JOURNAL OF URBAN ECONOMICS 34, 230–248 (1993)

Family Networks and Youth Access to Jobs*

KATHERINE M. O'REGAN

Yale School of Organization and Management, Box 1A, Yale Station, New Haven, Connecticut 06520

AND

JOHN M. QUIGLEY

Department of Economics and Graduate School of Public Policy, University of California, Berkeley, California 94720

Received April 13, 1992; revised December 22, 1992

Some networks may be more useful than others in affecting labor market outcomes. In particular, social contacts who are employed may be more useful in job referral than those who are not employed. Also, social networks containing nonminority workers or male workers may have better and more extensive labor market contacts. This paper considers indirect evidence of the importance of job access via networks for the employment of urban youth. We measure the extent to which probabilities of employment and industry affiliation for urban youth are related to proxies for their access to informal networks. Proxies for labor market contacts include the labor market circumstances of other household members—mothers, fathers, and siblings—key members of a youth's social network. The empirical analysis is based upon 1980 PUMS data with more than 55,000 observations on at-home youth in the 47 largest U.S. metropolitan areas. The large sample permits us to test for differences across race and sex of youth and parent in determining youth labor market outcomes. Our results support the importance of family networks in facilitating youth access to jobs. We also find some evidence that male parents are more important in affecting youth employment. These effects vary by race and are more important for whites. © 1993 Academic Press, Inc.

I. INTRODUCTION

It is by now widely acknowledged that accessibility has important effects on the probability of employment for urban workers, as well as the

*This is a radically revised and extended version of a paper (O'Regan and Quigley [19]) prepared for the special Conference in Honor of Edwin S. Mills, Evanston, IL, April 10–12, 1992. Support for this research has been provided by the U.S. Department of Transportation, the Transportation Center, and the Center for Real Estate and Urban Economics at the University of California, Berkeley. We are grateful to Therese McGuire for extensive comments and suggestions on the original paper.

0094-1190/93 $5.00
Copyright © 1993 by Academic Press, Inc.
All rights of reproduction in any form reserved.

occupation or industry of employment, and the location of that employment. In this, the notion of employment access has several different dimensions. Until recently, the principal dimension of access analyzed by economists has been physical or spatial in nature.[1] Urban residents living in areas isolated form job concentrations have been found to have lower employment probabilities and different patterns of occupational and industrial affiliations than those better served by transportation networks and those less physically remote from employment concentrations.[2]

More recently, it has been recognized that social access may be as important as physical access in conditioning labor market outcomes, particularly in low-wage labor markets. Social access to employment includes the networks of informal informational contracts available to potential workers, networks which may assist them in learning about available job openings, and employment opportunities. Direct observation of job search strategies indicates, for example, that a large percentage of job seekers obtain information on specific jobs from friends and relatives, as contrasted with information obtained from formal announcements or employment agencies (see, for example, Holzer [10]). It appears that about half of all jobs are obtained through contacts (Rees and Shultze [22], Granovetter [8], Corcoran *et al.* [5]). Moreover, jobs obtained informally are generally associated with higher earnings and more prestigious occupations (Granovetter [8], Bridges and Villemez [2], Staiger [23]).

The importance of social networks in affecting access to employment immediately suggests that some networks may be far more useful than others in conditioning labor market outcomes.[3] Networks which include more employed members may be pressured to be more effective in locating available jobs. Thus job searchers in networks with low employment rates may be further disadvantaged (Montgomery [16], O'Regan [17]).

It is also likely that employed social contacts differ in their knowledge of, and influence over, the hiring decisions of firms. Whites and males may be more useful in providing knowledge or more authoritative in providing references than are minorities or women. Empirical work has shown that more men than women obtain jobs through contacts (Corcoran *et al.* [5],

[1]In previous work, we sought to expand the definition of access to include "social access," but did not consider the role of family networks. (O'Regan and Quigley [18].)

[2]The classic papers reporting these phenomena and analyzing their causal factors include Kain [12], Price and Mills [21], and Ellwood [6]. More recent work includes Ihlanfeldt and Sjoquist [11]. Holzer [9] provides a concise review of much of this literature.

[3]For example, Granovetter [8] found that 71% of those who found their jobs through personal referrals were employed at the same firm as the individual who provided the referral.

Montgomery [15]), and blacks appear to be less successful than whites in using contacts to obtain employment (Rees and Shultze [22], Holzer [10]).

The interactions between these two dimensions of labor market access (employment status and demographic composition) reinforce the importance of the spatial aspects of urban labor markets, so emphasized in the work of Edwin Mills [14]. The development of social contacts is conditioned by spatial structure and transport opportunities. Many informal contacts arise in a spatially limited area, through institutions whose members live in geographic proximity—schools, neighborhood organizations, day-care centers, and the like. Given the limited mobility of youth, geography may have its greatest impact on youths' networks. In addition, the networks of lower-income people have been shown to be more spatially limited (Fischer [7]), suggesting that social networks for youth in low-income households may be particularly limited by geography and space.

In a detailed study of middle class adolescents—students in the seventh through tenth grade—neighborhood residents were found to dominate the youths' networks (Blyth *et al.* [3]). Of the non-related individuals named as network members, more than half lived in the same neighborhood as the youth. A separate study which focused on black adolescent youth also found proximity to be very important in black youth networks (Coates [4]).

In the classic "choice-constraint" description of the formation of networks, individuals are presumed to create their networks by selecting members from a limited pool of contacts (Fischer [7]). To the extent that the pool of contacts is residence-based, location theory suggests that networks will be more homogeneous in demographic character. Spatial segregation by income, race, and social class will exacerbate the "inbreeding" noted by observers of social networks—social contacts tend to be segregated by race, ethnicity, sex, and income. Recent increases in the concentration of urban poverty have only heightened this segregation. Low-income and minority youth are likely to be members of networks which include a disproportionate fraction of minority, low-income, or unemployed persons, the least effective networks for labor market success.

This paper provides a detailed examination of labor market outcomes for urban youth located in the largest U.S. metropolitan areas. We observe labor market outcomes by sex and by racial or ethnic group for some 55,000 youth living at home and residing in the 47 largest metropolitan areas (MSAs). We use this rich body of data, available in the 1980 Public Use Micro Sample (PUMS Sample B), to conduct a variety of indirect tests of the differential impact of networks on outcomes. Specifically, we consider the networks provided to these at-home youth by other family members—mothers, fathers, and siblings. We note variations in labor

market outcomes—employment and industry affiliation—separately for white, black, and hispanic youth by sex.

The results are strongly supportive of the importance of social access in affecting labor market outcomes. Even controlling for MSA-wide influences, youth are far more likely to be employed if parents or siblings are employed. They are far more likely to have the same industrial affiliation as their parents, and, as noted in our previous paper (O'Regan and Quigley [19]), they are also far more likely to be employed in the same part of the metropolitan area as their parents. These associations vary by racial and ethnic group and by the sex of the parent and the offspring. The results of these indirect tests strongly suggest that some youth are at a distinct disadvantage in the labor market due to the character of their social networks. The greatest disadvantage may be a consequence of the lower employment rate of family members of minority youth.

II. TESTS

The basic expectation is that youth with "better" networks will fare better in the labor market. A specific prediction is that youth whose networks include employed parents and siblings have greater access to jobs; they are more likely to be employed themselves. We rely on information about family members for two purposes. First, family members are consistently reported to be important members of youths' social networks (Blyth *et al.* [3]). Moreover, parents play a particularly crucial role in the social networks of their own children; youth networks have been found to be similar to those of their parents in composition and structure (Tietjen [24], Oliveri and Reiss [20]). In terms of job search behavior, parents are likely to be the first people youth consult when looking for work.

Second, the homogeneity noted within networks means that the attributes of family members are representative of the attributes of an entire network.[4] Thus to the extent that the employment conditions of parents and siblings are correlated with that of other members of the youth's network, they serve as proxies for the larger social environment.

A. Youth Employment

We test for network effects by relating the probability of youth employment to the employment status of parents and siblings. For all at-home youth reported in the 1980 U.S. Census Public Use Micro Sample, aged 16 to 19 years and residing in the 47 largest MSAs, we estimate logit models relating youth employment probabilities to individual and household char-

[4]See Marsden [13] and Belle [1] for reviews and Corcoran *et al.* [5] for recent evidence on the similarity of racial segregation in youth networks with segregation in their parents' networks.

acteristics, metropolitan economic conditions, and these measures of information access. Specifically, the logit models include variables measuring the race, sex, and schooling levels of the youth, household income (net of youth's earnings), and head parent's education. We also include a binary variable indicating female-headed families and another representing residential location in the central city of the metropolitan area. We control for local labor market conditions by including the metropolitan-wide unemployment rate for white adults.[5] As a control for the job opportunities specific to the youth, we include a dummy variable indicating current school enrollment and a set of dummy variables representing the youth's industrial affiliation. A complete description of these variables is noted in Appendix Table A1.

Column 2 of Table 1 reports the coefficients of the logit model estimated using individual observations on some 55,000 at-home youth. Youth employment probabilities vary significantly with the age, education, and residential location of the youth and with the socioeconomic characteristics of the household. Employment probabilities are also significantly lower in metropolitan areas with higher aggregate unemployment rates.

Employment outcomes vary significantly by race and ethnicity, but ceteris paribus, there is no difference in employment probabilities for male and female youth.

The measure of information access in Model I of Table 1 is the variable indicating whether the household contains a working parent. The coefficient of this variable is significant, positive, and large. If a youth lives in a household in which a parent is working, she is more likely to be employed herself. In the absence of a working parent in the home, the average youth employment rate is 37.8%; if there is a working parent at home, the probability increases by 5.9 percentage points (or 15.6%) to 43.7%.

Model II reports an analogous logit model in which access is proxied by the presence of employed siblings in the household. This model is estimated using the subset of 32,000 youth who have siblings of working age, 16 to 19 years old, also living in the home. Again, we find that the presence of an employed family member in the household has a significant positive effect on the probability that a youth herself will be employed.

Table 2 summarizes an extensive series of tests of the relative importance of parental employment on youth labor market outcomes—disaggregated by race and by the sex of both parents and youth. The table reports the coefficients of the variable indicating parental employment in logit models predicting youth employment, using the same sample of at-home youth. It summarizes eight different specifications of the effect of

[5]Several versions of adult employment rates were used, all with the same results. The unemployment rate for white adults had slightly greater predictive power.

TABLE 1
Logit Models of Employment Probabilities for At-Home Youth[a]
(t Ratios in Parentheses)

Variable	Model I	Model II
Sex	0.016	0.045
(1 = female)	(0.71)	(1.44)
Residence	−0.073	−0.095
(1 = central city)	(2.81)	(2.76)
Age	0.082	0.090
(years)	(5.55)	(4.61)
Education	0.155	0.167
(years)	(13.88)	(11.30)
In-school	−0.534	−0.552
(1 = yes)	(17.67)	(14.22)
Female-headed household	−0.139	−0.282
(1 = yes)	(4.19)	(6.53)
Education of head parent	−0.030	−0.017
	(7.96)	(3.38)
Family income	−0.004	−0.007
(thousands of dollars)	(4.61)	(6.57)
MSA unemployment rate	−0.058	−0.060
(adult, white workers)	(6.37)	(5.00)
Race	−0.675	−0.695
(1 = black)	(17.93)	(14.59)
Ethnicity	−0.194	−0.275
(1 = hispanic)	(4.43)	(4.90)
Either parent working	0.394	
(1 = yes)	(9.22)	
Sibling working		0.365
(1 = yes)		(17.69)
Intercept	−5.497	−5.586
	(23.84)	(18.45)
Log likelihood	23,940.95	13,687.11
Number of observations	55,411	32,124

[a]Logit models also include 10 variables indicating the industrial affiliation of the youth and 3 regional dummy variables.

parental employment on labor market outcomes for youth. Each of the eight logit models includes all of the control variables noted in Table 1 and defined in Appendix Table A1.

Table 2A compares the coefficient estimate for the variable indicating parental employment with separate coefficients reflecting the employment of mothers and fathers. Table 2B presents separate coefficients for parental employment by youth's race and sex of the parent. Table 2C presents separate coefficients for parental employment by the sex of both youth and parents. Table 2D presents the complete disaggregation.

TABLE 2
Coefficients from Logit Model Indicating the Effect of Parental Employment upon Youth Employment Probabilities by Race and Sex[a]
(Sample Size Includes 55,411 At-Home Youth)

	Log likelihood	Working parent	Log likelihood	Working father	Working mother
A. All youth	23,940.95	0.394	23,920.42	0.339	0.198
		(9.22)		(7.26)	(8.50)
B. Youth by race	23,940.94		23,918.76		
White		0.398		0.320	0.206
		(7.31)		(6.53)	(7.84)
Black		0.386		0.422	0.176
		(4.96)		(5.54)	(2.74)
Hispanic		0.386		0.374	0.127
		(3.73)		(4.19)	(1.64)
C. Youth by sex	23,940.69		23,916.16		
Male		0.367		0.337	0.137
		(6.53)		(6.44)	(4.40)
Female		0.424		0.342	0.271
		(7.12)		(6.29)	(7.92)
D. Youth by race and sex	23,938.25		23,910.99		
Male youth					
White		0.365		0.309	0.151
		(5.54)		(5.60)	(4.39)
Black		0.351		0.391	0.108
		(3.82)		(4.19)	(1.32)
Hispanic		0.442		0.488	0.040
		(3.83)		(4.64)	(0.40)
Female youth					
White		0.437		0.332	0.273
		(6.35)		(5.76)	(7.23)
Black		0.424		0.462	0.253
		(4.50)		(4.78)	(3.03)
Hispanic		0.322		0.230	0.244
		(2.66)		(2.05)	(2.29)

[a] *t*-ratios in parentheses. Each logit model includes all the control variables noted in Table 1 and defined in Appendix Table A1.

Within A–D, the effect of parental employment on youth employment probabilities is significantly different for employed mothers than it is for fathers.[6] When the sex of the parent is not taken into account, there are no significant differences in the effects of working parents on youth employment probabilities by race[7] or by sex.[8] When the employment status of mothers and fathers is considered separately, the significance of the coefficient differences by race[9] and sex[10] of youth is larger. There are significant interaction effects between parents and their adolescent offspring, and these vary by race and by the sex of parents and youth.

Table 2D reports coefficients for the 12 variables signifying the presence of a working parent. The *difference* between the effect of fathers' employment status and the effect of mothers' employment status upon employment probabilities for youth is much larger for male than for female youth. Employment probabilities for female youth are significantly affected by the employment status of mothers and fathers. In contrast, only for whites are the employment outcomes for male youth significantly affected by the presence of a working mother. In almost all cases, coefficients for the variable indicating a working father are higher than those for the working mother variables, regardless of a youth's sex.

Coefficients signifying working parents are not systematically lower for minority or female youth. The largest differences across race and ethnicity are not in the size of the effect of a working parent upon youth employment, but rather in the likelihood that such youth will be living in a household in which a working parent is present. Only 7% of white youth live in a home with no working parent. Twenty-seven percent of black youth and 17% of hispanic youth live in homes with no working parent present. The comparisons are particularly striking for working fathers. While 21% of white youth have no working father present in their homes, the corresponding numbers are 51% for black youth and 34% for hispanic youth.

To gauge the relative size of these effects, Table 3 presents the predicted employment rates for youth, separately by the employment status of parents, computed from each of the eight logit models summarized in Table 2. For each of the eight specifications of the model, employment probabilities were computed at the individual level using the estimated

[6]For Table 2A, $\chi^2 = 2\ (23{,}940.95 - 23{,}920.42) = 41.06$ with 1 degree of freedom, while for Table 2B, $\chi^2 = 2\ (23{,}940.94 - 23{,}918.76) = 44.36$ with 2 degrees of freedom. For Table 2C, $\chi^2 = 2\ (23{,}940.69 - 23{,}916.16) = 49.06$ with 3 degrees of freedom, while for Table 2D, $\chi^2 = 2\ (23{,}938.25 - 23{,}910.99) = 54.52$ with 6 degrees of freedom.

[7]For this model, $\chi^2 = 2\ (23{,}940.95 - 23{,}940.94) = 0.02$ with 2 degrees of freedom.

[8]For this model, $\chi^2 = 2\ (23{,}940.95 - 23{,}940.69) = 0.52$ with 1 degree of freedom.

[9]For this model, $\chi^2 = 2\ (23{,}920.42 - 23{,}918.76) = 3.32$ with 4 degrees of freedom.

[10]For this model, $\chi^2 = 2\ (23{,}920.42 - 23{,}916.16) = 8.52$ with 2 degrees of freedom.

TABLE 3
Aggregate Youth Employment Rates Estimated from Logit Models by Employment Status of Parent[a] (Sample Size Includes 55,411 At-Home Youth)

	Parent		Father		Mother	
	Not working	Working	Not working	Working	Not working	Working
A. All youth	37.8%	43.7%	39.0%	44.0%	41.0%	43.8%
B. Youth by race						
White	42.8	49.3	44.6	49.7	46.8	50.0
Black	20.0	24.2	20.7	25.3	21.7	23.6
Hispanic	31.9	36.9	32.7	37.4	35.0	36.6
C. Youth by sex						
Male	39.0	44.7	39.2	44.5	40.6	42.8
Female	37.6	43.5	40.5	45.1	42.9	46.4
D. Youth by race and sex						
Male youth						
White	43.8	50.0	45.3	50.3	47.9	50.3
Black	20.7	24.6	21.1	25.5	22.5	23.7
Hispanic	33.8	39.8	34.0	40.6	38.3	38.8
Female youth						
White	42.9	49.5	45.8	50.7	47.3	51.2
Black	20.1	24.5	21.8	26.5	22.3	24.8
Hispanic	30.9	34.7	32.8	35.4	33.0	35.8

[a]Youth employment probabilities under the Parent heading are estimated for each individual and then averaged using the coefficients from the logit models, assuming nonworking and working parents. Youth employment rates are estimated using analogous procedures, distinguishing between working and nonworking fathers (under Father heading) and mothers (under Mother heading).

coefficients and individual level data. Individual probabilities were computed conditional upon employment status of the parent. The table presents the average probability estimated for each of the demographic groups.

Across the board, the presence of a working father has a larger effect on youth employment probabilities than does the presence of a working mother. The difference in the size of the impact is largest for male youth, particularly minority male youth whose employment prospects are barely affected by the presence of a working mother.

If this "working-parent effect" on youth employment is caused by access to information, then fathers appear to be somewhat more influential as job contacts than mothers, particularly for male youth—who seem to gain

little in their employment prospects from the added presence of a working mother.

B. Industrial Affiliation of Youth

It is tempting to attribute these results to unobserved, household-specific attributes—"tastes for work," or even to genetic differences in behavioral propensities. There are, however, a number of implications of the network hypothesis which cannot be attributed to household unobservables. Some of these can be tested for, at least indirectly. If the effect of working members of a household on youth employment probabilities is indicative of job access, then job-related information is gained through the parents and siblings who provide labor market contacts. Youth with employed parents should be more likely not only to be working, but also to be working at a kindred job. Although we do not have firm level data to test this, evidence consistent with these implications can be found using the industry affiliation of individuals reported in PUMS.

The industry affiliation of each individual in the Public Use Micro Sample is recorded, regardless of whether that individual is employed or unemployed or whether the individual is currently in the labor force.[11] We have grouped industry affiliations in 10 categories, corresponding to one-digit census industrial categories.

In this section we analyze the effect of the industrial affiliation of parents upon the industrial affiliation of their children. We consider the four largest industrial classifications (which together include 85% of the at-home youth in our sample): trade, manufacturing, business and related services, and professional services.

Table 4 presents the results of logit estimates of the probability that at-home youth are affiliated with each of these industries as a function of parental industrial affiliation in the same industry.[12] Each model utilizes a principal specification similar to that reported in Table 1. A difference is the inclusion of a variable reflecting the percentage of total employment in the youth's metropolitan area in that industry. In each of the four logit models, this control variable is highly significant.

Female youth are significantly more likely to be affiliated with the trade and professional services industries than are male youth, while the reverse is true for manufacturing and business services industries. The manufacturing industry is the only industry for which residence site is a significant

[11]The categories of individuals lacking industry affiliation are: those with no prior work experience, the unemployed whose last job was in the military, and those who have not been employed for 5 years or more.

[12]The sample is limited to youth who have reported an industry affiliation and who live in a household in which at least one parent has also reported an industry affiliation.

TABLE 4
Logit Models of Probabilities of Industry Affiliations for Youth[a]
(Sample Size Includes 35,168 At-Home Youth)

Variable	Probability that youth is affiliated with: Trade	Manufacturing	Business services	Professional services
Sex	0.163	−0.670	−0.028	0.774
(1 = female)	(4.07)	(17.60)	(6.82)	(21.19)
Residence	0.001	−0.105	−0.009	0.055
(1 = central city)	(0.05)	(2.50)	(0.85)	(1.35)
Age	−0.159	0.216	0.008	0.051
(years)	(10.87)	(9.41)	(0.24)	(2.09)
Education	0.018	−0.037	−0.072	0.058
(years)	(1.62)	(2.39)	(4.63)	(2.95)
In-school	0.542	−0.869	0.001	0.447
(1 = yes)	(19.57)	(20.94)	(0.02)	(9.58)
Female-headed household	0.009	0.136	0.092	−0.006
(1 = yes)	(0.26)	(2.53)	(1.88)	(0.12)
Education of head	0.150	−0.028	0.040	−0.012
parent	(3.93)	(4.52)	(7.20)	(1.93)
Family income	0.001	−0.001	0.002	−0.004
(thousands of dollars)	(0.094)	(0.98)	(1.74)	(3.21)
MSA unemployment rate	0.031	−0.066	0.006	−0.003
(adult, white workers)	(3.44)	(4.46)	(0.45)	(0.19)
Percentage of MSA employment	0.034	0.039	0.032	0.044
in same industry	(4.90)	(11.37)	(2.51)	(4.51)
Race	−0.445	−0.150	−0.015	0.737
(1 = black)	(11.48)	(2.32)	(0.26)	(14.05)
Ethnicity	−0.233	0.237	−0.019	0.300
(1 = hispanic)	(5.31)	(3.64)	(0.29)	(4.33)
Parent working in same	0.435	0.708	0.634	0.510
industry (1 = yes)	(17.20)	(19.03)	(14.72)	(13.50)
Constant	1.090	−5.329	−2.363	−5.249
	(4.07)	(13.78)	(6.82)	(12.81)
Log likelihood	23,460.70	10,913.00	13,647.66	11,275.25

[a] t ratios in parenthesis. Logit models also include three dummy variables signifying region.

factor. Central city youth are significantly less likely to be affiliated with the manufacturing industry than youth living outside of central cities. This suggests that spatial access to jobs affects at least the composition of employment available to youth.

Age also differentially affects the industry in which youth are likely to work. Older teenagers are less likely to have a trade affiliation and are more likely to have an affiliation in the manufacturing or professional service sectors. Those in school are more likely to have a trade or

professional services affiliation and are less likely to be affiliated with the manufacturing sector.

Note the differences in the effects of race and ethnicity on industry affiliations. Ceteris paribus, black youth are less likely to be affiliated with the trade or manufacturing industries and more likely to be affiliated with the professional services industry. Hispanic youth are less likely to be affiliated with the trade industry and are more likely to be affiliated with the manufacturing or professional services industries.

Importantly, for each of the industry groups, the variable indicating parental employment in the same industry is significant, positive, and large.

For each of the probability models reported in Table 4, we estimated the same eight specifications noted earlier to test for differences in the strength of the effect of parental industrial affiliation upon youth affiliation by race or by the sex of parents or children. The results for manufacturing and trade industries were similar to each other, as were the results for the two service industries. Table 5 summarizes the disaggregated results for two representative industries, trade and professional services.

A consistent finding for all four industrial affiliations is the importance of parental affiliation in affecting the industrial affiliation of youth *of the same sex*. For the trade and professional services industries, this can be seen by examining Table 5C and 5D.

For male youth the coefficients indicating parents in the same industry are generally larger for fathers than for mothers; for female youth, the coefficients are always larger for mothers in the same industry than for fathers. With the exception of black male youth in the trade industry, the likelihood of a youth working in an industry is always more affected by the presence of a parent of the same sex in that industry than the presence of a parent of the opposite sex in that industry. Note that this does not arise simply from differences in the sex composition of the industry; the sex of the youth is controlled for separately in each logit model.

In interpreting these results, it is worth emphasizing that most workers who obtain jobs by referral are, in fact, referred by members of the same sex. For example, Montgomery [15] reports that 86.5% of male workers who obtained jobs from personal referrals were referred by a male contact. Similarly, 69.8% of female workers who found their jobs through contacts were referred by a female social contact. Sociologists have documented the great degree of segregation by sex as well as race in networks, referred to as "sex cleavage" (See Marsden [13] for a review). The pattern of employment outcomes for father–son and mother–daughter pairs, reported in Table 5, is consistent with the network interpretation.

Table 6 presents predicted rates of youth affiliation for these two industries, separately by the affiliation of parents. These rates were com-

TABLE 5
Coefficients from Logit Models Indicating the Effect of Parental Industry Affiliation upon the Probabilities that Youth Has the Same Industry Affiliation

	Professional services			Trade		
	Log likelihood	Father in industry	Mother in industry	Log likelihood	Father in industry	Mother in industry
A. All youth	11,271.25	0.509	0.397	23,435.39	0.392	0.394
		(8.78)	(10.16)		(11.71)	(13.07)
B. Youth by race	11,259.75			23,432.96		
White		0.569	0.478		0.381	0.399
		(8.98)	(10.53)		(10.60)	(12.27)
Black		0.164	0.103		0.268	0.326
		(1.05)	(1.20)		(2.10)	(3.07)
Hispanic		0.367	0.418		0.599	0.411
		(1.64)	(2.89)		(5.13)	(3.40)
C. Youth by sex	11,254.70			23,428.28		
Male		0.840	0.449		0.504	0.382
		(10.44)	(7.33)		(11.22)	(9.30)
Female		0.245	0.364		0.255	0.411
		(3.18)	(7.28)		(5.21)	(9.32)
D. Youth by race and sex	11,238.78			23,423.65		
Male youth						
White		0.916	0.467		0.479	0.374
		(10.26)	(6.60)		(9.95)	(8.51)
Black		0.531	0.325		0.452	0.467
		(2.53)	(2.72)		(2.63)	(3.17)
Hispanic		0.716	0.565		0.809	0.405
		(2.47)	(2.66)		(4.95)	(2.56)
Female youth						
White		0.311	0.488		0.261	0.432
		(3.72)	(8.52)		(4.95)	(9.09)
Black		−0.186	−0.050		0.067	0.198
		(0.84)	(0.48)		(0.36)	(1.34)
Hispanic		−0.030	0.317		0.336	0.408
		(0.09)	(1.76)		(1.99)	(2.29)

puted from each of the logit models summarized in Table 5. For each of the eight specifications of the model, probabilities were computed at the individual level using the estimated coefficients and individual level data. These probabilities were computed conditional upon the industrial affiliation of the parent. The table presents the average probability estimated for each of the demographic groups.

TABLE 6
Probability of Youth Industrial Affiliation: Average Affiliation Rates Implied by Logit Models

	Father		Mother	
	Not in industry	In industry	Not in industry	In industry
I. Trade				
A. All youth	49.6%	58.8%	49.3%	58.6%
B. Youth by race				
White	51.8	60.8	51.4	60.8
Black	38.6	44.9	38.3	45.9
Hispanic	42.2	56.4	42.9	52.7
C. Youth by sex				
Male	47.4	59.2	47.5	56.6
Female	51.2	58.1	51.3	60.9
D. Youth by race and sex				
Male youth				
White	49.5	60.8	49.5	58.4
Black	36.8	47.4	36.5	47.4
Hispanic	40.1	59.3	41.5	51.0
Female youth				
White	54.6	60.7	53.6	63.7
Black	40.5	42.0	40.1	44.7
Hispanic	44.7	52.6	44.6	54.4
II. Professional Services				
A. All youth	10.1	15.5	9.6	13.5
B. Youth by race				
White	8.8	14.3	8.3	12.6
Black	19.1	21.6	18.7	20.3
Hispanic	11.1	15.1	10.6	14.9
C. Youth by sex				
Male	6.5	13.7	6.3	9.5
Female	14.4	17.6	13.5	18.2
D. Youth by race and sex				
Male youth				
White	5.6	12.7	5.0	7.8
Black	11.8	18.5	11.9	15.6
Hispanic	6.9	13.1	6.5	10.9
Female youth				
White	12.6	16.4	11.6	17.5
Black	25.1	21.8	25.2	24.2
Hispanic	15.7	15.3	14.8	19.2

A comparison of Table 6A for the two industries reveals that parental industrial affiliation has a larger effect on youth industrial affiliation in the trade industry than in the professional services industry. In both industries, the effect is smallest for black youth (Table 6B) and largest for youth–parent pairs of the same sex (Table 6C). The patterns generally hold in Table 6D, which presents results for the fully disaggregated model. With the exception of black male youth in the trade industry, who are equally influenced by having a father or a mother in the industry, youth are more affected by having a parent of the same sex in an industry than a parent of the opposite sex. The smaller effects found for black youth arise mainly from female black youth, who are only slightly affected by the presence of a parent in the trade industry, and not positively affected at all by the presence of a parent in the professional services industry. We note that 23% of black female youth are affiliated with the professional services industry, where they appear to gain no employment benefits from family networks.

The most obvious alternative explanation for this association of parents and youth by industry is some form of "mimicking behavior" on the part of youth. Residence in a household with a construction worker increases the likelihood that a youth will pursue a job in construction, because youth imitate parents and not because they can capitalize on the information available about the construction field gained through contacts. This alternative explanation is similar to the unobserved household effect discussed earlier, in that it presumes that no general or specific information is gained through the network, but rather that children attempt to resemble their parents.

Distinguishing mimicking behavior from the effects of networks requires much more information about the composition of the youths' networks than is available in census data. However, an additional indirect test, which focuses on the effect of specific data, suggests that mimicking behavior cannot account for these findings.

If the increased probability of youth employment results in part from information access rather than the mere presence of an employed parent, then youth who have successfully taken advantage of the information and contacts available through parents will be more likely to be employed than other youth. Youth who are affiliated with the same industry as a parent may or may not have gained access through the parent, but youth who work outside their parents' industries are much less likely to have relied on parents in finding a job. If specific information is transmitted through family networks, employment probabilities should be higher for youth who have relied on parental information to attain jobs in industries in which a parent works. The final set of empirical results considers youth employment probabilities for at-home youth where both the presence of an

TABLE 7
Logit Models of Employment Probabilities At-Home Youth
(t Ratios in Parentheses)

Variable	Coefficient
Sex	0.021
(1 = female)	(0.86)
Residence	−0.065
(1 = central city)	(2.39)
Age	0.056
(years)	(3.65)
Education	0.142
(years)	(12.15)
In-School	−0.507
(1 = yes)	(16.17)
Female-headed household	−0.178
(1 = yes)	(5.12)
Education of	−0.032
head parent	(8.13)
Family income	−0.004
(thousands of dollars)	(5.20)
MSA unemployment rate	−0.053
(adult, white workers)	(5.61)
Race	−0.748
(1 = black)	(18.93)
Ethnicity	−0.186
(1 = hispanic)	(4.08)
Either parent working	0.403
(1 = yes)	(7.60)
Parent in industry	0.081
(1 = yes)	(3.08)
Intercept	−1.620
	(6.46)
Log likelihood	21,470.53
Number of observations	35,168

employed parent and the presence of a parent in the same industry as the youth are considered.[13] The results are presented in Table 7.

In addition to the effect of an employed parent, youth who work in the same industry as a parent are more likely to be employed than youth who work in an industry with no parent contact. For this result to arise from simple mimicking behavior, youth who are mimicking the industry affiliation of parents separately from the employment status of parents must be

[13]Again, the sample is limited to youth who have reported an industry affiliation and who live in a household in which at least one parent has also reported an industry affiliation.

more sucessful at finding employment than youth who mimic the employment status of parents but look for work outside their parents' industries. There is no obvious explanation as to why they should differentially be more successful at finding employment than other youth if the presence of a parent in that industry does not itself provide increased access.

III. CONCLUSIONS

This paper has presented evidence that the employment outcomes for youth are strongly associated with those of other family members, especially parents. Youth are more likely to be employed if their mothers, fathers, or siblings are employed. Employment outcomes for youth are strongly associated with the outcomes of their parents, more strongly so for their fathers than for their mothers.

We attribute this result, in part, to the information and informal contacts provided by employed family members to youth living in the same household. A competing explanation emphasizes the importance of mimicking behavior (perhaps arising merely because parents are role models for their offspring), or unmeasured tastes for work, or perhaps even genetics that vary by household. Our analysis casts doubt on these as independent explanations of employment outcomes, at least for at-home youth. We find that at-home youth are far more likely to work in the same industry as the mother or father, even after controlling for metropolitan-wide labor market conditions.

An explanation for this in terms of tastes rather than information is less persuasive. The presence of a parent in the same industry has a substantial effect upon youth employment probabilities. This effect is independent of the presence of a working parent in the home. This suggests that the mimicking explanation is incomplete at best. Specific access appears to be gained from the presence of a parent in the youth's industry.

If the correlations in employment outcomes reflect the labor market access gained through parents, then the pattern also indicates that some youth are at a distinct disadvantage in the labor market due to the character of their social networks. Black parents, and all female parents, appear to be less effective as job contacts in at least two of the four industries considered.

Perhaps the most significant difference in youths' access occurs through differences in the employment rates of those in youths' networks of contacts. All youth whose parents are not employed are themselves less likely to be employed, and the absence of employed parents occurs more often in black households. Youth who must rely on these contacts in their labor market search should be expected to have less favorable employment outcomes.

APPENDIX

TABLE A1

Variables	Description
Individual level	
Sex	Sex of youth: 1 = female, 0 = male.
Residence	Residence of youth: 1 = central city, 0 = outside of central city.
Age	Age of youth in years.
Education	Years of education completed by youth.
In-school	School enrollment status of youth: 1 = in school, 0 = not in school.
Female-headed household	Headship status of household: 1 = female headed, 0 = male headed.
Education of head parent	Years of education completed by head of household (as designated by the census).
Family income	Family income, net of youth's earnings, in thousands of dollars.
Black	Race of youth: 1 = black, nonhispanic, 0 = nonblack.
Hispanic	Ethnicity of youth: 1 = hispanic, 0 = nonhispanic.
Parent working	Parent in household working: 1 = at least one parent working, 0 = no parent working.
Sibling working	For households with a sibling 16 years or older present: 1 = at least one sibling working.
Parent in industry	Parent in household with same 1 digit SIC code as youth: 1 = yes, 0 = no.
Industry affiliation	Industry affiliation of industry for: farming; mining; construction; nondurable manufacturing; durable manufacturing; transportation services; retail and wholesale trade; finance, insurance, and real estate (FIRE); business and related services; professional services; and public administration.
Metropolitan level	
Unemployment	Unemployment rates for white adults.
Percentage employment in industry	Percentage of total MSA employment in: manufacturing (durable and nondurable), trade (wholesale and retail), business services, and related professional services.
Region	Northeast, northcentral, west, south.

REFERENCES

1. D. Belle (Ed.), "Children's Social Support Networks and Social Supports," Wiley, New York (1989).
2. W. P. Bridges and W. J. Villemez, Informal hiring and income in the labor market, *American Sociological Review*, **51**, 574–582 (1986).
3. D. A. Blyth, J. P. Hill, and K. S. Theil, Early adolescents' significant others: Grade and gender differences in perceived relationships with familial and nonfamilial adults and young people, *Journal of Youth and Adolescence*, **11**(6), 425–451 (1982).

4. D. L. Coates, Gender differences in the structure and support characteristics of black adolescents' social networks, *Sex Roles* **17**(11/12), 667–687 (1987).
5. M. Corcoran *et al.* Information and influence networks in labor markets, *in* "Five Thousand Families: Patterns of Economic Progress" (G. Duncan and J. Morgan, Eds.), Vol. 7, Institute for Social Research, Ann Arbor, MI (1980).
6. D. T. Ellwood, The spatial mismatch hypothesis: Are there teenage jobs missing in the ghetto? *in* "The Black Youth Unemployment Crisis" (R. B. Freeman and H. J. Holzer, Eds.), University of Chicago Press, Chicago (1986).
7. C. S. Fischer, "To Dwell Among Friends: Personal Networks in Town and City," University of Chicago Press, Chicago (1982).
8. M. Granovetter, "Getting a Job: A Study of Contacts and Careers," Harvard Univ. Press, Cambridge (1974).
9. H. J. Holzer, The spatial mismatch hypothesis: What has the evidence shown? *Urban Studies*, **28**, 105–122 (1991).
10. H. J. Holzer, Informal job search and black youth unemployment, *American Economics Review*, **77**, 446–452 (1987).
11. K. R. Ihlanfeldt and D. L. Sjoquist, The role of space in determining the occupations of black and white workers, *Regional Science and Urban Economics*, **21**, 295–315 (1991).
12. J. F. Kain, Housing segregation, negro employment, and metropolitan decentralization, *Quarterly Journal of Economics*, **82**, 175–197 (1968).
13. P. V. Marsden, Homogeneity in confiding relations, *Social Networks*, **10**, 57–76 (1988).
14. E. S. Mills, An aggregative model of resource allocation in a metropolitan area, *American Economic Review*, **57**, 197–211 (1967).
15. J. D. Montgomery, Social networks and persistent inequality in the labor market, Annual Meetings of The American Economic Association, December 1990.
16. J. D. Montgomery, Social networks and labor market outcomes: Toward an economic analysis, *American Economic Review*, **81**, 1408–1418 (1991).
17. K. M. O'Regan, The effects of social networks and concentrated poverty on black and hispanic youth employment, *The Annals of Regional Science*, in press.
18. K. M. O'Regan, and J. M. Quigley, Labor market access and labor market outcomes for urban youth, *Regional Science and Urban Economics*, **21**, 227–293 (1991).
19. K. M. O'Regan and J. M. Quigley, "Networks and Access in Labor Markets for Youth: Minorities and Women," Working Paper 92-205, Center for Real Estate and Urban Economics, University of California, Berkeley (1992).
20. M. E. Oliveri and D. Reiss, Social networks of family members: Distinctive roles of mothers and fathers, *Sex Roles* **17**(11/12), 719–736 (1987).
21. R. Price and E. S. Mills, Race and residence in earnings determination, *Journal of Urban Economics*, **17**:1–18 (1985).
22. A. Rees and G. Shultze, "Workers and Wages in an Urban Labor Market," Chicago Press, Chicago (1970).
23. D. Staiger, The effect of connections on the wages and mobility of young workers, unpublished mimeo, MIT (1990).
24. A. Tietjen, The social networks of preadolescent children in Sweden, *International Journal of Behavioral Developments*, **5**, 111–130 (1982).
25. L. E. Troll, Gender differences in cross-generation networks, *Sex Roles*, **17**(11/12), 751–766 (1987).