489	100.0	85	2.1	69	7.0
Total	16,951		16,951		12,388		66		489		4077		988	

Table 1 displays some general characteristics of the combined database. The database contains a record for each of 16,951 client households. More than half of these records (55.6%) originated in Oakland's database; approximately a one-quarter (26.1%) originated in the HACA's database, and 18.3% originated in Berkeley's database. [7]

Because we focused on dispersion from inner-city neighborhoods we pared our operating data set for this study to those families whose record histories started in either Berkeley or Oakland. Indeed, records reveal that 74.7% (12,388) of all clients did not move from the census tract in which their address was initially recorded. Following Goodman (1985) we equate census tract to neighborhood. Thus, because this paper focuses on the motivations for dispersion of voucher-holding population from poor neighborhoods, moves within census tracts were deemed not relevant. Hence, families that did not move across census-tract boundaries are, within the context of this study, called "non-movers." [8]

Another 555 client families' records (3.3%) were not usable for the purposes of this study. This either was because we were unable to glean their census tract location from housing authority records or because they started in or moved outside of Alameda County and never returned if they moved out.

As a result, the remaining 24.1% (4077) of the clients recorded at least one address change that required a move across a census-tract boundary. Of the movers, 988 crossed housing authority boundaries; that is, clients that took advantage of the portability of the vouchers in the three main Alameda County housing authorities compose 5.8% of all clients in the database and 24.2% of all movers.

Oakland dominated as the jurisdiction of the reported starting residence for all movers with a 77.7% share (although only 56.2% of porters' starting addresses were in Oakland.) Indeed, while a full third of client families in Oakland moved, movers comprised only 13.9 and 8.9% of families reporting first addresses in Berkeley and the HACA, respectively.

Unlike the probability of moving across census tract boundaries, the likelihood of porting was similar across jurisdictions. Indeed, those taking

[7] The electronic housing authority records reveal that the municipalities in which the clients first resided do not necessarily correspond with the jurisdiction of the database in which their record originated. Clearly at least the HACA and "other" non-Alameda County housing authorities had significant numbers of Berkeley and Oakland clients living within their boundaries. Both the lack of match between originating housing authorities and the first recorded addresses for some clients and the fact that the first recorded addresses could be identified as "other" make it clear that some clients moved during the period that lapsed between their application for a housing voucher and the entry of their information into the database.

[8] Admittedly, we mostly opted for a less generous definition of "move" due to the problem of identifying a large number of client addresses.

Table 2
Characteristics of study client families by jurisdiction of initial address

	Berkeley Housing Authority					Oakland Housing Authority					Total				
	Non-movers	Movers	Intercity port	Suburban port	Total	Non-movers	Movers	Intercity port	Suburban port	Total	Non-movers	Movers	Intercity port	Suburban port	Total
N	1925	273	118	39	2.355	5492	2163	207	348	8660	7417	2886	325	387	11,015
Age of head of household in December 1999	49.1	47.4	46.2	42.6	48.6	51.7	45.5	44.0	44.2	49.3	51.2	45.7	44.8	44. 0	49.2
% Male head of household	27.9	28.6	18.6	18.0	27.3	24.1	17.0	16.9	14.1	21.4	25.1	18.1	17.5	14.5	22.7
Minority status of head of household															
% Black	72.0	75.5	90.7	82.1	73.5	78.7	87.8	87.9	79.0	81.7	76.9	86.6	88.9	79.3	79.9
% Hispanic	5.0	4.4	3.4	5.1	4.8	2.5	1.8	1.0	3.5	2.3	3.1	2.1	1.9	3.6	2.8
% Asian/ Pacific Islander	3.3	2.9	.9	2.6	3.1	12.2	7.2	1.0	12.4	10.4	9.9	6.8	.9	11.4	8.9
Client family size	2.2	2.3	2.5	2.7	2.2	2.6	2.9	2.7	3.1	2.7	2.5	2.9	2.6	3.0	2.6
# Of minors	.8	.8	1.0	1.3	.8	1.1	1.4	1.4	1.5	1.2	1.0	1.4	1.2	1.5	1.1
Years elapsed since family entered housing authority system	7.2	8.1	7.0	7.0	7.3	7.7	7.5	6.9	8.1	7.6	7.6	7.5	6.9	8.0	7.6
Average contract rent at last housing authority residence	$688	$717	$721	$782	$695	$706	$763	$720	$607	$719	$701	$758	$721	$625	$714
Housing authority share of rent	$417	$454	$401	$528	$422	$491	$549	$493	$581	$513	$472	$540	$459	$578	$493
Last annual income in housing authority records	$11,517	$11,010	$10,324	$10,711	$11,381	$11,924	$11,820	$11,828	$14,152	$11,953	$11,820	$11,744	$11,280	$13,681	$11,832

Table 2 (Continued)

Census tract characteristics by jurisdiction of initial address (weighted by number of client families)															
% Households headed by a female	18.8	18.6	19.4	19.9	18.8	25.0	25.9	25.5	24.5	25.2	23.4	25.2	23.3	24. 1	23.9
Minority/Ethnic composition															
% Black	45.5	44.8	51.2	47.4	45.7	56.8	58.0	62.0	53.6	57.1	53.8	56.8	58.0	53.0	54.7
% Ispanic	9.3	9.8	8.4	10.1	9.3	14.3	14.4	12.7	15.6	14.3	13.0	14.0	11.1	15.1	13.3
% Asian/Pacific Islander	10.7	10.9	9.4	9.9	10.6	14.7	13.9	12.1	15.0	14.4	13.7	13.6	11. 1	14.5	13.6
Median household income	$23,510	$23,726	$22,753	$23,448	$23,496	$22,239	$22,676	$22,267	$24,320	$22,455	$22,569	$22,775	$22,443	$24,232	$22,678
Median house value	$177,466	$172,836	$172,774	$163,304	$176,460	$127,321	$125,171	$122,077	$131,063	$126,698	$127,819	$125,763	$128,621	$124,799	$127,182

advantage of voucher portability as a share of first addresses ranged from 4.6% in the HACA to only 5.9% in Oakland.

But HUD is most interested in indicators of the dispersion of client families out of Berkeley and Oakland and into suburban Alameda County. Hence, including data on voucher portability out of the HACA or between Berkeley and Oakland is not of particular interest here. Table 2 displays, for Berkeley and Oakland only, the characteristics of the client households as well as the weighted average socioeconomic characteristics of the census tracts in which their initial address was located. A majority of client households in these two housing authorities was headed by women (77.3%) and was Black (79.9%). The average family size was 2.6 persons, of which 1.1 were minors, implying that a second adult was present in about half the families. On average, families entered into the housing authority system in 1991 and lived in shelter that cost $714 a month. Their average annual income was reported as $11,832.

Table 3 shows some characteristics of the potential attractiveness of Alameda County for Berkeley and Oakland residents. In particular in 1989 it had a poverty rate that was half of and a median income about 70% above its urban counterparts. Indeed, Varady and Walker (2000) cited the availability of convenient shopping, better schools, and better job opportunities — characteristics of higher-income locations — among the main reasons Section 8 clients in the area opted to suburbanize.

Hence, it is not surprising that the part of Alameda County south of the cities of Oakland and Berkeley and into which local housing authorities notified HUD that Section 8 families have been moving is suburban in flavor and more affluent. Further this is the part of the County that had been experiencing increases in population growth and housing construction activity during the study period. In the early 1990s, a reasonable supply of affordable housing existed in the southern part of Alameda County, but by the end of the decade it had been largely absorbed due to a widespread crisis in housing affordability in the San Francisco Bay Area (Varady and Walker, 2000). This occurred for two reasons: one, migration out of Southern Cali-

Table 3
Socioeconomic characteristics of the housing authority areas

	Berkeley	Oakland	Rest of Alameda County
% Households headed by a female	10.7%	18.5%	10.8%
% Black	18.8%	43.9%	7.1%
% Hispanic	8.4%	13.9%	19.5%
% Asian/Pacific Islander	14.8%	14.8%	20.8%
% Of population below poverty-level income	17.5%	18.8%	8.9%
Median household income	$28,737	$27,095	$48,609
Median home value	$261,000	$177,400	$246,849

fornia spurred by the relatively deep and long recession experienced there in the early 1990s and exacerbated by the scare of Northridge earthquake; and, two, the large increase in the number of high-paying jobs for young professionals that accumulated through demand pressures emanating from Silicon Valley. The two combined to make the housing market in the Bay Area among the tightest and least affordable in the 48 contiguous US states by the mid-1990s. Indeed, many suburbanizing Section 8 clients in the study area moved from a home and into apartment living situation.

In any case, due to the macro-nature of these economic forces, it seems likely that circumstances in participants' original neighborhoods — drug use, poverty, poor housing conditions, and violence (Varady and Walker, 2000) — rather than in their home jurisdictions forced low-income families to move. The socioeconomic indicators (listed in Table 2) for the census tract of their first address reveal that, compared with their non-moving counterparts, moving housing-authority client families tend to come from neighborhoods with higher proportions of female-headed households, higher proportions of Black residents, and both lower median household incomes and median home values. Indeed, a comparison with city and county demographics (Table 3) reveals that housing authority clients, in general, came from some of least desirable neighborhoods in the two cities.

4. The motivations for moving and porting

4.1. Moving

Did socioeconomic conditions improve for those who moved? When the socioeconomic characteristics of the origin neighborhoods are compared with those of the destination neighborhoods, the verdict is not that strong for the average of *all movers* (see Tables 4 and 5). Indeed, only marginal gains in median home values (4.5% improvement) and in median household incomes (6.3% improvement) are evident, while neighborhood minority and

Table 4
Characteristics of origins weighted by number of moving study households

	Berkeley	Oakland	Total
N	430	3168	3598
% Female-headed household	19.0%	25.7%	24.9%
% Black	46.8%	57.8%	56.4%
% Hispanic	9.4%	14.4%	14.8%
% Asian/Pacific Islander	10.4%	13.9%	13.4%
Median household income	$23,434	$22,829	$22,902
Median home value	$171,954	$125,616	$131,154

Table 5
Characteristics of destinations weighted by number of moving study households

	HACA	Berkeley	Oakland	Other Alameda Co.	Total
N	352	380	2825	40	3598
% Female-headed household	14.1%	19.2%	25.8%	10.5%	23.8%
% Black	10.8%	47.7%	58.1%	9.3%	51.8%
% Hispanic	18.8%	9.6%	14.8%	16.7%	14.7%
% Asian/Pacific Islander	14.6%	10.1%	13.1%	27.6%	13.1%
Median household income	$32,824	$23,334	$23,209	$41,285	$24,364
Median home value	$180,679	$170,656	$125,990	$214,438	$137,054

female household composition declined marginally. Not shown here is that apparent average neighborhood gains by *porting families* were even less distinct. Since, on average, the movers' destination neighborhoods do not appear to be greatly different than their original neighborhoods, the motivation to move would seem then to depend primarily on the characteristics of the family, which, as was noted earlier, point to a somewhat more dire situation than do the characteristics of non-moving housing authority families.

Based upon the discussion in Section 2 and the data available on the population of participants through the three housing authorities in Alameda County, California, we apply three sets of variables to our analysis: characteristics of the household and its housing; characteristics of the neighborhood of origin; and a binary variable identifying clients with starting addresses in Oakland. This last variable, which we did not discuss in Section 2, is designed to capture other characteristics of the jurisdictions that cannot be explained by characteristics of participating families or of their neighborhoods of origin.

In the course of the analysis that follows, we model a set of binary behavioral choices selected by client households: to move or not move; to take advantage of the voucher's portability or not when opting to moving; and finally we focus upon suburban portability of vouchers and therefore limit the analysis to moves originating from the Berkeley and Oakland housing authorities. We use both logit and multinomial logit approaches. [9]

From the literature reviewed in Section 2, it is easy to infer that a low-income family's search for housing will be especially constrained by its income, its limited access to information networks, and for many, the barriers of social, ethnic, and racial discrimination. It was therefore surprising in Table 2 to find that, compared with non-moving housing authority clients in the same

[9] We used version 7 of Stata to perform the statistical work, and recommend its reference manuals for more details on technical formulation.

area, movers, and porters have heads of household that are more likely to be female and characterize themselves as being Black.

A more thorough statistical analysis (see Table 6) generally corroborates the findings described in the previous section for movers. Nevertheless, it reveals that the *neighborhood* of origin by housing authority does not tend to matter and rather that the *jurisdiction* of origin does. This is contrary to our general hypothesis given the tight housing market during the latter part of the study period. Indeed, given similar socioeconomic characteristics, families from Oakland were far more likely to move than were families from Berkeley, the default in Table 6. The odds of families with the same characteristics moving from the jurisdiction of the two focus housing authorities are estimated to be 2.3: 1.0 (Oakland: Berkeley). This means that, all else being equal, families from Oakland are somewhat more than twice as likely to move than are families from Berkeley.

Table 6
Characteristics of all movers compared with characteristics of non-movers: logit

	Estimate	Standard error	Significance (two-tailed)	Odds ratio
Intercept	−.512784	.3387466	.130	—
Characteristics of household				
Age of head of household in December 1999	−.0292908	.0019523	.000	.971134
Male head of household	−.0003367	.0005932	.570	.9996634
Minority status of head of household				
Black	.004047	.0008978	.000	1.004055
Hispanic	−.0003905	.0015538	.802	.9996095
Asian/Pacific Islander	−.0021685	.0012467	.082	.9978338
Client family size	.0321507	.0324989	.323	1.032673
# Of minors	.0380516	.0361151	.292	1.038785
Years elapsed since family entered housing authority system	.0407838	.005865	.000	1.041627
Last annual income in housing authority records	−.0000111	3.20e − 06	.001	.9999889
Characteristics of first neighborhood				
% Households headed by a female	.0035977	.0042277	.395	1.003604
Ethnic/racial composition				
% Black	−.0033595	.0028993	.247	.9966461
% Hispanic	−.0023555	.0033908	.487	.9976472
% Asian/Pacific Islander	−.0003887	.0033986	.909	.9996114
Median household income	.0000102	4.36e − 06	.020	1.00001
Median house value	−1.47e − 06	9.48e − 07	.120	.9999985
Originating jurisdiction				
Oakland	.8430202	.0696619	.000	2.323373

Log likelihood = −6292.8165; Pseudo R^2 = .0588; N = 10, 594.

Hence, although the characteristics of the neighborhood of origin may have had some bearing on the propensity of a housing authority family to move, [10] characteristics of the housing authority jurisdiction of origin seem to hold a surprising amount of influence. While our analysis cannot identify what it was about Oakland or its clients that induced this propensity, it could well be caused by administrative differences between the two housing authorities. For example, when counseling on housing search technique, the OHA suggested that client families supplement its lists of landlords with walks around desired neighborhoods and looks at postings in laundromats and grocery stores (Varady and Walker, 2000), a practice not reported by the BHA.

Indeed, the influence of jurisdiction outweighs most household characteristics. One also can derive from the coefficients in Table 6 the odds of moving based on a unit increase in each family characteristic. For example, the odds of moving for a Black family as opposed to that for a non-Hispanic, non-Asian, non-Black family are 1.004:1, thus being Black seemed to enhance a client's chances of moving by a little more than .4%. Other than being Black, the three family characteristics most influencing moves were age of the head of household, the amount of time that the family had been enrolled in a housing authority in the Alameda County system, and the last-recorded income level of the family. Having a household head that was a year older decreased the odds of moving by about 2.9% (the odds were. 971:1). This comports with the negative relationship between age and mobility found elsewhere in the literature and discussed in Section 2. Being in the housing authority system a relatively long period more than counteracted the negative effects of householder's age: each year in the system increased families' likelihood of moving by 4.2% (the odds were 1.042:1). Including the age effect, these results mean a real net increase of 1.3% in a family's probability of moving for each year in the system. This result could be related to the age of the children (especially with respect to schooling); however, no measure of child age was available in the data set used. Then again, this result could also indicate client familiarity with the system, which better enabled them to tap into housing authority resources. One thousand dollars of extra income for a family appear to have made a move less likely by almost a percentage point. This finding may indicate a level of satisfaction among poor peers that is associated with a more stable income level. Because we were unable to include employment-related variables in the

[10] One neighborhood effect was statistically significant but not large. That is, being from a neighborhood with a relatively high median household income made a family more likely to move — an income that was $1000 higher than the average family in the sample gave that family a propensity to move that was one percentage point higher than that of the average. This would imply that families were moving from higher income neighborhoods, possibly to leave rising rents in these tighter submarkets.

model, we believe that higher incomes may also indicate a greater likelihood of employment. As indicated in Section 2, holding a job constrains residential choice and discourages moves.

A multinomial logit analysis of the same population (see Table 7) reveals that there were differential motivations across the three types of movers. In particular, the jurisdictional effect of Oakland was by far the strongest for *intracity* moves. In fact, being from Oakland had a strong net negative effect on the propensity of client families to commit to *intercity* moves. Instead while the influences of neighborhood characteristics appear to have been non-influential on intracity move decisions, Table 7 shows that they may weigh in heavily on the use of voucher portability, especially to the county's suburbs. Among household characteristics, age exhibits increasingly negative effects across the three mobility choices, meaning that older residents are less likely to move than younger residents, but even less likely to suburbanize. Similar, residents with higher incomes are even less likely to switch between Berkeley and Oakland than to move within their jurisdictions, although higher income also makes households more likely to suburbanize compared with not moving at all. In general, however, the correspondence of age and income with lack of mobility supports the notion that these attributes tend to tie residents to a particular location, whether through employment or social network attachments.

Black households were more likely to move within jurisdictions than were non-Hispanic White families but no more likely to cross jurisdictions. Asians and Pacific Islanders, on the other hand, were more likely to cross jurisdictions but not to move within jurisdictions or to suburbanize to Alameda. Finally, those who had spent more time in the housing authority were more likely to move within jurisdictions or to suburbanize, but not to cross to another urban jurisdiction. Without additional information on the characteristics of participants, neighborhoods, and jurisdictions, the observed patterns cannot be readily explained. For instance, the observed patterns for Asians and Blacks may indicate distinctive demographic distributions across neighborhoods in Berkeley, Oakland, and Alameda that cannot be captured with the instruments available to us in this data set.

4.2. Porting

Given that housing authority families moved, what characteristics of their neighborhood or family propelled them to port (i.e., to make an interjurisdictional move) rather than just move within a city's boundaries? Information on neighborhood characteristics (Table 2) reveals that intercity porters tended to come from generally similar neighborhood circumstances when compared to non-porting movers. Families applying voucher portability to suburban housing authority jurisdictions were in slightly better situations. Hence while neighborhood characteristics seem unlikely to be a part

Table 7
Characteristics of non-port moves, intercity ports, and suburban ports contrasted against non-movers: multinomial logit

	Non-port moves			Intercity Port			Suburban Ports		
	Coefficient	Std. error	Signif.	Coefficient	Std. error	Signif.	Coefficient	Std. error	Signif.
Intercept	−1.12642	.37524	.002	−1.296313	.8630448	.133	−1.313757	.9357904	.160
Characteristics of household									
Age of head of household in December 1999	−.02779	.00208	.000	−.0300291	.0053631	.000	−.044556	.0063345	.000
Male head of household	−.00017	.00064	.789	.000312	.0016156	.847	−.0031729	.001888	.093
Minority status of head of household									
Black	.00438	.00099	.000	.0023639	.002142	.270	.0035414	.0027072	.191
Hispanic	−.00033	.00171	.848	−.0045556	.0044883	.310	.0034143	.0038649	.377
Asian/Pacific Islander	−.00215	.00135	.113	−.0206765	.0062867	.001	.0057958	.0033731	.086
Client family size	.05822	.03455	.092	−.0417969	.0974721	.668	−.1146231	.0939759	.223
# Of minors	.01788	.03836	.641	.101457	.1058353	.338	.1534275	.1031651	.137
Years elapsed since family entered housing authority system	.04135	.00630	.000	.0118458	.0158062	.454	.0778134	.0168841	.000
Last annual income in housing authority records	−.0000147	.00000035	.000	−.0000154	8.94e − 06	.084	.0000183	7.33e − 06	.013
Characteristics of first neighborhood									
% Households headed by a female	.006968	.00447	.119	−.0309073	.0120997	.011	.0050419	.0130699	.700
Minority/Ethnic composition									
% Black	−.0044558	.0031869	.162	.0133159	.0070351	.058	−.0175085	.0079737	.028
% Hispanic	−.002655	.0036765	.470	−.002379	.009447	.801	−.009809	.0091506	.284
% Asian/Pacific Islander	−.0005119	.0036422	.888	.0062127	.0100023	.535	−.012272	.0096684	.204
Median household income	7.40e − 06	4.63e − 06	.110	6.67e − 06	.0000124	.585	.0000476	.0000126	.000
Median house value	−1.00e − 06	1.03e − 06	.330	−1.92e − 06	2.47e − 06	.438	−8.53e − 06	2.88e − 06	.003
Originating jurisdiction									
Oakland	1.1733	.081028	.000	−.5120864	.1505534	.001	.4407749	.2024661	.029

Log likelihood = −8184.5507; Pseudo R^2 = .0607; N = 10,594.

of the recipe that induces an intercity port per se, they may well affect the decision to suburbanize. Again to control for the myriad factors simultaneously, the same multinomial logit was performed but contrasting against non-port movers rather than non-movers (see Table 8). This enabled us to distill the main influences distinguishing motivations for ports from non-port moves within the framework used in Table 7.

The results displayed in Table 8 confirm our initial speculations based either on the general characteristics of porting families in Table 2 or on the last two contrasts in Table 7. For one, given that they opt to move, it is clear being from Oakland makes a family far less likely to port, with a relative risk ratio of .185:1.0 for intercity ports and .481:1.0 ratio for suburban ports. (It was noted in the last subsection that families from Oakland had a higher propensity to move.)

As mentioned earlier, several neighborhood variables emerged as significantly influencing the decision to port. According to Table 8, the variables differed depending on the type of port that was undertaken. Given that they have decided to move, families were more likely to move between Berkeley and Oakland when their neighborhoods had relatively low proportions of households that were headed by women or that were disproportionately Black. The effect of the neighborhood's share of female-headed households was slightly more than twice the magnitude of the tract's proportion of Black families. No other neighborhood characteristics were significant factors in intercity moves.

Minority status and female headship, however, appear to have no influence on suburban porting. Such moves, instead, appear to have been motivated by relatively high median incomes in the initial neighborhood, which were dampened slightly by area median home values. This could imply that displacement through gentrification possibly motivated these moves. Indeed, a survey of 134 suburban-bound porting families by Varady and Walker (2000) reveals that 83.3% moved to housing conditions that were perceived to be worse than in their original neighborhoods. Nonetheless, the same survey revealed that few (6.0%) of these same suburban-bound households reported that their prior housing was not affordable.

Among household characteristics, given that the decision to move had been made, family income had no significant influence on making an intercity port. In fact only identifying as an Asian minority and time in the housing authority system had any effect on intercity ports, beyond those involved in the decision to move, and both tendered a negative effect. Thus given that they were moving, Asians and long-term housing authority families were less likely to make intercity moves.

Part of this response probably is caused by the countervailing propensity of households with these two traits to make suburban ports. Given that they had decided to move, families also were more likely to choose suburban ports if they had higher incomes. A possible interpretation of this outcome

Table 8
Characteristics of intercity ports and suburban ports contrasted against non-port moves and of intercity ports compared to suburban ports: multinomial logit

	Intercity to non-port contrast			Suburban to non-port contrast			Suburban to intercity contrast		
	Coefficient	Std. error	Signif.	Coefficient	Std. error	Signif.	Coefficient	Std. error	Signif.
Intercept	−.1698907	.9024501	.851	−.1873344	.966902	.846	−.0174437	1.245301	.989
Characteristics of household									
Age of head of household in December 1999	−.0022414	.0055698	.687	−.0167683	.0064759	.010	−.0145269	.0081658	.075
% Male head of household	.0004826	.0016805	.774	−.0030023	.0019353	.121	−.0034849	.0024478	.155
Minority status of head of household									
% Black	−.0020206	.0022862	.377	−.0008432	.0028053	.764	.0011774	.0033983	.729
% Hispanic	−.0042281	.0046814	.366	.0037418	.00405	.356	.0079699	.005822	.171
% Asian/Pacific Islander	−.0185266	.0063722	.004	.0079458	.0035127	.024	.0264724	.0070814	.000
Client family size	−.1000197	.1000565	.317	−.1728458	.0963019	.073	−.0728262	.1329063	.584
# Of minors	.0835811	.1086336	.442	.1355516	.1055851	.199	.0519705	.1448637	.720
Years elapsed since family entered housing authority system	−.0295082	.0164044	.072	.0364594	.0173132	.035	.0659676	.0226635	.004
Last annual income in housing authority records	−7.79e − 07	9.24e − 06	.933	.0000329	7.66e − 06	.000	.0000337	.0000113	.003
Characteristics of first neighborhood									
% Households headed by a female	−.0378753	.0124065	.002	−.0019261	.0133126	.885	.0359492	.0174408	.039
Minority/Ethnic composition									
% Black	.0177717	.0074027	.016	−.0130528	.0082355	.113	−.0308245	.0103953	.003
% Hispanic	.000276	.0097741	.977	−.007154	.0094347	.448	−.00743	.0128707	.564
% Asian/Pacific Islander	.0067246	.0102782	.513	−.0117601	.0099198	.236	−.0184848	.0136364	.175
Median household income	−6.41e − 07	.0000127	.960	.0000402	.0000128	.002	.0000409	.0000173	.018
Median house value	−9.19e − 07	2.58e − 06	.721	−7.53e − 06	2.95e − 06	.011	−6.61e − 06	3.72e − 06	.076
Originating jurisdiction									
Oakland	−1.685386	.1634156	.000	−.7325249	.2115963	.001	.9528613	.2473164	.000

Log likelihood = −8184.5507; Pseudo $R^2 = .0607$; $N = 10{,}594$.

given the link between income and employment is that, among families who are not tied to a current job, suburban locations are more likely to yield employment opportunities. In addition, families with higher incomes are more likely to own a car, which makes suburban living more feasible.

5. Conclusions

South and Crowder (1998) analyzed the mobility behavior of 1299 urban single mothers between 1979 and 1985, nearly one-third of whom were receiving payments from the Aid to Families with Dependent Children (AFDC) program at the beginning of the potential mobility period (measured in person-years). Of the single mothers originally in poor neighborhoods, an average of 16% moved to another poor neighborhood during any one-year period, while 12% moved to non-poor neighborhoods. For single mothers in non-poor neighborhoods, the corresponding shares were 5 and 21%. In both cases, the frequency of moves across neighborhood boundaries was only slightly lower than that within our Section 8 housing sample for Alameda County, California, across several years. The majority of cross-boundary movers from poor neighborhoods — 58% — ended up in other poor neighborhoods. This is certainly is a heavier flow than our finding for a slightly longer period where 46.7% (325 of 712 families in Table 2) ported between Oakland and Berkeley. Outside of noting that both groups receive low amounts of income, however, comparing AFDC recipients to voucher recipients is akin to comparing apples and oranges.

Which groups of housing authority families could benefit most from counseling during their housing search? If a main goal of the voucher program, indeed, is to deconcentrate poor families, additional program counseling should be targeted Berkeley and Oakland Housing Authority families in neighborhoods with low average home values, particularly larger Black and Hispanic minority families. [11] Admittedly, this particular policy relevant finding is not new.

Another finding that we gleaned was that gentrification may have motivated the deconcentration of poor families. While displacement of the poor through gentrification is neither a new policy nor politically palatable in most jurisdictions (Schill and Nathan, 1983), the improvement of neighborhoods

[11] Indeed, Varady and Walker (2000) note that of the 138 respondents within this same study population only 59% knew they could use their Section 8 voucher or certificate to move out of their present housing authority jurisdiction. In fact, "clients are not given any specific counseling about portability in briefing sessions, nor is portability promoted as an option that provides an opportunity to move to areas offering more advantages" (Varady and Walker, 2000, p. 73). This is despite the fact that administrators in the Oakland Housing Authority report that voucher portability is "common knowledge" (p. 71).

and individual homes typically is an objective of cities. Thus, suburbanization of the poor can be an unintended consequence of urban revitalization efforts, which since the 1960s in general have been independent of any direct federal actions.

Our research results also provide some new insights. We found that while families with somewhat higher incomes were less likely to move they were more likely to take advantage of voucher portability and applied it toward a goal of suburbanizing. In a population of Section 8 voucher recipients, income is as much a general indicator of employment as it is of the relative ability of a family to purchase a quantity of housing. Thus, being employed has the tendency to fix poorer households within familiar terrain where social supports tend to be more readily available through a network friends and extended family. On the other hand, jobs typically are more abundant in the suburbs, which make them more appealing as possible residential locations. Poor families typically live closer to their work place since the cost of transportation in terms of time or money can serve as an employment barrier. But the cost of living for poor families is often higher in the suburbs than in cities due to the less compact form of suburban living, which often requires automobile use, and the higher demand and consequently higher cost for housing there.

Therefore while its professional counseling services and the portable vouchers have reduced the friction that poor families traditionally have met when considering a move, the Section 8 program remains severely limited in its ability to induce the deconcentration of its clients. More must be done in order for HUD to be more effective in meeting this goal. In fact, our findings suggest that to promote suburbanization of the poor, the services of this program should be combined with those more resembling state-based TANF (Temporary Assistance for Needy Families) programs, many of which provide extensive employment counseling and child care services as well as some transportation assistance.

It also would appear from a comparison of Tables 4 and 5 that those families who started out with a Berkeley or Oakland address and who later moved out of those two cities improved their neighborhood quality as defined by the median house value and median household incomes in their new neighborhood. Thus while this study is able to point to some reasons why Section 8 families in the County of Alameda, California, used the portability of vouchers, it is clear that other reasons exist, as the extensive movement of Oakland Section 8 program participants suggests. Some of these, as mentioned by Varady and Walker (2000), are related to the administrative capacity of and cooperation among the local housing authorities. In this regard, it will be interesting to learn from the experiences of the Moving-to-Opportunity Demonstration Program.

While we strictly relied on information on neighborhood origins in this paper, some information on destination neighborhoods are also available in the

data set that we developed from housing authority records. The availability of such data makes the possibility of nested logit analysis, where participants' destination selections are conditioned on characteristics of those neighborhoods as well as those of others likely candidate neighborhoods within the three housing authorities in our study. Thus in the future we hope to produce a model of migration decisions of Section 8 program participants in Alameda County that would parallel those presented by Ma and Liaw (1997) and Hunt (2000).

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