Results

<u>Understanding the Food Stamp Program Participation Decision Using the IFS Survey Data</u>

We begin by providing estimates of food stamp take-up rates using our survey (IFS) data. Based on household UI wage reporting data in the quarter of the survey interview (March to August 2001), we estimate that 696 respondents have household employment income that falls below 130 percent of the federal poverty level, and are therefore assumed to be eligible for food stamps. In Table 4, we provide some initial descriptive statistics on the FSP take-up rate in the quarter of the interview.[9] Based on weighted survey data, we find that 60.8 percent of the respondents were receiving food stamps (FSP participants), with the remainder not participating.

We also provide some descriptive statistics on how take-up rates vary by individual socioeconomic and demographic characteristics in Table 4. First, note the importance of having a spouse; those who are married are 23 percent less likely to participate in the FSP than those who have never married. This provides some initial evidence on the importance of need in the take-up decision. The importance of need is also apparent in the number of children; those with more than one child are more likely to use food stamp benefits than are those with just one or no children. Whites are less likely to participate than their African American or Hispanic counterparts. Current resources, in the form of reported household UI wages in the quarter of the interview, also affect participation in the hypothesized way, where more household income reduces participation. Take-up rates are higher among recent TANF leavers and those who left TANF more than 18 months ago. Beyond individual demographic and economic characteristics, we also examine how mental health status, program knowledge, and perceptions and attitudes toward the welfare system affect the take-up decision. Those reporting mild or no depression are more likely to use food stamps than their more severely depressed counterparts (Table 4). This may reflect their better ability to navigate the bureaucratic system. We find that those who know they can maintain their food stamp benefits while working are almost 10 percent more likely to take up benefits than those who are unaware of continued eligibility. By contrast, those who believe it is important to limit welfare or who believe it is right to require work for welfare receipt differ little from their counterparts who do not. Finally, those who believe that people have a right to welfare are slightly more likely to participate in the FSP.

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[9] We developed an analysis weight to adjust for the nonproportional nature of the sample and the differences in nonresponse rates across various known demographic characteristics of the population. The descriptive statistics and logistic regression are weighted using this analysis weight.

Table 4: Food Stamp Program Take-Up Rates Among Food Eligible Illinois Family Study Survey Respondents

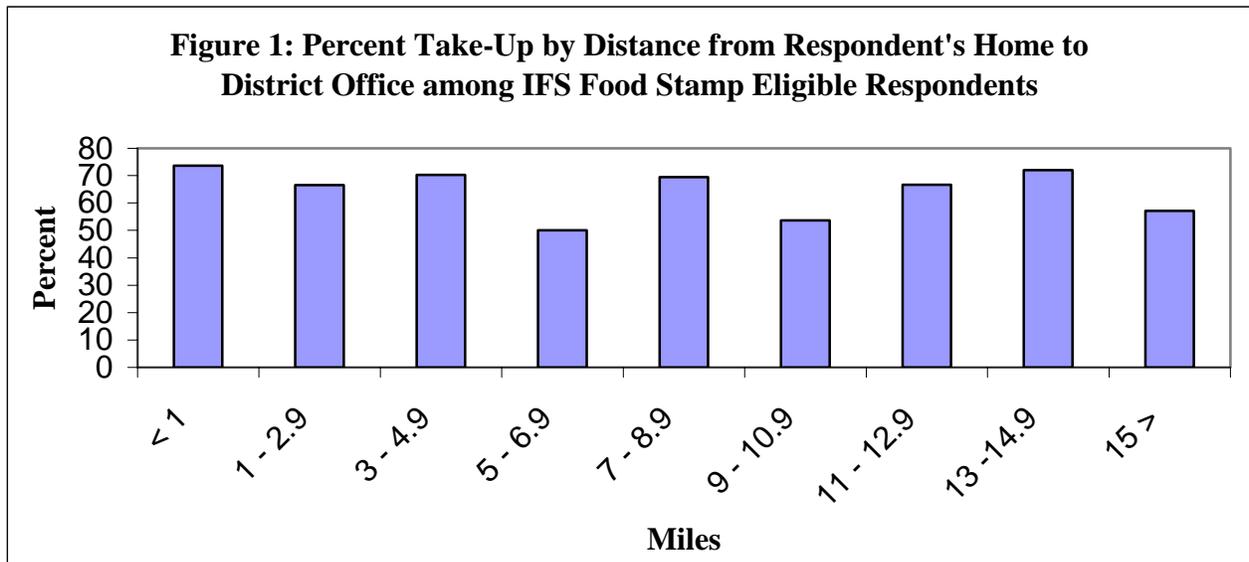| Variables	Percent of Eligible	% Take-Up
Total	100	60.79
Demographics		
<u>Age of Respondent</u>		
20-24	17.01	61.27
25-34	40.66	57.66
35 and over	42.03	63.91
<u>Race/Ethnicity</u>		
African American	76.45	63.98
White/Non-Hispanic	13.51	49.49
Hispanic	8.27	62.30
Other race	1.78*	3.30*
<u>Marital Status</u>		
Married	12.12	32.49
Divorced, Separated, Widowed	25.55	63.99
Never Married	62.33	65.39
<u>Education</u>		
With High School Diploma or GED	72.04	59.66
<u>Number of Children under 19</u>		
0-1	24.87	52.71
2	32.52	64.99
3	19.51	61.34
4 or more	23.1	63.10
<u>Residential Mobility</u>		
More than one residence in 12 months	24.14	59.04
Current Economic Resources		
<u>Household UI wage</u>		
$0	43.94	69.77
$1 to $1,999	21.34	55.75
$2,000 to $3,999	21.29	57.53
$4,000 or more	13.43	44.56
Employment and Welfare History		
<u>Ever worked for pay</u>	95.48	60.63
<u>Number of months since left TANF</u>		
0 to 6 months	33.13	63.02
7 to 12 months	14.27	54.42
13 to 18 months	14.54	55.32
19 to 24 months	13.83	68.89
25 or more months	24.33	60.13
Emotional Status		
<u>CES-D Depression Scale</u>		
No depression symptoms	80.52	61.29
Mild depression	7.23	74.62
Moderate depression	5.15	41.96
Severe depression	7.11	54.70
Knowledge of and Attitudes Toward Welfare		
Can keep food stamps if work	48.12	69.98
Good to limit welfare time	76.45	62.15
Good to require work	92.15	60.45
People have a right to welfare	57.79	64.38
Future Expectation		
<u>Expect to work in year</u>	93.78	61.20

Source: Illinois Family Study.

a. This analysis includes Wave 2 IFS respondents who in the quarter of the interview had left TANF but continued to be eligible for food stamps.

b. Total number of estimated food stamp-eligible IFS respondents is 696; the percentages are weighted using IFS wave 2 weight, developed to adjust for the nonproportional nature of the sample, and the differences in nonresponse rates across various known demographic characteristics of the population.

* 'Other Race' accounts for only 10 respondents.

A final individual-level characteristic of interest is the distance a person must travel from home to the office that administers the food stamp program. Our prediction is that greater distances will result in lower take-up rates. We note however that the distance measure may be picking up the fact that those in rural areas may simply be different from those in urban areas, and that it may be these differences rather than the difficulties faced by those living farther from local offices that affect take-up rates. In Figure 1, we examine whether the distance the person must travel affects the participation decision. We note that there is no consistent relationship between distance traveled and take-up rates.

Figure 1: Percent Take-Up by Distance from Respondent's Home to District Office among IFS Food Stamp Eligible Respondents

It is, of course, impossible to draw firm conclusions from analyzing descriptive statistics because many factors are correlated with one another. Therefore, we perform logistic regression analyses, in which we estimate food stamp take-up among the eligible population using the controls outlined in the Table 4. We note again our concerns in interpreting our estimates, outlined above, due to potential classic and nonclassic measurement error resulting from our inability to accurately identify food stamp eligibility.[10]

The results, shown in Table 5, are mixed. On the one hand, higher wages reduce take-up rates, indicating the importance of need in the take-up decision, as hypothesized. Other typical measures of need are not as strong, however. Age, number of children and being

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[10] To recap: if our error in misclassifying eligibility is independent of our independent variables (education, work experience etc.) then we may understate the significance of our effects. If the sources of income that we have not been able to measure (assets) are correlated with our observed explanatory factors (income), we may misclassify ineligibility as nonparticipation.

Table 5: Logistic Regression Coefficients of Food Stamp Take-Up Among Eligible Illinois Family Study Survey Participants

Variable	Coeff.	S.E.	p value	Odds Ratio
Intercept	-0.471	0.888	0.596	
Demographics				
Age of respondent	0.018	0.012	0.133	1.018
Race/Ethnicity				
African American	0.375	0.353	0.288	1.455
Hispanic	0.107	0.416	0.796	1.113
Marital Status				
Married	-1.245	0.324	0.000	0.288
Education				
High school graduate or GED	-0.215	0.220	0.328	0.807
Number of children under 19	0.165	0.071	0.021	1.179
Residential Mobility				
Moved more than once in past 12 months	-0.287	0.224	0.201	0.751
Current Economic Resources				
Household UI wage	-0.416	0.088	<.0001	0.660
Employment and Welfare History				
Ever worked for pay	-0.138	0.555	0.804	0.871
Number of months since TANF receipt	0.001	0.007	0.902	1.001
Emotional Status				
CES-D Depression scale	-0.128	0.110	0.243	0.880
Knowledge of and Attitudes Toward Welfare				
Can keep food stamps if work	0.877	0.201	<.0001	2.404
Good to limit welfare time	0.213	0.247	0.389	1.237
Good to require work	0.224	0.415	0.589	1.251
People have a right to welfare	0.399	0.202	0.048	1.490
Future Expectations				
Expect to work in year	-0.288	0.487	0.554	0.750
Distance to DHS				
Distance to DHS district office	0.006	0.033	0.854	1.006

Source: Illinois Family Study.

a. The number of total respondents included in the Logistic Regression is 585 due to missing values on selected characteristics.

b. This analysis includes Wave 2 IFS respondents who in the quarter of interviews had left TANF but continued to be eligible for food stamps.

African-American increase the probability of take-up. On the other hand, program knowledge plays a significant role in take-up. Those who know that food stamps can be maintained while working are significantly more likely to participate in the program when eligible than those who do not. This offers some apparent evidence of the importance of networks and/or local offices in informing respondents of their opportunities. Furthermore, the belief that individuals have a right to receive welfare without working helps to predict take-up, suggesting that attitudes toward welfare matter. Finally, we note that distance to the office has little effect on the participation decision.

We believe that a primary reason for the failure of many of the individual-level variables to follow our hypotheses is that our sample size is small, making it difficult to tease out the independent effects of these (often) highly correlated variables. It is for this reason that we turn to administrative data.

Understanding Individual, Family, and Community-Level Factors in the Food Stamp Program Participation Decision Using Administrative Data

Linked administrative data give us a much larger sample size than the IFS. To recap from above, our base sample is all TANF grantees in Illinois in Fall 1998 who had left TANF and, based on UI household income, were eligible for food stamps in the second quarter of 2001. Our sample size of estimated eligible food stamp participants is 74,208. Mirroring the IFS analysis above, we analyze their food stamp take-up decision.

To begin, in Table 6 we provide some descriptive statistics on the importance of individual- and community-level characteristics in the take-up decision. First, note that the average take-up rate of 46.2 percent is lower than that found in the IFS analysis. However, the effects of need on take-up operate in the hypothesized way. Take-up rates generally decline with rising income and with months off TANF. Take-up rates increase with number of children, and are higher for those who have never married or who lack a high school diploma or GED. We also observe how community level characteristics relate to take-up. To facilitate interpretation, we compare communities that rank above the median on a particular characteristic with those that lie below. Table 6 suggests that needier communities—those with more single parents, fewer high school graduates, more poverty, and more TANF recipients—have higher food stamp take-up rates. Communities with higher rates of mobility and fewer noncitizens also have higher participation rates.

**Table 6: Food Stamp Program Take-Up Rate Among Food Stamp Eligible TANF Leavers**

Variables	Percentage	% Take-Up
Total	100	46.18
Individual Characteristics		
Age of Respondent		
Under 20	14.18	45.70
20-24	20.23	44.85
25-34	21.36	46.12
35 and over	44.22	46.70
Race/Ethnicity		
African-American	66.05	48.49
White	23.70	43.11
Hispanic	9.07	38.02
Other race	1.13	39.90
Marital Status		
Married	14.04	44.37
Divorced, separated, or widowed	15.85	42.24
Never married	70.01	47.43
Education		
High School Graduate or GED	36.20	42.09
Number of Children		
0-1	41.95	44.99
2	30.06	45.49
3	16.92	47.54
4 or more	11.06	50.48
Household UI wage (Quarter 2, 2001)		
$0	53.24	45.29
$1 to $1,999	18.21	54.08
$2,000 to $3,999	18.89	46.71
$4,000 or more	9.66	35.18
Work History		
Ever worked for pay	91.50	45.78
Number of months since left TANF		
0 to 6 months	13.85	46.61
7 to 12 months	16.21	52.55
13 to 18 months	16.29	50.86
19 to 24 months	21.88	45.63
25 or more months	31.76	40.72

Community Characteristics	Median (%)	% Take-Up	
		Below Median	Above Median
Proportion of Single Parent Households	50.85	44.38	48.06
Proportion of High School Graduates	69.80	47.39	44.90
Proportion of People in Poverty	22.01	43.97	48.52
Proportion of Households Moved 1995-2000	41.82	45.25	47.17
Proportion of Non-Citizens	1.13	48.22	44.02
Proportion of TANF recipients	5.54	45.91	46.47

Source: Administrative data records from the Illinois Integrated Database.

a. The total number of households is 74,208.

b. This analysis includes all TANF grantees in the fall of 1998 who by the second quarter of 2001 had left TANF but continued to be eligible for food stamps.

The relationship of distance between home and food stamp office and take-up is similar to that found in the IFS analysis; take-up rates decline as distance increases up to 7 miles, but beyond 7 miles there is no obvious relation between distance and take-up (see Figure 2).

Figure 2: Percent Take-Up by Distance from Respondent's Home to DHS Office: Admin. Data
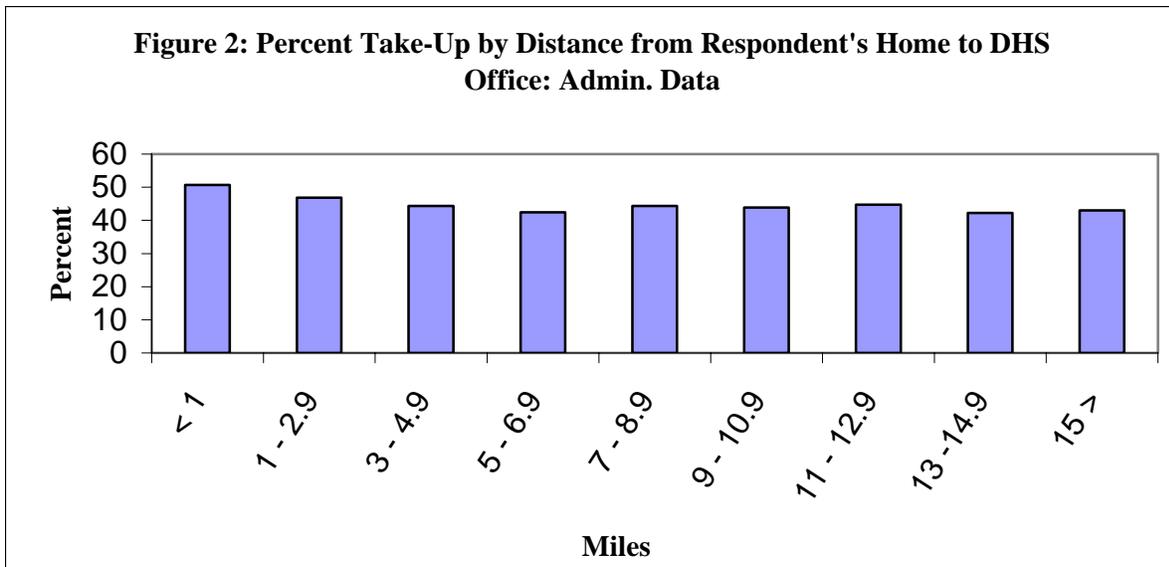
Finally, we argue that the practices of district offices may affect take-up. Cancian et al. (2001) found similar county-level variation in take-up rates, also suggesting the effect of local administrative practice on take-up. Although we do not have information on the precise practice characteristics of the district offices, the fact that take-up varies widely across offices hints at the importance of office practices. The mean take-up rate across all district offices is 50 percent, ranging from a mean of 38 percent in the one-fifth of offices with the lowest take-up rates, to 63 percent with the highest take-up.

The statistical technique that we use to estimate food stamp participation rates is hierarchical linear modeling (HLM). HLM is an extension of regression models to situations in which individual outcomes may depend not just on individual-level variables, but also on social context or group membership. HLM extends standard regression techniques by positing that there are influences, observed and unobserved, that are common to a set of individuals. In our context, local area macroeconomic and demographic factors, such as level of neighborhood poverty or percentage of single parents in a community, may influence the participation decision beyond individual characteristics. Similarly, take-up rates may also be dependent on the district office used by individuals. Practices and efficiencies, including outreach and communication about the FSP, can differ across offices, and because of this, the district office itself may affect individual participation rates. HLM allows for such common influences at different levels.

Our HLM analysis has three "levels." Level 1 includes individual characteristics. Information on all the characteristics of interest is available for 70,575 respondents. At level 2, we group eligible individuals into the census tracts in which they live ($N = 2,385$). At level 3, we group census tracts into a set of Illinois DHS district offices that serve sets of communities ($N = 120$). HLM allows us to consider groupings at each level. We group respondents in census tracts and district offices to determine whether, in addition to the effects that respondent characteristics may have on food stamp take-up, characteristics of the communities and the DHS office may affect take-up. Although we had no characteristics of the districts to include in the HLM model, we can use fixed effects to pick up their aggregate effect on FSP.

Within the HLM, each of the levels in the data structure is formally represented by its own submodel, and each submodel represents the structural relations occurring at that level and the residual variability at that level (Raudenbush et al., 2001). In our data structure, individuals are nested in communities (census tracts) based on their residential address. Communities then are nested in district offices, given that DHS districts cover specific geographic areas. A DHS district corresponds to county boundaries except in Cook, Kane, St. Clair, and Madison counties. If everyone chose the closest DHS district office to their residential addresses, and each office covered specific communities or census tracts without overlap, our data would be perfectly nested in a higher level. Unfortunately, this is not the case. Although individuals are nested in communities, communities are not perfectly nested in districts. When we match individuals' residential address and district offices, we find that individuals within a community do not necessarily use the same DHS office. In other words, a community can belong to more than one district office, and this causes a problem when using HLM. To solve this, we select one district office per community by choosing the office that the majority of the individuals within a community use; we thus create a DHS district office-level data set that can nest communities. We also create a dichotomous variable indicating whether an individual uses the office visited by the majority or another DHS office. In this way, we can use HLM with a nested data set of individuals, communities, and DHS districts.

To summarize, we assess the effects of respondents' individual characteristics (i.e., race, marital status, etc.) on food stamp take-up at level 1 (the within-group effects). At level 2, we assess variance in food stamp take-up across census tracts to determine whether, after adjusting for individual characteristics, census tract/community characteristics have an additional effect on food stamp take-up. At level 3, we assess variance in food stamp take-up across district offices to determine whether, after adjusting for individual characteristics and the communities in which respondents live, district offices had an additional effect on their food stamp take-up.

An important caveat must be addressed before describing our regression results. When comparing the results of the analyses from survey and administrative data, undue importance should not be placed on the significance of variables based on the administrative data; with more than 70,000 observations, significance is not difficult to obtain. Instead, it is important to compare the sign and the magnitude of these effects with those of our IFS analysis.

We begin by providing HLM results for the entire state in Table 7. First, note the significance and sign of the individual-level characteristics. All variables accord with the hypothesis that greater need results in higher food stamp participation and with previous research. Those who have never married, those with more children, lower wages, and less time since leaving TANF, are all more likely to participate. This provides some support for the view that the lack of statistical significance of the IFS variables was caused by small sample size. African Americans and those with less education are much more likely to take up food stamps when eligible than their white/Non-Hispanic counterparts and those with a high school diploma or GED. Likewise, those living in Chicago are nearly 30 percent less likely (odds ratio=.724) to participate in the program than those living in other parts of the state. Note also the importance of distance to the DHS office. As hypothesized, the farther people live from the district office, the less likely they are to participate in the FSP.

Table 7: Three-Level HLM Estimation for Food Stamp Program Take-Up: State of Illinois Administrative Data Records

Fixed Effect	Coeff.	SE	p value	Odds Ratio
Level 3: DHS district office (n=120)				
Intercept	0.039	0.061	0.528	1.039
Level 2: Census tract (n=2,385)				
Proportion of single-mother households	0.049	0.071	0.490	1.050
Proportion of high school graduates	-0.205	0.139	0.141	0.815
Proportion of people in poverty	0.314	0.134	0.019	1.369
Proportion of residents who are noncitizens	-0.316	0.178	0.075	0.729
Proportion of households that have moved residence between 1995-2000	0.068	0.095	0.474	1.070
Proportion of residents participating in TANF	0.016	0.090	0.855	1.017
Level 1: Individual (n=70,575)				
Age	0.008	0.001	0.000	1.008
African American	0.358	0.029	0.000	1.430
Hispanic	-0.040	0.034	0.239	0.961
Never married	0.165	0.021	0.000	1.180
High school graduate	-0.213	0.022	0.000	0.808
Number of children	0.050	0.007	0.000	1.051
Household wages (in thousands)	-0.065	0.007	0.000	0.937
Number of months since TANF receipt	-0.011	0.002	0.000	0.989
Ever employed	-0.097	0.036	0.007	0.907
Distance to DHS office	-0.006	0.002	0.003	0.994
In Chicago	-0.322	0.119	0.007	0.724
Use of other DHS office	-0.063	0.039	0.104	0.939

Random Effect	Variance Component	Chi-Square (df)	p Value
Level 2	0.009	2,676.44 (2259)	0.000
Level 3	0.112	2,120.46 (119)	0.000

Source: Administrative data records from the Illinois Integrated Database.

a. All level-2 variables, knowledge, the number of children, household wages, number of months off TANF, and distance to DHS office variables are grand-mean centered; population average model with robust errors is reported.

b. This analysis includes all TANF grantees in the fall of 1998 who by the second quarter of 2001 had left TANF but continued to be eligible for food stamps.

c. The number of households included in this analysis is 70, 575 - lower than in Table 6, as we include only those with no missing data on characteristics.

Next, note the coefficients of the community and district office-level variables. We first examine whether the probability of take-up is similar across census tracts (level 2). To do so, we test the null hypothesis that the level 2 variation does not explain any significant variation in take-up. This hypothesis is of course highly implausible. As can be seen from the bottom panel of Table 7, the *p* value associated with level 2 is less than 0.001, which confirms this implausibility, indicating instead significant variation among census tracts in take-up. We see that higher levels of community/census tract poverty and citizenship increase take-up, although the effect of citizenship is not statistically significant.

Second, we examine whether the probability of take-up is similar across district offices. To do so, we test the null hypothesis that the district office will not explain any significant variation in the data. Again, the *p* value associated with level 3 of <0.001, indicating significant variation across district offices in take-up. As stated above, no characteristics of the district office were available in the administrative data to include in the model. We return to this issue, below, however, when we combine IFS data on program knowledge at the district office level with the administrative data.

Table 8: Three-Level HLM Estimation for Food Stamp Program Take-Up: City of Chicago Administrative Data Records

Fixed Effect	Coefficient	SE	p value	Odds Ratio
Level 3: DHS district office (n=23)				
Intercept	-0.598	0.076	0.000	0.550
Level 2: Census tract (n=797)				
Proportion of single-mother households	0.089	0.106	0.400	1.093
Proportion of high school graduates	-0.110	0.185	0.553	0.896
Proportion of people in poverty	0.270	0.164	0.100	1.310
Proportion of residents who are noncitizens	-0.061	0.205	0.767	0.941
Proportion of households that moved residence between 1995-2000	0.123	0.129	0.338	1.131
Proportion of residents participating in TANF	0.064	0.100	0.519	1.066
Level 1: Individual (n=40,327)				
Age	0.011	0.002	0.000	1.011
African American	0.424	0.047	0.000	1.528
Hispanic	-0.002	0.048	0.975	0.998
Never married	0.215	0.024	0.000	1.240
High school graduate	-0.249	0.033	0.000	0.780
Number of children	0.050	0.009	0.000	1.051
Household wages (in thousands)	-0.073	0.007	0.000	0.929
Number of months since TANF receipt	-0.007	0.003	0.026	0.993
Ever employed	-0.091	0.045	0.043	0.913
Distance to DHS office	-0.005	0.006	0.329	0.995
Use other DHS office	-0.052	0.055	0.340	0.949

Random Effect	Variance Component	Chi-Square(df)	p Value
Level 2	0.009	873.34 (768)	0.005
Level 3	0.042	359.34 (22)	0.000

Source: Administrative data records from the Illinois Integrated Database.

a. All level-2 variables, knowledge, the number of children, household wages, number of months off TANF, and distance to DHS office variables are grand-mean centered; population average model with robust errors is reported.

b. This analysis includes all TANF grantees in the fall of 1998 who by the second quarter of 2001 had left TANF but continued to be eligible for food stamps and live in the city of Chicago.

Because of the significance of place of residence at the state level, we estimate a similar model for Chicago, the results of which are found in Table 8. We find that the individual-level factors operate in a similar way to those at the state level; higher levels of socioeconomic deprivation increase take-up rates. The only exception is the distance variable, which is no longer significant in the take-up decision, suggesting that transportation, perhaps more readily available in the city, may be the relevant constraint rather than distance per se. As with the entire state, we see significant variation in take-up rates across census tracts and district offices (p values <0.001). We see, however, that the variables at the census-tract level are no longer statistically significant. Although the importance of noncitizenship disappears, the proportion in poverty is only statistically significant at the 10-percent level.

Both analyses suggest the importance of the district office, yet the analyses have been limited by the fact that the administrative data do not contain any information to characterize the

district office. One of our primary objectives is to integrate those characteristics that we believe operate at the district-office level and that were found to be important in the IFS analysis. A significant factor in the take-up decision found in the IFS analysis is whether people know they can continue to receive food stamps while they are working. We believe that this knowledge, at least in part, is imparted at the district office. As stated above, we believe that respondents are most likely to obtain information on the program rules through district offices, and because dissemination of eligibility information may be better at some offices than at others, the proportion of respondents who have accurate program knowledge will differ across offices.

Our primary interest is in adding a measure of program knowledge to this analysis. To do so, we use the IFS survey data to estimate average program knowledge in district office service areas. We thus calculate and build a measure of the proportion of IFS respondents in each district office who know they can keep food stamp benefits while working. Although we do not know the level of food stamp program knowledge from administrative data, we can use the IFS survey evidence to estimate average levels of knowledge in district offices. This measure is then incorporated as a characteristic of the district office in the administrative data model of take-up in the IFS counties, and is used to test the hypothesis that differences in program knowledge at the district office level will influence take-up. We note, of course, that these variables are imputed not from the entire relevant populations but from the restricted sample in the IFS, and so our exploration will be restricted to those district offices represented in the IFS sample. This limits our population size compared with those in the state- and city-level regressions in Tables 7 and 8.

We begin by showing that take-up rates at the district office level are correlated with the level of eligibility knowledge (Figure 3).[11] In district offices, where more than 75 percent of participants know about continued food stamp receipt, take-up rates are approximately 80 percent. By contrast, take-up rates are nearer to 60 percent in offices where 25 to 50 percent know of the policy.

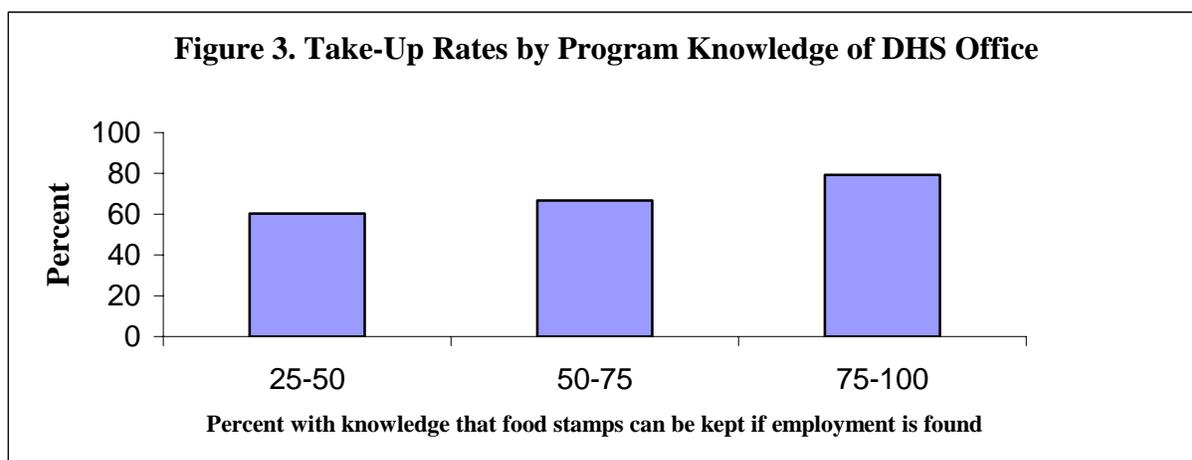**Figure 3. Take-Up Rates by Program Knowledge of DHS Office**

Table 9 provides HLM results for all counties included in the IFS survey. We find continued significance of many of the individual-level characteristics. The results again are similar to the analyses in the take-up decision described earlier; those households that are

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[11] District offices with fewer than eight respondents are excluded from Figure 3.

African American, headed by a single and less-educated individual, with lower wages, and who have recently left TANF are more likely to participate, as are those who are close to the district office. In general, we see no significant variation in take-up across census tracts. Although we find that the extent of poverty is marginally significant, we are unable to reject the null hypothesis of no level-2 variation at the census tract level.

Table 9 : Three-Level HLM Estimation for Food Stamps Program Take-Up: IFS Counties (Administrative Data for IRS Counties Only)

Fixed Effect	Coefficient	SE	p value	Odds Ratio
Level 3: DHS district office (n=31)				
Intercept	-0.358	0.091	0.001	0.699
Knowledge on FSP eligibility rule	0.727	0.286	0.017	2.069
Level 2: Census tract (n=1341)				
Proportion of single-mother households	0.073	0.084	0.387	1.076
Proportion of high school graduates	-0.169	0.166	0.307	0.844
Proportion of people in poverty	0.285	0.149	0.056	1.330
Proportion of residents who are noncitizens	-0.180	0.203	0.376	0.835
Proportion of households that have moved residence between 1995-2000	0.148	0.102	0.145	1.160
Proportion of residents participating in TANF	0.088	0.083	0.288	1.092
Level 1: Individual (n=53,213)				
Age	0.011	0.001	0.000	1.011
African American	0.406	0.032	0.000	1.501
Hispanic	-0.013	0.037	0.717	0.987
Never married	0.187	0.022	0.000	1.206
High school graduate	-0.251	0.027	0.000	0.778
Number of children	0.043	0.008	0.000	1.044
Household wages (in thousands)	-0.067	0.008	0.000	0.935
Number of months since TANF receipt	-0.008	0.003	0.002	0.992
Ever employed	-0.099	0.039	0.011	0.906
Distance to DHS office	-0.006	0.002	0.011	0.994
In Chicago	-0.149	0.066	0.023	0.861
Use other DHS office	-0.058	0.042	0.169	0.943

Random Effect	Variance Component	Chi-Square (df)	p Value
Level 2	0.008	1,305.96 (1304)	0.480
Level 3	0.058	448.14 (29)	0.000

Source: Administrative data records from the Illinois Integrated Database and Illinois Family Study Survey.

a. All level-2 variables, knowledge, the number of children, household wages, number of months off TANF, and distance to DHS office variables are grand-mean centered; population average model with robust errors is reported.

b. This analysis includes TANF grantees in the fall of 1998 in IFS counties who by the second quarter of 2001 had left TANF but continued to be eligible for food stamps.

Our primary interest in this analysis, however, is understanding the importance of the district office variable that we have aggregated from the IFS data: the proportion of individuals in the district office with accurate program knowledge. This measure is incorporated as a characteristic of the district office and is used to test the hypothesis that difference in program knowledge at the district-office level influences take-up. We find that for all IFS counties, district offices where individuals know they can retain food stamps while working have higher

food stamp take-up rates. This provides support for the importance of the district office in disseminating information on the food stamp program.

We acknowledge, however, that the networks that generate this knowledge may be denser in urban areas than rural ones. As a result, we run similar regressions but distinguish between Chicago and the other IFS counties (Tables 10 and 11). Level 1 and 2 Chicago results in Table 10 look very similar to those in Table 8, where we excluded the knowledge variable. The notable difference is the importance of district-level knowledge of food stamp eligibility. As in the results of all IFS counties, this knowledge leads to higher take-up rates.

Table 10: Three-Level HLM Estimation for Food Stamps Program Take-Up
(Administrative Data for IFS offices in Chicago only)

Fixed Effect	Coefficient	SE	p value	Odds Ratio
Level 3: DHS district office (n=21)				
Intercept	-0.600	0.066	0.000	0.549
Knowledge on FSP eligibility rule	0.514	0.232	0.039	1.672
Level 2: Census tract (n=794)				
Proportion of single-mother households	0.092	0.108	0.391	1.097
Proportion of high school graduates	-0.106	0.153	0.487	0.900
Proportion of people in poverty	0.280	0.145	0.054	1.323
Proportion of residents who are noncitizens	-0.058	0.219	0.793	0.944
Proportion of households that have moved residence between 1995-2000	0.133	0.128	0.298	1.142
Proportion of residents participating in TANF	0.054	0.138	0.694	1.056
Level 1: Individual (n=40,327)				
Age	0.011	0.001	0.000	1.011
African American	0.426	0.047	0.000	1.531
Hispanic	-0.003	0.049	0.945	0.997
Never married	0.216	0.027	0.000	1.241
High school graduate	-0.250	0.022	0.000	0.779
Number of children	0.050	0.008	0.000	1.051
Household wages (in thousands)	-0.074	0.006	0.000	0.929
Number of months since TANF receipt	-0.007	0.001	0.000	0.993
Ever employed	-0.092	0.033	0.006	0.913
Distance to DHS office	-0.005	0.005	0.294	0.995
Use other DHS office	-0.052	0.035	0.138	0.949

Random Effect	Variance Component	Chi-Square (df)	p Value
Level 2	0.009	856.95 (767)	0.013
Level 3	0.033	260.49 (19)	0.000

Source: Administrative data records from the Illinois Integrated Database and Illinois Family Study Survey.
a. All level-2 variables, knowledge, the number of children, household wages, number of months off TANF, and distance to DHS office variables are grand-mean centered; population average model is reported.
b. This analysis includes TANF grantees in the fall of 1998 in Chicago IFS district offices who by the second quarter of 2001 had left TANF but continued to be eligible for food stamps.

Table 11 provides regression results for the IFS counties, excluding Chicago. Three findings are worth noting. First, although many of the individual-level variables remain significant and in the hypothesized direction, some do not. For example, the effects of being single and the number of children no longer are important influences on take-up. Second, the community-level factors are no longer significant. The *p* value suggests, as in Table 8, that we can reject the null hypotheses that there is no variation at the census tract level. Finally, and most interesting from our perspective, eligibility knowledge at the district office level no longer influences food stamp take-up. This lends support for our theory that the density of the social

networks in DHS office areas, which we assume to be greater in Chicago than in the remainder of the state, may mediate the effects of DHS office outreach and communication strategies.

Table 11: Three-Level HLM Estimation for Food Stamps Program Take-Up: Administrative Data for non-Chicago (IFS Counties only)

Fixed Effect	Coefficient	SE	p value	Odds Ratio
Level 3: DHS district office (n=8)				
Intercept	0.041	0.157	0.803	1.042
Knowledge on FSP eligibility rule	-0.251	0.663	0.717	0.778
Level 2: Census tract (n=152)				
Proportion of single-mother households	0.225	0.362	0.535	1.252
Proportion of high school graduates	-0.247	0.552	0.655	0.781
Proportion of people in poverty	-0.115	0.534	0.830	0.892
Proportion of residents who are noncitizens	-2.788	2.112	0.187	0.062
Proportion of households that have moved residence between 1995-2000	0.536	0.416	0.197	1.710
Proportion of residents participating in TANF	0.305	0.298	0.307	1.356
Level 1: Individual (n=5114)				
Age	0.001	0.004	0.869	1.001
African American	0.392	0.078	0.000	1.481
Hispanic	-0.037	0.326	0.909	0.963
Never married	0.020	0.068	0.774	1.020
High school graduate	-0.258	0.060	0.000	0.772
Number of children	0.017	0.026	0.507	1.017
Household wages (in thousands)	-0.073	0.019	0.000	0.930
Number of months since TANF receipt	-0.020	0.003	0.000	0.980
Ever employed	-0.057	0.116	0.626	0.945
Distance to DHS office	-0.008	0.006	0.168	0.992
Use other DHS office	-0.074	0.120	0.541	0.929

Random Effect	Variance Component	Chi-Square (df)	p Value
Level 2	0.0003	154.69 (138)	0.157
Level 3	0.051	67.63 (6)	0.000

Source: Administrative data records from the Illinois Integrated Database and Illinois Family Study Survey.

a. All level-2 variables, knowledge, the number of children, household wages, number of months off TANF, and distance to DHS office variables are grand-mean centered; population average model is reported. This model uses the nested portion of the sample (non-Chicago residents among IFS county residents, n=12,886). The rest of sample use DHS offices in Chicago even though they do not live in Chicago; the results of this model, therefore, are only suggestive.

b. This analysis includes TANF grantees in the fall of 1998 in non-Chicago IFS counties who by the second quarter of 2001 had left TANF but continued to be eligible for food stamps.