HARRIS SCHOOL WORKING PAPER
SERIES 05.03

FOOD SECURITY STABILITY AND CHANGE AMONG LOW-INCOME URBAN WOMEN

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EXECUTIVE SUMMARY
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April 12, 2005

Many welfare-reliant and working poor families experience difficulties making ends meet and thus must develop strategies to cope with competing demands for limited resources. Needs, resources, and the strategies low-income families use to negotiate competing priorities change as family circumstances and contextual conditions evolve in response to changing policy environments. Such changes often have effects, for better or worse, on outcomes that are of concern to parents and policy makers alike. In our research, we draw upon two complementary data sources to examine stability and change in food security in the context of the post-1996 welfare reforms.

Food security is a fundamental indicator of family well-being and material hardship that is likely to be affected by welfare reforms and low-income employment because of the association of food security with economic resources, Food Stamps Program participation, and the availability of time to utilize scarce resources to their maximum potential. Three recent studies provide indications of the relationships between welfare, low-income employment, food insecurity stability and change, and physical and mental health. However, differences in sample characteristics, measures, and analytic approaches, make it difficult to develop clear expectations and hypotheses beyond the expectation that food security is related to economic resources and may be related to physical and mental health statuses. Nevertheless, the available evidence does suggest that there is much to be learned by pursuing additional analyses to further our understanding of individual-level state-specific stability and change in food security among low-income women.

Two complementary data sources are used in this study: longitudinal survey data collected from random samples of initially welfare-reliant women living in highly disadvantaged neighborhoods in four large urban counties (Cleveland, Los Angeles, Miami-Dade, and Philadelphia), and longitudinal qualitative interview data from initially welfare-reliant women living in neighborhoods of concentrated poverty in Cleveland, Ohio. These data were collected under the auspices of MDRC's Project on Devolution and Urban Change.

In the survey sample (N=3210), 25.3 percent of those who were food secure in 1998 were classified as food insecure in 2001, while 43.7 percent of those classified as food insecure in 1998 were food secure in 2001. Multivariate logistic regression analyses indicated that the number of children under age 18 years in the household, income, and physical and mental health statuses were the most consistent predictors of transitions into and out of food security over time. Among women who were food secure in 1998, the odds of transitioning to food insecurity were increased among those who had more minor children in the household in 1998, those who had an increased number of minor children in the household over time, those with lower income in 1998, those with decreasing income over time, those with higher CES-D depression scale scores in 1998, those with

increasing depression over time, those with worse self-reported health, and those with worsening self-reported health status over time. Among women who were food insecure in 1998, the odds of transitioning to food security in 2001 were lower among those who had a larger number of minor children in their households over time, those with decreasing income over time, those with higher CES-D scores in 1998, those with increasing depression scale scores over time, those with worse self-reported health status in 1998, and those with worsening health status over time.

In the qualitative sample (N=36), we found a strong correlation between depression and food (in)security: 72.7 percent of those who scored low on the depression scale were food secure in 2000 and 2001 compared to only 21.4 percent of those who scored high on the depression scale. Stated otherwise, nearly 80 percent of the women who scored high on depression in 1999 experienced food insecurity in either 2000 or 2001, or at both later points in time.

Inductive analyses of the qualitative interview provide some clues that help us understand the link between depression and physical health problems and food (in)security. These data indicate that these low-income women generally used multiple strategies to prevent or reduce food hardships for their families. The qualitative data also indicate that food secure women tended to have better employment and income outcomes than the food insecure women, and they also tended to be less socially isolated. Given the strong correlation between depression and food (in)security in this sample, and other evidence that physical and mental health problems are barriers to employment, one implication of these results is that the women in the qualitative sample who were more depressed may have been less able to obtain and maintain good jobs and less able to maintain the social connections that would allow them to rely on family and friends for food resources. Women who were depressed or had health problems may also have been less able to engage in the various and multiple strategies necessary to achieve food security with extremely constrained resources.

Taken together, these mixed methods results suggest that depression and/or health problems may interfere with the time- and labor-intensive strategies many women must employ to maintain adequate food for their families. These results also suggest that access to economic and social resources contribute to food (in)security among these very low income women. To the extent that depression and other health problems, which are often thought of as barriers to employment, compromise women's ability to pursue public or community-based food resources or maintain ties with family that would allow them to access assistance, depression or other health problems might also be conceptualized as barriers to food security.

In their recent paper in which they documented an association between food insufficiency and mental and physical health outcomes among a sample of initially welfare-reliant women, Seifert, Heflin, Corcoran, and Williams (2004) called for more research "to better understand the relationship between household food insufficiency and the nutritional status of household members, as well as the immediate and long-term consequences of even mild to moderate nutritional deprivation on physical and mental

health" (pp. 182-183). Our mixed-methods results suggest that the relationship may work in the other direction as well; mental and physical health problems may be barriers to food security for low-income women because such problems impede women's ability to engage in the range of activities that are often necessary to achieve or maintain food security. Given the evidence that mental and physical health problems affect food security presented in this paper, we concur that more research into the ways that food security/insufficiency and mental and physical health problems are interrelated is warranted.

April 12, 2005

Food Security Stability and Change Among Low-Income Urban Women

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* Please direct all correspondence to Andrew S. London. This project was supported by a Research Development Grant from the USDA's Economic Research Service, which was administered by the University of Chicago Center for Poverty Research. We thank Thomas Deleire, Craig Gunderson, Robert LaLonde, Helen Levy, Mairead Reidy, and Shelly Ver Ploeg for their helpful comments.

Many welfare-reliant and working poor families experience difficulties making ends meet (Edin and Lein 1997; Scott, Edin, London, and Kissane 2004) and thus must develop strategies to cope with competing demands for limited resources (Clampet-Lundquist, Edin, London, Scott, and Hunter 2004). Both demands for resources and the strategies low-income families use to negotiate competing priorities change over time as family circumstances and contextual conditions evolve in response to changing policy environments. Such changes are likely to have effects, for better or worse, on outcomes that are of concern to parents and policy makers alike. In our research, we draw upon two complementary data sources to examine stability and change in food security in the context of the post-1996 welfare reforms.

The passage of the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) in 1996 marked a dramatic change in the social safety net affecting welfare-reliant and working poor women and families. With the passage of the PRWORA, cash assistance was changed from a federal entitlement for women who met income and family structure eligibility criteria (i.e., Aid to Families with Dependent Children) to time-limited assistance (i.e., Temporary Assistance for Needy Families or TANF). The legislation established a mechanism for transferring federal dollars to states in the form of block grants, devolved responsibility for designing and administering cash assistance programs to the states, and provided guidelines for acceptable programmatic variations that could be implemented at the discretion of states. However, under the new policy, receipt of federally-funded cash assistance would everywhere be limited to a lifetime maximum of five years unless women were granted good-cause exemptions from the time limit.

Work-first was the driving force behind the PRWORA. The legislation imposed more stringent work participation requirements on recipients than had previously existed. At the same time, the legislation established the basis for states to provide enhanced transitional benefits to help support low-income women's work. Additional incentives for work, such as a more generous earned income disregard and expansion of the earned income tax credit, were also part of the post-reform welfare policy context, as were sanctions for failure to comply with the mandates of welfare reform (e.g., work participation requirements, child support enforcement, and paternity identification).

Between 1994 and 2001, the welfare rolls declined by 57 percent (Corbett 2002) and the labor force participation of low-income single mothers increased by almost 10 percentage points to approximately 78 percent (Blank and Schmidt 2001; see also Brock et al. 2002). During roughly the same period, participation in the Food Stamp Program declined by 33 percent (U.S. Department of Agriculture 1999). Researchers are unsure what caused this reduction in Food Stamp use (Zedlewski and Brauner 1999; Figlio, Gunderson, and Ziliak 2000). However, it is well-documented that many families who left the welfare rolls for paid labor remained eligible for Food Stamps but did not receive them (Clampet-Lundquist, Edin, London, Scott, and Hunter 2004; Coulton, Pasqualone, Bania, Martin, Lalich, Fernando, and Li 2000; Reidy 1998).

Although there was tremendous growth in the economy of the United States over the course of the mid-1990s, more than 10 percent of all American households were food insecure in 1998 (Bickel, Carlson, and Nord 1999; Nord, Jemison, and Bickel 1999).[1]

[1] Insecurity about access to nutritionally adequate food is now considered an important indicator of food hardship. No longer measured simply as the condition of having insufficient food intake, food hardship is also defined by a condition of anxiety about available food and the effort to extend food resources in order to accommodate family needs. An 18-item self-report Household Food Security Scale (HFSS) was

Not surprisingly, the vast majority of those who were food insecure were also poor (Carlson, Andrews, and Bickel 1999; Rose 1999; Rose, Gunderson, and Oliveira 1998), and food insecurity with and without hunger was substantially higher among the poor than the non-poor (Bickel, Carlson, and Nord 1999). Recent evidence suggests that about two-thirds of households classified as food insecure experience such insecurity as recurring, while about one-fifth experience it as frequent or chronic (Nord, Andrews, and Winicki 2002).

Food security is a fundamental indicator of family well-being and material hardship that is likely to be affected by welfare reforms and low-income employment because of the association of food security with economic resources, Food Stamps Program participation, and the availability of time to utilize scarce resources to their maximum potential. On the one hand, if welfare reform initiatives help move families from public assistance to jobs that pay living wages with benefits, then their financial situations may improve, and with it, their food security. If, on the other hand, welfare reforms result in little change in family income or increased poverty and material hardship as a consequence of low-wage employment and competing demands on limited resources, it is likely that families will experience similar or greater food insecurity than was the case while they were on welfare and received Food Stamps. The potential negative effects of exiting welfare on food security will be exacerbated if, in the process of leaving the welfare rolls, women also leave the Food Stamps Program (Brock et al.

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developed to measure food security (Carlson, Andrews, and Bickel 1999). It classifies respondents into one of four categories: food secure, food insecure without hunger, food insecure with moderate hunger, and food insecure with severe hunger. It also allows for estimates of the prevalence of reduced quality diets and hunger among children. While this scale has been found to be reliable and valid for population and individual uses (Frongillo 1999), recent qualitative analyses suggest that this scale may under-estimate food insecurity among poor people (Polit, London, and Martinez 2000).

2002; Clampet-Lundquist et al. 2004; Coulton et al. 2000; Reidy 1998). Similarly, the potential positive effects of employment on food security may be undermined if women who leave welfare, but remain eligible to receive Food Stamps, do not realize this, or if they have less time to pursue the various strategies they have used in the past to achieve food security (Polit, London, and Martinez 2000; 2001). As welfare reform continues to unfold, there is increasing need for data on stability and change in food security in the context of welfare reform and women's transitions off of welfare into low-wage employment.

Three recent studies provide indications of the relationships between welfare, low-income employment, food insecurity stability and change, and well-being. In a recent report that drew upon the longitudinal survey and qualitative interview data from one of the four sites of the Urban Change study (Cuyahoga County, Cleveland, Ohio), Brock et al. (2002) found that the overall prevalence of food security in the survey cohort did not change significantly between 1998 and 2001. The proportion food insecure without hunger was 31.8 percent in 1998 and 29.7 percent in 2001 (difference=-2.1 percentage points), while the proportion food insecure with moderate or severe hunger was 12.4 percent in 1998 and 10.8 percent in 2001 (difference=-1.6 percentage points). This apparent stability reflects substantial stability in women's food security statuses over time; 64.1 percent of women who were food insecure without hunger in 1998 were food insecure without hunger in 2001 and 84.5 percent of those who were food insecure with moderate or severe hunger in 1998 were in the same food security category in 2001. However, this apparent stability in the cohort also reflects countervailing increases and decreases in food security at the individual-level that occurred over the three-year period.

Overall, 16.9 percent of those who were in this category in 2001 moved into it over time, while 19.0 percent who were in this category in 1998 had exited it by 2001 (producing the -2.1 percentage point difference noted above). Similar shifts at the individual-level were documented for those who were experiencing moderate or severe hunger. Overall, 6.9 percent of those who were in this category in 2001 moved into it over time, while 8.5 percent who were in this category in 1998 had exited it by 2001 (producing the –1.6 percentage point difference noted above).[2]

In addition to documenting stability and change in food security, Brock et al. (2002) also documented stability and change in the composition of women's households, receipt of welfare, employment, program participation, and other factors that might affect demand for food in families, as well as resources and strategies for obtaining adequate food. However, these authors do not describe the state space of food security stability and change that took place over this period (i.e., the proportion of low-income women's households that were in one food-security status at baseline and either remained in that status three years later or transitioned to another food security status) or the factors that affect stability and change in food security statuses over time.

A second recent study used data from the 1993 panel of the Survey of Income and Program Participation (SIPP) and the follow-on Survey of Program Dynamics (SPD) to study dynamics in food insufficiency. Ribar and Hamrick (2003) estimated multivariate, discrete-choice regression models to examine factors associated with transitions into and

[2] MDRC has now released the Philadelphia and Miami city reports. However, results similar to those reported in the Cleveland report (Brock et al. 2002), which would allow us to estimate the extent of individual-level change, were not included in those reports. Only the aggregate levels of food (in)security were reported. As a result, we do not know from these reports whether these other cities in Urban Change compare to Cleveland with respect to individual-level changes in food security. We also do not know about Los Angeles, since that city report has not yet been released.

out of food insufficiency in 1997. They report that the incidence of food insufficiency in the U.S. as a whole was less than 3 percent in 1997 and there appeared to be little persistence in food problems. Overall, 79 percent of people in households with food problems in 1995 no longer had food problems two years later. In their models that included baseline or relatively fixed demographic characteristics to predict entry into and exit from food insufficiency, they found that the odds of entering food insufficiency over time among those who initially were food sufficient were higher among African Americans, persons in female-headed households, and disabled persons, while they were lower among those who had completed high school and college respectively, and had a higher income-to-needs ratio in 1995. The odds of exiting food insufficiency among those initially food insufficient were higher among those who had completed high school and those with a higher income-to-needs ratio in 1995, while they were lower among persons in female-headed households and persons with a higher number of children under the age of 18 years in their households.

When they added additional control variables into their model, some of which were more endogenous than the baseline and relatively fixed demographic variables initially entered into the model, they found that their results changed. In the model for entering food insufficiency, the coefficients for race and education became non-significant, while those for female and age-squared became significantly negative. Low asset income in 1995, annual hours of work in 1995, being in a female-headed household in 1997, and having changed households in 1997 increased the likelihood of entry into food insufficiency, while having a high income-to-needs ratio in 1997 decreased the likelihood of entering into food insufficiency. Many other variables, including disability

status, owning one's home, and receipt of Food Stamps, were unrelated to entering into food insufficiency. The expanded model for exiting food insufficiency had few significant coefficients. The likelihood of exiting food insufficiency was higher among persons who had completed high school, while it was lower among persons who received Food Stamps in 1995 and among those who lived in female-headed households in 1997.

In a final analysis, these authors used the Household Food Security Scale (HFSS), which was included in the 1997 SPD but not in the 1993 SIPP, as the outcome variable because they acknowledged that it might be a better indicator of food problems. Thus, in this analysis, they are predicting entrance into food insecurity in 1997 among those who were food sufficient in 1995, and exit from food insufficiency in 1995 to food security in 1997. They report that "the use of the food security measures leads to dramatically different results" (p. 19), although most of the changes are in statistical significance rather than in the estimated direction of the associations. They conclude:

> Robust results for the models estimated on the subset of people who were initially food insufficient (the entry subsample) include the negative coefficients for age squared, the indicator for women, the income-to-needs ratio in 1997, and the positive coefficient for disability status. However, none of the significant results from the food insufficiency exit models was consistently replicated in the food insecurity models. Consequently, it appears that some of the study's findings are sensitive to the way that food problems are measured (p. 19).

A third recent study used food insufficiency in 1997 and/or 1998 to predict self-reported health status, physical functioning, depression, and mastery in 1998 among a sample of initially welfare-reliant women (Siefert, Heflin, Corcoran, and Williams 2004).

These authors report that approximately one-third of the women in the sample were food insufficient at one or both points in the year, with 11.8 percent food insufficient at both points in time, 12.7 percent food insufficient in 1997 only, and 10.2 percent food insufficient in 1998 only. Although this analysis did not examine the factors that were related to stability and change in food insufficiency over time and was only based on data from a single year, the results provide evidence that food insufficiency is related to physical health, functioning, depression, and mastery net of a range of other factors.

There is limited data in the literature on food security stability and change over time, particularly among welfare-reliant and working poor women. Although the results of these studies are suggestive of the factors that affect food security, because of differences in sample characteristics, measures, and analytic approaches, it is difficult to develop clear expectations and hypotheses from the available evidence. However, the available evidence does suggest that there is much to be learned by pursuing additional analyses to further our understanding of individual-level state-specific stability and change in food security among low-income women in the context of the post-1996 welfare reform initiatives.

Our goal in this paper is to use two complementary data sources to examine food security stability and change as a function of: (1) the demand for food (e.g., household composition); (2) economic, social, and individual resources and changes in those resources over time; (3) linkages to programs; and (4) coping strategies. First, we use longitudinal survey data collected from a representative sample of very low-income women to examine stability and change in food security as operationalized by the Household Food Security Scale (HFSS) (Bickel, Carlson, and Nord 1999; Carlson,

Andrews, and Bickel 1999; Frongillo, 1999). Data were collected under the auspices of MDRC's Project on Devolution and Urban Change from women in Cleveland (Cuyahoga County), Los Angeles, Miami, and Philadelphia, who were recent welfare leavers or were still directly subject to the dictates of welfare reform. We use these data to describe the state space for food security stability and change and to determine whether state-specific stability or change in food security is related to: individual and family characteristics and change; economic resources and resource change; and program participation. Second, to both complement and supplement the statistical analysis, we analyze longitudinal qualitative interview data collected for 38 initially welfare-reliant women in Cleveland, Ohio in relation to stability or change in their food security status as determined by administration of the HFSS in 2000 and 2001. By doing so, we are able to elaborate our understanding of how changes in resources (economic, social, and individual), changes in program participation (e.g., Food Stamps), and changes in women's coping strategies affect food security.

Data, Methods, and Analysis Plans

Two complementary data sources are used in this study: longitudinal survey data from four large urban counties: Cleveland, Los Angeles, Miami-Dade, and Philadelphia, and longitudinal qualitative interview data from Cleveland, Ohio. Each of these data sources is described briefly below.

The Urban Change Survey

The Urban Change survey involved in-person interviews with a sample of women who, in May 1995, were single mothers aged 18-45 years who were receiving welfare and/or Food Stamp benefits and who were living in neighborhoods characterized by high

rates of poverty and welfare receipt (30+ percent in poverty, 20+ percent receiving welfare). Based on administrative data, approximately 1,000 women were drawn randomly in each of the four Urban Change sites. Over the period March 1998 to March 1999, structured interviews lasting approximately 1.5 hours were conducted with 78.6% (3,960) of the sampled women. These interviews covered a wide range of topics and each woman completed the Household Food Security Scale (HFSS) as part of the interview. Approximately 80 percent of the women in each site were re-interviewed in 2001. With the exception of some variables that would not have changed from baseline, most variables, including food security measured by the HFSS, were re-measured in 2001.

The Urban Change Ethnographic Study in Cleveland

To both complement and supplement the analysis of the Urban Change survey data, we draw on data from verbatim transcripts of lengthy, in-depth, qualitative interviews completed over a three-and-a-half year period with initially welfare-reliant women who were living is some of the most-disadvantaged neighborhoods of Cleveland. For the ethnographic study, we selected one white and two African American neighborhoods where 30+ percent of neighborhood residents were poor or 20+ percent received welfare in 1990.

Approximately 15 welfare-reliant women were recruited from each neighborhood through means that were independent of welfare agencies (e.g., flyers posted in neighborhoods, "street" and door-to-door contacts, and referrals from other study participants). In-person, baseline interviews were conducted in 1997/1998, with three main follow-up interviews, each spaced about a year apart, occurring in 1999, 2000, and

2001. The final interview was conducted approximately 10 months after the 36-month time limit on cash assistance was implemented in Cleveland.[3]

Thirty-eight women participated in the study from 1997 to 2001; 16 of those women were terminated from cash assistance when they hit the time limit. Our trained interviewers conducted open-ended, conversational, interviews with these women, which ranged in length from 2-12 hours and were often conducted over several sittings. These interviews covered a broad range of topics, including: experiences with welfare reform; employment; income and expenditures; health and health care; child care; men and marriage; domestic violence; housing and neighborhood conditions; material hardships (including food hardship), and children's well-being. Interim telephone and in-person interviews were often conducted between the annual interviews, and interviewers wrote field notes to supplement the tape-recorded conversations. All tape-recorded interviews (annual and interim, face-to-face and telephone) were transcribed verbatim.

In addition to these qualitative data, we also administered the HFSS to each of the women in the third and fourth rounds of annual interviews (i.e., in 2000 and 2001). Finally, in the second, third, and fourth rounds of annual interviews, we asked women to complete the same self-administered questionnaire (SAQ) that women in the survey were asked to complete. Among other things, the SAQ included the 20-item Center for Epidemiologic Studies Depression (CES-D) depression scale (Radloff 1977).

Analysis Plan

[3] Ohio adopted a shorter interim time limit than the five-year maximum allowed by the federal legislation. In Ohio, after three years of welfare receipt, women are expected to leave the rolls. The three year time limit was implemented in October 2000. After two years off the cash assistance rolls, women in Ohio can qualify for an additional two years of cash assistance if they can demonstrate good cause. Additional information related to the early implementation of welfare reform in Ohio and the other sites participating in Urban Change are available in Quint et al. (1999).

We conducted parallel analyses of the quantitative and qualitative data and used the results from each analysis to inform the other. For the analysis of the survey data, we began by cross-tabulating the women's baseline (1998) and follow-up (2001) food security statuses using the four categories provided by the HFSS (food secure, food insecure without hunger, food secure with moderate hunger, and food secure with severe hunger) in order to map the state space of food insecurity. For the women in each baseline (1998) food security status group, we determined the proportion/number of women who remained in that category in 2001 or transitioned to each of the other food security statuses in 2001.[4] This allowed us to map fully the state space of food security stability and change and the frequencies of different kinds of food security transitions. In essence, this cross-tabulation described the transition (and stability) matrix for this sample and served as the basis for making decisions about how to proceed with the quantitative analysis.

On the basis of this full transition matrix, we decided to collapse the three food insecure categories into one category (i.e., to create dichotomous food secure/insecure variables for baseline and follow-up) and estimate the stability and change in food security at follow-up among those who were food secure at baseline and those who were food insecure at baseline respectively.

Our selection of covariates was guided by previous studies and the analysis of the qualitative data. Our models include variables measured at baseline (in 1998) and a selected number of change scores (calculated at the Time 2 value of the variable minus the Time 1 value of the variable). We include in all multivariate models the respondent's

[4] Many transitions in food security status may have occurred over this period, which were not observed in these data (see Nord, Andrews, and Winicki 2002 for a discussion of recurrence and chronicity of food insecurity). This is a recognized constraint of these data.

age (measured continuously in years), race/ethnicity (White, African American, Hispanic, and other race/ethnicity, where White in the reference category), citizenship status (yes=1); and educational attainment (whether the respondent has a high school diploma or GED=1). To describe the respondent's living arrangements and location of residence, we include whether the respondent is living with a spouse/partner (yes=1), the number of children under the age of 18 years who were living in her household in 1998, and the city in which she lived. To measure the respondent's economic resources and Food Stamps program participation, we include a measure of whether the respondent received welfare at the time of the baseline interview (yes=1), whether the respondent had ever worked in the two years prior to the baseline interview (yes=1), the respondent's monthly income (measured continuously in $100s); and the respondent's monthly Food Stamps income (measured continuously in $100s). Finally, to measure the respondent's health status, we included: the respondent's CES-D score (measured continuously with a range of 0 to 60); the respondent's self-reported health status (excellent=1, very good, good, fair, or poor=5); and whether the respondent received SSI in 1998 (yes=1). We computed change scores for: number of children in the household; monthly income; monthly Food Stamps income; CES-D scale score; and self-rated health.

Our analysis proceeds hierarchically. We first estimated un-adjusted baseline models in order to evaluate bivariate relationships and to determine the extent to which coefficients change as other variables are entered into the model. We then estimated a model that included all of the covariates measured in 1998 to predict food security status stability or change in 2001. Finally, in addition to the full set of covariates measured in 1998, our final models include the five change scores. In these final analyses, we also

included a measure of employment that spanned the full observation period and included a self-reported measure of whether the respondent had hit the welfare time limit (yes=1) in order to try to capture some of the employment and welfare dynamics that were impinging upon these women over this period.

For the analysis of the qualitative interview data, we inductively analyzed the data in relation to the women's food security statuses. We analyzed the data within categories of stably food secure, stably food insecure, and change from secure to insecure and vice versa (although there were relatively few cases in each of these cells). As discussed in more detail below, in the final year of the study, we observed more food security stability than change. Thus, we focused our inductive analysis of the qualitative interview data on examining the factors that contributed to stability in women's food (in)security respectively in the context of changes brought about by welfare reform and the implementation of the 36-month time limit in Cleveland, Ohio. These analyses yielded in-depth accounts of women's experiences with stability and change in food security in the context of welfare reform. Such accounts helped us to better understand how welfare-to-work transitions, the time limit, and changes in families, resources, and coping strategies affected food security among these very low-income women.

Ultimately, by cross-tabulating women's food security statuses in 2000/2001 with their CES-D score in 1999, we found that there was a strong correlation between depression and food security status that mirrored the results obtained in the analysis of the survey data. Thus, our presentation of the results from the qualitative analysis of the factors that contribute to food (in)security stability and change focuses on the food secure-low depression group and the food insecure-high depression group. We frame the

discussion of other factors that affect food (in)security in this way in part to further our understanding of how depression might operate with and through some of the other factors that affect food (in)security in this very low income population.

RESULTS

Survey Analysis

Food Security Stability and Change

Table 1 presents the food security transition matrix for the Cleveland Urban Change survey sample (N=3,210). The table should be read across the rows. For example, the first row indicates that 74.7 percent of those who were food secure in 1998 were food secure in 2001, while 21.0 percent of that group became food insecure without hunger, 3.6 percent transitioned from food security to food insecurity with moderate hunger, and less than 1 percent became food insecure with severe hunger. Consistent with the findings of Ribar and Hamrick (2003), the tendency observed in the table is for more persons to move, over time, toward higher levels of food security. Forty-nine percent of those who were food insecure without hunger in 1998 were food secure in 2001, while, among those who were food insecure with moderate hunger in 1998, 41.3 percent were food insecure without hunger and 34.5 percent were food secure in 2001.

Although the overall movement is toward food security, significant proportions of these women became or remained food insecure with and without hunger over time. For the analyses presented in this paper, we collapsed the food (in)security measures at both time periods into dichotomies measuring food secure and food insecure. Overall, 25.3 percent of those who were food secure in 1998 were classified as food insecure in 2001

and 43.7 percent of those who were food insecure in 1998 were classified as food secure in 2001 (data not shown in table).

Baseline Differences between Food Secure and Insecure Households

Table 2 examines differences in the baseline characteristics of the food secure and insecure sub-samples, and provides an overall description of the full sample. The food secure and insecure sub-samples differed significantly on a number of baseline characteristics. Compared to the food insecure sub-sample, the food secure sub-sample was significantly younger, had a higher percentage of African Americans and a lower percentage of Hispanics, and contained a lower percentage of non-citizens. The food secure sub-sample contained a marginally higher percentage of women who had completed high school or received the GED than the food insecure sub-sample. The food secure sub-sample was also more likely to be living with a spouse/partner and to have fewer minor children living in the household, on average. Fewer women in the food secure sub-sample than in the food insecure sub-sample received welfare at the time of the 1998 interview and more had worked in the prior two years. The mean monthly income of women in the food secure sub-sample was significantly higher, on average, than it was among women in the food insecure sub-sample ($943 versus $811). Women whose households were food secure were significantly less depressed than the food insecure sub-sample, with average CES-D scores of 14.7 and 19.8, respectively. The women in the food secure sub-sample also reported themselves to be in better health than the women in the food insecure sub-sample; 50.5 percent of the women in the food secure sub-sample reported themselves to be in excellent or very good health compared to 35.5 percent of women in the food insecure sub-sample, while 19.8 and 31.1 percent of the

food secure and insecure women respectively reported themselves to be in fair or poor health. A lower percentage of the food secure sub-sample than the food insecure sub-sample received SSI. Cleveland and Philadelphia residents were over-represented in the food secure sub-sample, while residents of Los Angeles and Miami were over-represented in the food insecure sub-sample.

Transitioning to Food Insecurity

Table 3 presents a logistic regression analysis of the factors affecting the odds of transitioning to food insecurity in 2001 among women whose households were food secure in 1998. As seen in the first column of Table 3, ten variables, all of which were measured in 1998, were significantly associated at the bivariate level with transitioning to food insecurity. The odds of transitioning from food security to food insecurity were significantly higher among older women, women who had more minor children in the household, women who received welfare at the time of the survey in 1998, women who received higher a larger food stamps benefit, women who had higher depression scores, women who had worse self-reported health, and women who received SSI disability benefits. The odds of transitioning from food security to food insecurity were significantly lower among women who reported living with a spouse/partner, women who had worked at some point in the 2-year period prior to the 1998 interview, and women with higher average monthly incomes.[5]

In the second column in Table 3, we present a multivariate logistic regression model, which includes all of the covariates measured in 1998. In this model, most of the

[5] In the Urban Change data set, average monthly income was calculated with the amount women received in Food Stamps added into the household total. For our analysis, we subtracted Food Stamps income from this total so that we could include it as a separate covariate. Thus, the measure of average monthly household income we used in the analysis excludes Food Stamps income.

observed bivariate associations become non-significant. The primary exception is depression; net of all of the other variables in the model, among women classified as food secure in 1998, those with higher CES-D scale scores were significantly more likely to transition to food insecurity in 2001. Four other variables had marginally significant associations with transitioning to food insecurity. Women with more minor children, women with worse self-reported health, and women who received SSI respectively were marginally more likely to become food insecure over time, while those who lived in Philadelphia were marginally less likely to do so than women living in Cleveland.

In the third column in Table 3, we include change scores for selected variables, which are calculated as the time 2 (2001) score on that variable minus the time 1 (1998) score.[6] We included change scores for five continuous variables, which measure change in personal resources (depression, self-reported health status), change in demand for food (number of children <18 years old in the household), change in economic resources (monthly income), and change in food program resources (monthly Food Stamps income). Additionally, we include two other variables that control for some of the underlying dynamics occurring in this population over this period. Specifically, we include a measure of the number of months out of a possible 48 in which the woman was working and a measure of whether the woman reported that she had hit the welfare time limit (as defined in her state or county).[7] All other variables are measured in 1998 and remain in the model.

[6] Ribar and Hamrick (2003) included both Time 1 and Time 2 variables in their models rather than change scores. Models estimated in that way are mathematically identical to models estimated with change scores. We chose to present the models with the change scores because we believe the presentation of the results is more straightforward.

[7] The 48 month period for the measurement includes the period prior to the year prior to the baseline interview and the three years between the 1998 and 2001 interviews. Some women (N=56) reported that they had hit the time limit but were granted a good cause or hardship exemption or extension of welfare

The model presented in the third column of Table 3 indicates that women with higher numbers of minor children in their households and larger increases over time in the number of minor children in their households, respectively, were significantly more likely to transition to food insecurity than women who had smaller family sizes or reductions in the number of children in their households over time. Similarly, women with higher incomes and larger increases in their incomes over time were significantly less likely to transition to food insecurity than were women who had stably low incomes or lost income over time. Net of these factors and all of the other variables in the models, both indicators of health status were related to food security transitions. Stably high CES-D scores and increases in CES-D scores over time significantly increased the odds of transitioning to food insecurity, while stably worse and worsening self-reported health status were also associated with a significant increase in the odds of experiencing a transition from food security to food insecurity. After controlling for everything else in the model, persons living in Philadelphia were significantly less likely than persons living in Cleveland to have transitioned from food security to food insecurity over this period.

Transitioning to Food Security

Table 4 presents a parallel set of analyses of the factors that affect transitions from food insecurity in 1998 to food security in 2001. In this analysis, we included an age-squared term in the model because preliminary analyses indicated a non-linear, U-shaped relationship between age and transitions to security. In addition to age and age-squared, seven other variables had significant bivariate associations with transitioning to food security, all of which mirror the associations we observed in the transitions to insecurity

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benefits. We did not include those women in our count of women who had hit the time limit since they retained cash benefits.

analysis presented above. Women who had more minor children in their households in 1998 and were classified as food insecure were significantly less likely to transition to security in 2001 than were food insecure women who had fewer minor children. Food insecure women who received welfare in 1998, had higher Food Stamps allotments, were more depressed, had worse self-reported health, and received SSI respectively were significantly less likely to transition to food security in 2001. Food insecure women who had worked at some point in the two-year period prior to the 1998 survey were more likely to transition to food security by 2001 than were initially food insecure women who did not have work experience in the two-year period prior to the 1998 interview.

As seen in the second column of Table 4, when all variables measured in 1998 are included in the model, the effects of age, having fewer minor children in the household, depression, and self-reported health remain statistically significant. Younger and older women who were food insecure in 1998 were more likely to transition to food security than were women in the mid-range of the age distribution, those with smaller family sizes were more likely to transition to food security than were those with larger numbers of minor children, and those who reported better mental and physical health were more likely to transition to food security than were those who were coping with higher levels of depression and worse overall health. Additionally, women who received SSI were marginally less likely to transition from food insecurity to food security. Notably, the effects of welfare receipt, size of Food Stamps allotment, and prior work experience are no longer significant.

In the third column in Table 4, the model that includes all the baseline variables, the five change scores, and the longitudinal work experience and time limit variable is

presented. The age pattern reported above remains statistically significant; younger and older women were more likely to transition to food security. Women who had larger numbers of minor children in their households were significantly less likely to transition to food security, while those with larger increases in their income over time were more likely to transition to food security. As was the case in the transition to insecurity analysis, both indicators of health status and change in health status had strong associations with transitions to security net of other variables. Women with stably high and increasing depression, respectively, were less likely to transition from food insecurity to food security over time. Similarly, women with stably bad and worsening self-reported health status were also less likely to transition from food insecurity to food security.

These results provide evidence that household composition, economic resources, and women's own physical and mental health exert the most consistent effects on transitions from food security to food insecurity or vice versa among these very low-income women. In the next section of this paper, we draw on longitudinal ethnographic data from the Cleveland site of the Project on Devolution and Urban Change, and measures of depression and household food security that are identical to those administered in the survey, to try to contextualize these associations and anchor these quantitative results in the lived experiences of very low-income women and their families.

Qualitative Analysis

In the qualitative component of the Urban Change study in Cleveland we conducted in-depth, lengthy interviews with 38 women who had been welfare reliant

when we began the study in 1997/1998. Annually, for four years we queried them about a range of issues, including: experiences with the welfare department; search for employment, experiences with employment, and employment transitions; their emotional well-being, and mental and physical health statuses; their children's emotional, mental, and physical health; child care arrangements; relationships with, and responsibilities for, extended family members; housing conditions and moves; transportation; experiences with boyfriends and husbands, including domestic violence; and annual income and expenditures.

The women in our sample lived in the most disadvantaged neighborhoods in Cleveland and most had great difficulty finding decent employment during the time that we interviewed them (Scott, Edin, London, and Kissane 2004). At the time of the fourth interview in 2001, 63% (22) were employed and 37% (13) were unemployed, although some worked in the informal labor market. Because most of the women in this sample had unstable and/or part-time employment and very low incomes, we thought they were at particular risk of food insecurity and that we might see considerable change in food security status as they moved from welfare to work or hit the 36-month time limit and were cut off cash benefits. However, as described in more detail below, we found that most of the women in our sample (29 / 35) remained stable in their food security status (i.e., secure or insecure) over the final year of the study. Therefore our data reveal little about the conditions for short-term *transitions* in food security status.

Food Security Status and Depression in the Cleveland Qualitative Interview Sample

In the second, third, and fourth interviews (1999, 2000, and 2001) we administered the CES-D to the women in the Cleveland qualitative interview sample,

while in the third and fourth annual interviews (in 2000 and 2001) we administered the Household Food Security Scale (HFSS). Additionally, we asked the women a set of open-ended questions about food security, which aimed to supplement the questions that were already in the interview guide about Food Stamps program participation, use of food banks, and family support when women did not have enough food to feed their families. In the context of responding to the HFSS, which was administered by the interviewers, and in response to the other questions we asked, respondents provided considerable detail regarding their strategies for providing adequate food for their families. Thirty-six of the 38 respondents completed the HFSS at one or both points in time and also completed the CES-D; the analysis that follows is based on the data available from these 36 women.

Using these data, we are able to investigate the relationship between depression and food security in the qualitative sample and inductively analyze the qualitative data within depression-food security categories in order to further our understanding of the inter-relationships among constrained economic resources, depression, and food security. For this analysis, we collapsed all cases of food insecurity (without hunger, with moderate hunger, with severe hunger) into a single food insecure category.

Overall, 45.7 percent (16 / 35) of the women who completed the HFSS at both points in time were classified as food insecure at one or both interviews (i.e., during the final year of the study). Overall, 37.1 percent (13 / 35) of the women were classified as food insecure at the final interview in 2001, while 28.6 percent of the women (10 / 35) were classified as food insecure at both times. Nineteen women (54.3 percent) were classified as food secure in both 2000 and 2001.

Similar to the findings from the survey, analysis of the data from the qualitative sample suggests that there is a strong correlation between depression (measured in 1999) and food security in subsequent periods (measured in 2000 and 2001). As seen in Table 5, 27.3 percent (6 of the 22 women) who scored low on the 20-item CES-D scale (where low depression was defined as scores below 20) were food insecure in 2000 and/or 2001 compared to 78.6 percent (11 of the 14) women who scored between 20 and 60 on the CES-D. Stated otherwise, nearly 3 out of 4 women who scored low on depression in 1999 were stably food secure in 2000 and 2001, compared to only 1 out of 5 women who scored high on depression in 1999.

Inductive Analysis of the Qualitative Data

Given the strong association in the qualitative data between food security status and depression, we decided to focus our qualitative analysis on the two main cell represented in Table 5: the group of women who tended to be food secure and experience low depression and the group that tended to be food insecure and experience high levels of depression. Below we present results from comparative analysis of the stably secure and the stably insecure households in the qualitative sample. These results highlight some similarities across these two groups, as well as some notable differences and suggest that depression (and/or health problems as indicated by worse self-rated health in the survey analysis) may interfere with the time- and labor-intensive strategies many women must employ to maintain adequate food for their families. These results also suggest that access to economic and social resources contribute to food (in)security among these very low income women. To the extent that depression and other health problems, which are often thought of as barriers to employment, compromise women's

ability to pursue public or community-based food resources or maintain ties with family that would allow them to access assistance, depression or other health problems might also be conceptualized as barriers to food security.

Women in Food Secure Households in 2000 and 2001

As noted above, low depression in 1999 was associated with being stably food secure in 2000 and 2001. Among these stably food secure women were those who managed to find the best of the jobs over the course of the study. However, the food secure households also included many who were marginally employed or who remained unemployed and hit the time limit. Their incomes ranged from $34,000 (plus the comparable income of her husband in one case) to under $12,000 per year. Despite such disparate economic resources, from 2000 to 2001, they maintained food security for their households as measured by the HFSS.

It is not difficult to understand the food security of those who went from welfare to stable, well-paying employment. Although we have few examples in comparison to those in marginal employment, they exemplify successful transitions off welfare into jobs that allowed them to rely neither on cash welfare and Food Stamps, nor on food pantries, family assistance, or complex strategies of food acquisition.

Among these more anomalous examples was Rachel who finished college while relying on welfare at the beginning of the study. She quickly found employment as a public school teacher, earning $34,000/year. She married a man who was also stably employed. Needless to say, she and her two children were doing well and food security was not an issue toward the end of the study in 2000 or 2001. Although other women in our sample were not in the economic and social position Rachel was in, there were other

cases in which women found jobs that paid well and sometimes had additional employment benefits. Debbie, a high school graduate with some additional years of school, was married. She and her husband were both employed. Debbie found a job doing medical billing, earning $1400/month. One of their four children is severely disabled and receives SSI. Despite the substantial additional expenses of caring for a disabled child, their monthly combined income allowed them to purchase a house and they reported they were doing well. Flora, a high school graduate with one child, found work in the welfare department. There she earned $1650/month, had health benefits, and managed to arrange her schedule so that she continued to take college classes while working. All three of these women were well-educated, comparatively speaking, and all experienced low depression in 1999. By many measures of material well being, these illustrated the "success" stories moving from welfare to work just after the implementation of welfare reform.

The food security of the other women in this category cannot be explained by their high wages and successful transitions off welfare. Some were employed in jobs that were not comparable to those described above, although they were not the worst jobs in the sample as a whole. For example, these women worked as nurse's aides, teacher's aides, factory workers, and office workers. Others were in extremely unstable jobs with very low earnings. Their places of employment included a video store, a coffee shop, a machine shop, and temporary positions in manufacturing and security companies. Finally, some in the stably food secure category were not employed at all in the formal sector, or held intermittent and /or part-time, very low-wage jobs.

What explains these women's stable food security if it cannot all be explained solely by economic self-sufficiency through employment? Their interviews reveal the importance of their ability to martial other sources of support, including Food Stamps and food pantries, family and network assistance, and their ability to pursue other strategies of food acquisition. Whether these women achieve food security through employment or because they are organized and connected enough to exploit other resources available to them, it is possible that the low depression that most of these women had in common was an important factor that enabled them to remain employed and/or pursue other avenues for food provision.

Food Stamps and Food Pantry Use among Women in Food Secure Households

For the food secure women who were not well employed, food stamps and/or food pantry use proved critical. Ten of nineteen women (53%) in this category still received food stamps (and two additional respondents who seemed to meet the net monthly income eligibility standards did not receive food stamps).[8] Five women reported that their foods stamp benefit levels were lower than they had been in prior years. Still, given the low incomes of these 10 respondents, food stamps clearly constituted a crucial household resource for food security.

With incomes insufficient to provide for their families, and fluctuating or disappearing food stamp benefits, many of the women in this stably food secure category worried about their ability to provide adequate food for their families. Seven women

[8] One respondent reported that her food stamps were reduced substantially and it was no longer worth her while to contend with the bureaucracy for so little benefit. The other reported that she was cut off of food stamps several months before we interviewed her the last time. She did not state why she was cut off. Because we have no data from observations or interviews in the welfare offices, we cannot ascertain the actual reasons for either the dramatic reductions in benefit levels or the unexpected cut offs reported by our respondents. In these cases, their income levels were low enough that they should have been eligible for full benefit levels.

(37%) discussed using food pantries and soup kitchens to supplement their food supplies. Five of the seven who used food pantries also received food stamps; the two women who did not receive food stamps reported using food pantries on occasion to supplement food supplies.

When Sarah, the mother of two young children, left welfare for a job, she earned $6.00/hour. Her food stamps were cut from $341/month to $140/month by the time of the last interview. She typically ran out of food before the end of the month. To avoid spending her limited cash on food, she relied monthly on a church food pantry. She was lucky: her mother-in-law worked there and supplied her with two boxes each month worth about $100.00 total. For many employed food secure women, income from earnings and other sources plus food stamps was still not adequate to provide for the families' food needs. They, like Sarah, organized their monthly activities around their need to acquire food from local pantries. This took considerable additional labor in their already often very hectic lives: it required that they know where the food pantries were, when they were open, and how often they were allowed to request food (some allow for monthly distribution to the same family, others allow distribution less frequently). It also meant additional trips on buses, in taxis, or in the cars of generous friends and relatives.

Family and Network Assistance among Women in Food Secure Households

Critical to women in food secure households was the assistance they received from network members. Nine of nineteen women (47%) reported receiving financial, housing, or food assistance from members of their extended families (primarily mothers, but also fathers, a mother-in-law, and "the kids' grandfather," and friends/lovers). All nine were marginally employed or unemployed at the time of the fourth interview.

Sarah (discussed above) would not have received two food boxes a month if it were not for the fact that her mother-in-law worked in the church. As a result of this network connection she was able to get around rules that typically limited access to one box per month (or less in many instances). Flossie, a high school graduate with two children, was unemployed after she hit time limits. She relied on food stamps, financial assistance from her parents who were stably employed, and the contributions of her employed boyfriend. Flossie was pursuing SSI benefits for herself due to asthma and diabetes. Olivia, the mother of 5 children, cleaned her mother's house for additional income in order to make ends meet while working full-time as a machine operator. Her earnings from formal-sector work were approximately $12,000/year and she continued to receive reduced food stamps at the time of the last interview in 2001.

Other respondents received housing assistance from network members. Marcy paid reduced rent living in property owned by her grandfather who also lived in the building and provided her children with snacks and occasional meals. Pamela lived with her parents and sister; Beverly's brother paid her rent. Thus, some women may have been able to maintain food security by finding ways to reduce other costs of living, such as rent, which would leave a larger proportion of their resources available for food.

Although these nine women were marginally employed, they were able to sustain food security at least partially due to the help of relatives and other network members. That they were not socially isolated may have been another factor linked to the low depression they experienced when the CES-D scale was administered in 1999. As we discuss below, more of the women who experienced high depression also appeared to be more socially isolated. Although we cannot comment on the direction of this

relationship, we note the importance of this potential correlation between low depression, social connection, and the food security experienced by these women.

Other Strategies among Women in Food Secure Households

The women in the stably secure category reported a few other strategies that they employed to help them maintain food security. Besides reliance on food stamps, food pantries, and relative support, a few women reported having to leave the neighborhood in order to find bargains as well as the food they prefer; eating a vegetarian diet in order to keep food costs down; and purchasing what one woman called "off-brands" in order to save money.

Although the women in the stably food secure category did not report problems indicative of hunger or food insecurity, some reported that they were not always able to provide the food they preferred to feed their families, either because they could not afford it or because it was not available in local stores. For example, Wendy, the mother of two teen children, commented that she could not provide the kinds of food her family prefers: "My children love their fresh vegetables and fruit. And I can't afford it all the time for them." Instead, she bought canned fruit and vegetables despite her concern about the extra sugar and preservatives. Still, most women felt that on the whole they were able to provide balanced meals and neither they nor their children skipped meals or went hungry. However, for some, including Wendy, providing enough food was an issue every month. Because food was the first priority, some women reported that they delayed other necessary purchases (for example necessary clothing) in order to provide food.

Without employing multiple, often time- and energy-consuming strategies, some marginally employed or unemployed women in our sample may not have been food

secure. Without food stamps, food pantries, financial, food, and housing assistance from family members, compromised food quality, and the opportunity to bargain shop when possible, it is quite possible that many of these families would become food insecure. At the time of our last interview they managed to sustain their food secure status, despite other indications that the material well being of their families was quite precarious. Employing multiple strategies to provide food requires considerable organization and planning, something that might be difficult for those women also struggling with depression. Therefore, the relationship between low depression and food security in these impoverished households is not surprising.

Women in Food Insecure Households

In contrast to the women in the stably food secure households, a high percentage of women who experienced food insecurity (with or without hunger) in 2000 and/or 2001 scored high on the CES-D in 1999. Most of the sixteen women whose households were food insecure in either 2000 or 2001, or at both times, had very low wages and unstable employment. Twelve of them never graduated from high school, and a few of these women did not finish 8th grade. Many of their situations were among the worst in our sample. Only two women (Alice and Linda) in this category had "good jobs"—their earnings were relatively high (about $24,000/year) and they received employment benefits. Both had a GED. We expected their food security status to improve, but it did not. One of them scored quite high on the CES-D scale in 1999, indicating that she suffered from significant depression which may be linked to her food security status.

All the other women whose households were food insecure were either underemployed or unemployed. Most of them did not work full time and many did not

work in the formal sector. For example, Cindy, one of the few who graduated from high school, worked out of her home selling advertising for a magazine. Gayle, who also finished high school, finally found work in a factory. Karen and Tanya worked part time for $6.00 and $8.00 per hour; Kathy was unable to find work at all; Jackie worked in the informal sector—doing sex work and washing and ironing out of her home; Glenda did some house cleaning; and when Katie lost her job working for a hotel she worked as a dancer and admitted that sometimes this included sex work.

Most of the women whose households were food insecure at one or both times reported that they experienced serious physical health problems or substance abuse problems. Some had children with serious health problems. Ten of the 16 women whose households were food insecure scored high CES-D scale in 1999. Poor employment, low income, physical health problems, and depression were likely interrelated and also linked to their food security status. Below we examine the resources which help alleviate food insecurity (food stamps, food pantries, and assistance from relatives), as well as the strategies employed by the women to diminish hunger and provide adequate food for their children. Although a higher percentage of women in food insecure households compared to those in food secure households received food stamps, and a number of them supplemented with food from soup kitchens and food pantries, these resources were not sufficient to prevent food insecurity. They received less assistance from relatives and had worse employment and lower incomes overall compared to women in food secure households. Both of these facts may be related to their higher depression scores overall.

Food Stamps and Food Pantry Use among Women in Food Insecure Households

Twelve of the 16 women (75%) in this category still received food stamps either consistently or intermittently during the last two years of the study. Of the four who did not receive food stamps, Alice and Linda earned too much when we last interviewed them, but Kathy and Tanya were clearly income eligible and we do not understand why they were cut off food stamp benefits. For example, Tanya, the mother of two children with serious health problems, reported substantial fluctuations in her food stamp benefits as her income changed during the course of the study and when, early on in the study, she was sanctioned and therefore cut off of all cash benefits and food stamps. At the end of the study she no longer received food stamps, although her earnings from work in a coffee shop were only around $689/month. Her food status shifted from insecure without hunger to insecure with moderate hunger. Although Tanya did not say so, it is possible that she was one of many recipients who neglected to respond to a request that she meet with a caseworker to re-determine her eligibility. We do know that her CES-D scores indicate that she struggled with depression. We know from her interviews that she had a history of abuse by a stepfather and by a series of boyfriends. She reported having a number of serious medical problems and the last time we interviewed her she was pregnant again. It is conceivable, given the stressors in her life, she neglected to appear at an in-person appointment regarding food stamp eligibility.

The twelve women in this category who were receiving food stamps were extremely poor (with an average income under $1000/month compared to an average income of $2000/month among the food secure who also received food stamps). Food stamps were a critical resource in the provision of food for their families, yet not

sufficient to make them food secure. In some cases, the food stamp income constituted approximately 1/3-1/2 of monthly income. For example, Jackie reported an approximate monthly total income of $642, $220 of this in food stamps.[9] Karen reported an approximate monthly income of $1322, with $447 of this in food stamps. Glenda reported $733, with $334 in food stamps. Cindy reported $1158, with $283 in food stamps, but her income fluctuated enormously from month to month and with it her food stamps fluctuated as well.

Most of those respondents who were food insecure in only one of the two times at which we administered the HFSS indicated that the loss or gain of food stamps might explain the shift in their household food security status. Two of the three women who shifted from being food insecure to food secure between times one and two reported having their food stamps reinstated and/or increased. In one case (Maria), her food stamp allotment increased dramatically—from zero food stamps at the time of the third interview to $437 per month at the time of the fourth interview. Although Maria's employment was unstable and her wages low (she worked two shifts, one in a grocery store during the day and one delivering pizza at night), she was able to make ends meet with the addition of food stamps to her household budget.

In another case, by the measures of the HFSS Heather became more food secure, yet Heather's story was quite tragic. She developed a severe addiction to crack cocaine during the course of the study and ended up working as a dancer and in sex work to support her habit. She lost custody of her children before the fourth interview. However, even after being cut off cash benefits and later after losing her children, Heather

[9] In this section we report income from all sources: earnings (reported and unreported), food stamps, EITC, unemployment insurance, emergency assistance, TANF, and child support or other network contributions.

continued to receive food stamps. This might account for her responses to the HFSS which indicated food security in the final year of the study, even though her life was anything but stable and secure.

In all three of the cases in which women shifted from being food secure to food insecure, they reported a loss of food stamps in the previous year. Geraldine was the mother of one child. She never finished high school and she lived at her mother's house. She reported that she worked two consecutive jobs in the last year of the study, the second job at a sandwich shop earning $6.50/hour. For reasons she did not explain, Geraldine was cut off of food stamps for a substantial period of time during the year, despite being income eligible. That made it difficult for her to obtain both the amounts and the kinds of food she wanted. Relying on low-cost food, Geraldine her family did not eat well-balanced meals. They had difficulty getting to better grocery stores than those available in her neighborhood because the family had no car. They occasionally ate their meals at a local church soup kitchen.

Martha also reported a loss of food stamps during the year prior to the last interview. Martha had four children, three of whom still lived at home. She had not graduated from high school and worked a number of low-wage jobs during the course of the study, finally working full time as a home health aide earning $8.00/hour. She also received SSI for one of her sons. She reported being cut off cash benefits when she hit time limits and then being cut off food stamps a number of months later (again, for reasons she did not report). Without food stamps, Martha found it more difficult to feed her family and tended to use food banks and soup kitchens on a regular basis in the last year of the study.

Hallie had one son and lived with her parents. Hallie had not even finished grade school and finding work was extremely difficult for her. She was employed occasionally in cleaning services, but none of these jobs lasted very long. Her food stamps fluctuated with her income and Hallie reported that every time her food stamps decreased it was "rough." She worried that she would run out of food altogether, she and other adults in the household skipped meals because they could not afford to eat, and she often ate less than she thought she should because they did not have adequate food available. Even when she received more food stamps, Hallie said that she typically ran out before the month was over. These examples illustrate how fluctuations in food stamp levels and the cessation of food stamp benefits were important factors in food security status.

Eight women experiencing food insecurity (50%) talked about using food pantries to supplement their food supplies. All of them said they used food pantries extensively. As the stories above illustrate, three respondents talked about using food pantries more extensively when their food stamps decreased or during times in which they received no food stamps. But three of those relying on food pantries simultaneously also received food stamps.

For example, Gayle, the mother of one who struggled to find employment and finally got a "good" job in a factory earning $7.50/hour, spoke throughout the time we interviewed her of her difficulties feeding herself and her daughter. Gayle said: "My food stamps don't last me. I don't know what I did, but usually I get em to last at least till towards the end of the month, you know, where I have at least a little bit on my card for milk and bread and cereal." When her food stamps did not last, she turned to food pantries, but expressed frustration: "You're only allowed to go to those churches every

other month. I don't understand that. You run out of food all the time, not every other month. The food stamps don't last that long." Gayle's food security status remained stable: she was food insecure with severe hunger throughout the final year of the study.

Glenda had custody of two of five children. Her food security status shifted from insecure without hunger to insecure with moderate hunger. Throughout the study, she reported using food pantries and soup kitchens on a regular basis; by the end of the study, she had increased to monthly use. In the last year of the study, her food stamps were reduced after she missed an appointment with a caseworker. Despite her heavy reliance on food pantries, Glenda worried constantly that she would run out of food. Cindy, also the mother of two children and food insecure without hunger at both times, used various strategies to secure enough food for her family, including monthly trips to food pantries.

Family and Network Assistance among Women in Food Insecure Households

This group differed substantially from the women in the food secure group in their degree of social isolation. None of the women who were food insecure reported any consistent financial or food assistance from family or network members, although those who were food insecure in only one of the two times we administered the HFSS mentioned more occasional support from relatives. Maria (discussed above) is one example: the year she received no food stamps, Marie depended on her mother and sister to help feed her four children, but once her food stamps were reinstated she relied on them much less frequently.

Alice, food insecure at both times, was one of the few who received occasional support from her network. At the time of the third interview, Alice had finally moved into a job that paid fairly well at the end of the study. Because her earnings had recently

gone up to $24,000/year in this job for an IRS collections agency, we anticipated that her food security status would shift, but she was still food insecure at the time of the final interview. Alice could turn to her mother when she needed help at the beginning of the study. Later on a new boyfriend helped out financially when food got low. Jackie, food insecure with severe hunger at both times, remarked that her son went to a church once to obtain a food basket for her, and on occasion she sent her teen age daughter to friends' houses to eat when they had no food. Jackie would simply not eat much herself during these times.

Kathy and Glenda received assistance from their families in the form of reduced rent—Kathy lived in a duplex owned by her brother and Glenda lived in a duplex owned by her parents. In both of these cases, the housing assistance was a critical resource to the family's survival. Additionally, both Kathy and Glenda could also rely on family members for occasional food assistance, but this was not a regular source of support. Kathy was classified as food secure with moderate hunger in 2000 and 2001. She described one of the rare times in which she turned to relatives for help: "About a month ago, one evening I decided, well, you're gonna hafta go to the telephone and call your brother and tell him that you're hungry, and my brother had to bring me a couple of bags of food and loan me ten dollars." By the last interview, her situation was quite desperate; she had hit the time limit, lost cash benefits and food stamps, and was not working. She relied on contributions from relatives for what little food she did have. She said: "I've been struggling, just doing whatever I can, I guess you would call it for survival. I've been getting food from relatives, getting a little bit of money here and there, whatever I could do. I felt like an animal trying to survive out in the woods."

On the whole, this group was marked by the notable absence of assistance from network members. In their discussions about food insecurity, most of the women in this category did not mention family or friends who helped them out. This stands in stark contrast to the nine food secure women who described regular, reliable financial, food, and housing assistance they received from relatives and network members. That they were socially isolated may have been linked to the higher depression many of these women experienced when the CES-D scale was administered in 1999. Again, although we cannot determine the direction of this relationship, we note the importance of this potential correlation between higher depression, the lack of social connection, and the food insecurity experienced by these women.

Other Strategies among Women in Food Insecure Households

Women whose status was stably food insecure talked about multiple other strategies for providing food for their families, including bargain shopping and purchasing generic brands, compromising the quality of the meals by serving food they could afford but food they considered to be nutritionally inadequate, cutting the size of meals, and adults skipping meals.

Glenda reported that her children were not eating balanced meals. She reported cutting the size of her and her children's meals in order to keep her family minimally fed. Similarly, Karen (stably insecure without hunger), the mother of three sons and a niece, made her food stamps "stretch" to feed the family all month by serving cheaper foods such as hot dogs at the end of the month. She could not afford to feed her family the food she preferred to serve. She also cut the size of her meals and occasionally her children's meals when they did not have enough food.

Cindy's fluctuations in income and corresponding fluctuations in food stamps caused considerable instability in her ability to provide for her two daughters. In addition to her frequent use of food pantries to supplement her food supply, Cindy reported making a concerted effort to "stretch" her food stamps by cutting meal sizes, eating less so that her daughters would have enough, and shopping for bargains, especially in the final year of the study when she acquired a car. Her car allowed her to travel out of her neighborhood, seeking bargains as well as food she considered more nutritious than that available in neighborhood stores.

Gayle reported that she "would feed my kid before I would eat." Struggling to feed herself and her child, Gayle bought generic foods in an attempt to save money. She went a day or two each month without food so that her child could eat. And sometimes her daughter did not eat enough because Gayle had no money to buy food. At the end of the study her employment had stabilized and she was less fearful about providing food, but still concerned about whether she could provide nutritious food and the kind of food they preferred to eat.

Jackie commented on her situation: "I'm worried! I don't know what is going to happen. I can still have the house (she has Section 8), but if I don't get work or do something I don't know how I'm gonna pay my lights, I don't know how I'm gonna pay my gas. I don't know how we gonna eat. I don't know nothing right now." She elaborates on her inability to provide enough food for herself and her daughter: "That's often *[that we can't afford to eat]*. We barely eat two meals a day, really. You supposed to eat three, you know?" Jackie cut meals for her daughter and skipped meals herself. She lost weight as a consequence.

Besides the problem of inadequate income, women struggled with reduced or eliminated food stamps, poor quality and expensive foods in the local stores, a lack of transportation to allow them to shop outside their neighborhoods where they might find higher quality and cheaper foods, and limitations on their use of the food pantry system. Although women in both food status categories described the use of multiple strategies to keep their families fed, the references to what must be considered desperate measures were much more frequent in our conversations with those who were stably food insecure.

Their stories of poor employment, lower average monthly incomes, and fewer network connections in comparison to those women whose households were food secure were likely linked to their generally higher depression scores. Although they employed some of the same additional strategies to provide adequate food for their families, such as relying on food pantries, bargain shopping, reducing the size and compromising the quality of meals, and even adults skipping meals, they were unable to compensate for the absence of other resources. Food insecurity was probably both a consequence of the severe problems these women struggled with and an indicator of those other problems.

Discussion

It is well-documented that food insecurity is highly concentrated among the poor (Bickel, Carlson, Nord 1999; Nord, Jemison, and Bickel 1999; Polit, London, and Martinez 2001; Rose, Gunderson, and Oliveira 1998). However, to date, there has been limited research on food insecurity stability and change over time among the poor. One recent study suggested that in the context of welfare reform in Cleveland, Ohio the prevalence of food insecurity, as measured by the Household Food Security Scale (HFSS), did not change in a cohort of very low-income women who had either recently

left welfare or were still subject to the mandates of welfare reform, but that such aggregate-level stability masked considerable countervailing change at the individual level (Brock et al. 2002). A second recent study found that the primary determinants of entrances into and exits from food insufficiency were economic (e.g., education, assets income, income-to-needs ratio, hours worked, Food Stamps Program participation), although to some extent social structural factors, such as age and being in a female-headed household also mattered (Ribar and Hamrick 2003). These authors also reported that the results changed depending on how food sufficiency/security was measured. A third recent study of initially welfare-reliant women used food insufficiency at one or two points in time as an independent variable and demonstrated that in the short-term there were associations between food insufficiency and worse self-reported health, functioning, depression, and sense of mastery (Siefert, Heflin, Corcoran, and Williams (2004).

In this study, we used survey and qualitative interview data collected under the auspices of MDRC's Project on Devolution and Urban Change to examine food security stability and change, as measured by the HFSS, in the context of the post-1996 welfare reforms. Specifically, we analyzed: (1) survey data, collected from very low-income women in four counties in 1998 and 2001, to determine the factors associated with increasing or decreasing the odds of transitioning to food insecurity in 2001 among those who were food secure in 1998 and transitioning to food security in 2001 among those who were food insecure in 1998; and (2) rich longitudinal qualitative interview data to examine the factors associated with food (in)security.

In the survey sample, 25.3 percent of those who were food secure in 1998 were classified as food insecure in 2001, while 43.7 percent of those classified as food insecure

in 1998 were food secure in 2001. Multivariate analyses indicated that the number of children under age 18 years in the household, income, and physical and mental health statuses were the most consistent predictors of transitions into and out of food security over time. Among women who were food secure in 1998, the odds of transitioning to food insecurity were increased among those who had more minor children in the household in 1998, those who had an increased number of minor children in the household over time, those with lower income in 1998, those with decreasing income over time, those with higher CES-D depression scale scores in 1998, those with increasing depression over time, those with worse self-reported health, and those with worsening self-reported health status over time. Among women who were food insecure in 1998, the odds of transitioning to food security in 2001 were lower among those who had a larger number of minor children in their households over time, those with decreasing income over time, those with higher CES-D scores in 1998, those with increasing depression scale scores over time, those with worse self-reported health status in 1998, and those with worsening health status over time.

The results regarding the relationship between income and food security are not unexpected and are broadly consistent with those reported by Ribar and Hamrick (2003). Food insecure families are able to translate income gain into food security over time, while food secure families who lose income over time also lose food security. The consistent results regarding changes in the number of children in the household are less expected, but may reflect increasing demands for food resources in families who have experienced the birth of a child or families who are informally fostering the children of relatives or friends. Perhaps the most intriguing results observed in these analyses pertain

to depression and self-reported health status. These are often conceptualized as barriers to employment in the literature on welfare reform (see, for example, Polit, London, and Martinez 2001). Our results suggest that depression and poor physical health status may also be barriers to food security; among these low-income women, stably poor and worsening mental and physical health statuses have large and consistent effects on transitions into and out of food security net of a range of other factors, including income.

We used the qualitative data from the Cleveland, Ohio site of the Project on Devolution and Urban Change to help us understand this association better, and to provide additional insights into other factors that may be related to food (in)security among very low income urban women. We began by cross-tabulating women's food security status in 2000/2001, as measured by two administrations of the HFSS, with high and low depression in 1999, as measured by scores of 19 and below (low depression) and 20 and above (high depression) on the CES-D. We found a strong correlation between depression and food (in)security: 72.7 percent of those who scored low on the depression scale were food secure in 2000 and 2001 compared to only 21.4 percent of those who scored high on the depression scale. Stated otherwise, nearly 80 percent of the women who scored high on depression in 1999 experienced food insecurity in either 2000 or 2001, or at both later points in time.

Analyses of the qualitative interview provide some information that may help us understand the link between depression and physical health problems and food (in)security. These data indicate that these low-income women generally used multiple strategies to prevent or reduce food hardships for their families. These included but were not limited to going to food banks; maintaining their connection to the Food Stamp

Program; cutting back their food intake so children could have more food; smoking to reduce appetite; eating reduced-quality and less-expensive foods; receiving food from or eating with family or friends; careful shopping and use of coupons; and stealing. The qualitative data also indicated that food secure women tended to have better employment and income outcomes than the food insecure women, and they also tended to be less socially isolated. Given the strong correlation between depression and food (in)security in this sample, and other evidence that physical and mental health problems are barriers to employment (Lehrer, Crittenden, and Norr 2002; Polit, London, and Martinez 2001), one implication of these results is that the women in the qualitative sample who were more depressed may have been less able to obtain and maintain good jobs and less able to maintain the social connections that would allow them to rely on family and friends for food resources. Women who were depressed or had health problems may also have been less able to engage in the various and multiple strategies necessary to achieve food security with extremely constrained resources.

In their recent paper in which they documented an association between food insufficiency and mental and physical health outcomes among a sample of initially welfare-reliant women, Seifert, Heflin, Corcoran, and Williams (2004) concluded that their results "highlight the need for more research to better understand the relationship between household food insufficiency and the nutritional status of household members, as well as the immediate and long-term consequences of even mild to moderate nutritional deprivation on physical and mental health" (pp. 182-183). Our mixed-methods results suggest that the relationship may work in the other direction as well; mental and physical health problems may be barriers to food security for low income

women because such problems may impede women's ability to engage in the range of activities that are often necessary to achieve or maintain food security when living with a highly constrained budget. Given the evidence presented in this paper that mental and physical health problems affect food security, and the evidence reported by others that food insufficiency affects physical and mental health even in the short term, we believe that more research into the ways that food security/insufficiency and mental and physical health problems are interrelated is warranted.

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Table 1: Food Security Status Transition Matrix from 1998 to 2001, Urban Change Survey Sample (N=3210).

	Wave 2 (2001)				
	Food Secure	**Food Insecure, No Hunger**	**Food Insecure, Moderate Hunger**	**Food Insecure, Severe Hunger**	**Row Total**
Wave 1 (1998)	*% (n)*	*% (n)*	*% (n)*	*% (n)*	*% (n)*
Food Secure	74.7 (1198)	21.0 (337)	3.6 (57)	0.75 (12)	50.0 (1604)
Food Insecure, No Hunger	49.1 (539)	37.8 (415)	10.3 (113)	2.7 (30)	34.2 (1097)
Food Insecure, Moderate Hunger	34.5 (132)	41.3 (158)	18.0 (69)	6.3 (24)	11.9 (383)
Food Insecure, Severe Hunger	23.8 (30)	28.6 (36)	25.4 (32)	22.2 (28)	3.9 (126)
Column Total	59.2 (1899)	29.5 (946)	8.4 (271)	2.9 (94)	

Table 2: Selected Characteristics of Food Secure and Food Insecure Respondents in 1998, Urban Change Survey Sample.

Characteristic (*measured in 1998*)	**Food Secure**	**Food Insecure**	**p-value**	**Full Sample**
Mean Age *(19-50 years)*	33.2	34.5	***	33.9
Race Ethnicity: % White	5.4	4.7	***	5.1
% African American	73.6	63.9		68.7
% Hispanic	19.2	29.9		24.6
% Other Race/Ethnicity	1.7	1.6		1.7
% Not a Citizen	7.0	13.5	***	10.2
% Has HS Diploma/GED	37.5	34.6	#	36.0
% Lives with Spouse/Partner	20.9	16.4	***	18.7
Mean # Children < 18 in HH *(1-11)*	2.4	2.5	*	
% Currently Receives Welfare	49.1	53.7	*	51.4
% Worked in Prior 2 Years	74.8	71.2	*	73.0
Mean Monthly Income (/100) *($0-200)*	9.43	8.11	***	9.25
Mean Monthly Food Stamps (/100) *($0-11)*	1.58	1.63		1.68
Mean CES-D Score *(0-60)*	14.7	19.8	***	17.8
Self-Rated Health: % Excellent	21.8	14.4	***	18.1
% Very Good	28.7	21.1		24.9
% Good	29.7	33.5		31.6
% Fair	16.2	23.2		19.7
% Poor	3.6	7.9		5.8
% Currently Receives SSI	12.2	16.5	***	14.4
Residence: % Living in Cleveland	28.7	24.6	***	26.6
% Living in Los Angeles	20.5	27.1		23.8
% Living in Miami	21.7	26.8		24.2
% Living in Philadelphia	29.2	21.5		25.4

Significance Levels: # = $p < 0.10$; * = $p < 0.05$; ** = $p < 0.01$; *** = $p < 0.001$.

Table 3: Logistic Regression Analysis of Transition to Food Insecurity in 2001 among Those Who Were Food Secure in 1998, Urban Change Survey Sample.

Characteristic	Unadjusted Baseline Covariates	Multivariate Baseline Covariates Only	Multivariate Baseline and Change Covariates
Age in 1998 *(19-50 years)*	0.017*	0.007	0.007
	(0.008)	(0.009)	(0.011)
Race/Ethnicity: *(white is omitted)*			
African American	-0.020	0.029	0.078
	(0.254)	(0.272)	(0.291)
Hispanic	0.156	0.223	0.320
	(0.275)	(0.306)	(0.326)
Other Race/Ethnicity	0.178	0.274	0.134
	(0.476)	(0.517)	(0.571)
Not a Citizen *(=1)*	0.300	0.170	0.285
	(0.215)	(0.272)	(0.286)
Has HS Diploma/GED, 1998 *(=1)*	-0.172	-0.113	-0.038
	(0.121)	(0.128)	(0.138)
Lives with Spouse/Partner, 1998 *(=1)*	-0.331*	-0.189	-0.282
	(0.149)	(0.167)	(0.178)
# Children < 18 in HH, 1998	0.075*	0.080#	0.161**
(range 1-11)	(0.037)	(0.045)	(0.057)
Children < 18 Change	--------	--------	0.187**
(*time 2 – time 1)*			(0.061)
Receives Welfare, 1998 *(=1)*	0.342**	0.165	-0.068
	(0.115)	(0.156)	(0.170)
Respondent Hit Time Limit *(=1)*	--------	--------	0.166
			(0.194)
Worked in 2 Years Prior to 1998	-0.395**	-0.191	-0.169
(=1)	(0.127)	(0.149)	(0.181)
Total # of Months Worked Out of 48 Months: *(0-12 is omitted)*			
13-35 Months	--------	--------	-0.000
			(0.002)
36-48 Months	--------	--------	-0.003
			(1.664)
Total Monthly HH Income (/100), 1998 *($0-200)*	-0.013*	-0.006	-0.017*
	(0.006)	(0.006)	(0.007)
Income Change *(time 2 – time 1)*	--------	--------	-0.030***
			(0.007)

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Monthly Food Stamps, 1998 (/100)	0.102**	-0.004	-0.032
($0-11)	(0.036)	(0.055)	(0.071)
Food Stamps Change	--------	--------	-0.030
(time 2 – time 1)			(0.050)
CES-D Score, 1998 *(range 0-60)*	0.031***	0.024***	0.042***
	(0.005)	(0.006)	(0.007)
CES-D Change *(time 2 – time 1)*	--------	--------	0.037***
			(0.007)
Self-Reported Health, 1998	0.206***	0.109#	0.184*
(range 1-5, where 5=poor)	(0.053)	(0.058)	(0.074)
Self-Reported Health Change	--------	--------	0.236**
(time 2-time 1)			(0.074)
Receives SSI, 1998 *(=1)*	0.494**	0.3091#	0.227
	(0.163)	(0.183)	(0.199)
Residence: (*Cleveland is omitted)*			
Los Angeles	-0.062	-0.274	-0.203
	(0.165)	(0.190)	(0.206)
Miami	-0.076	-0.108	-0.149
	(0.162)	(0.178)	(0.192)
Philadelphia	-0.186	-0.267#	-0.351*
	(0.151)	(0.162)	(0.175)
Constant	--------	-1.966***	-2.474***
-2 Log L	--------	1660.5	1466.6
Observations	--------	1537	1452

Significance Levels: # = p < 0.10; * = p < 0.05; ** = p < 0.01; *** = 0 < 0.001.

Table 4: Logistic Regression Analysis of Transition to Food Security in 2001 among Those Who Were Food Insecure in 1998, Urban Change Survey Sample.

Characteristic	Unadjusted Baseline Covariates	Multivariate Baseline Covariates Only	Multivariate Baseline and Change Covariates
Age in 1998 *(19-50 years)*	-0.159*	-0.145#	-0.170*
	(0.070)	(0.074)	(0.080)
Age Squared	0.002*	0.002*	0.003*
	(0.001)	(0.001)	(0.001)
Race/Ethnicity: *(white is omitted)*			
African American	0.233	0.205	0.129
	(0.245)	(0.261)	(0.277)
Hispanic	0.343	0.357	0.287
	(0.254)	(0.283)	(0.299)
Other Race/Ethnicity	-0.667	-0.695	-0.522
	(0.520)	(0.567)	(0.588)
Not a Citizen *(=1)*	0.159	0.001	-0.054
	(0.146)	(0.189)	(0.202)
Has HS Diploma/GED, 1998 *(=1)*	0.061	0.001	0.016
	(0.106)	(0.112)	(0.120)
Lives with Spouse/Partner, 1998 *(=1)*	0.004	0.065	0.181
	(0.136)	(0.151)	(0.160)
# Children < 18 in HH, 1998	-0.169***	-0.159***	-0.221***
(1-11)	(0.034)	(0.041)	(0.051)
Children < 18 Change	--------	--------	-0.044
(time 2 – time 1)			(0.055)
Receives Welfare, 1998 *(=1)*	-0.290**	-0.146	-0.133
	(0.205)	(0.136)	(0.148)
Respondent Hit Time Limit *(=1)*	--------	--------	-0.214
			(0.180)
Worked in 2 Years Prior to 1998	0.285*	0.085	0.199
(=1)	(0.113)	(0.130)	(0.158)
Total # of Months Worked Out of 48 Months: *(0-12 is omitted)*			
13-35 Months	--------	--------	-0.002
			(0.002)
36-48 Months	--------	--------	-0.002
			(0.002)

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Total Monthly HH Income (/100), 1998	-0.005	-0.005	-0.001
($0-200)	(0.007)	(0.008)	(0.008)
Income Change *(time 2 – time 1)*	--------	--------	0.125*
			(0.005)
Monthly Food Stamps, 1998 (/100)	-0.114**	-0.008	0.065
($0-11)	(0.035)	(0.050)	(0.064)
Food Stamps Change *(time 2 – time 1)*	--------	--------	0.062
			(0.042)
CES-D Score, 1998 *(0-60)*	-0.023***	-0.018***	-0.042***
	(0.004)	(0.005)	(0.007)
CES-D Change *(time 2 – time 1)*	--------	--------	-0.040***
			(0.006)
Self-Reported Health, 1998	-0.169***	-0.122*	-0.173**
(range 1-5, where 5=poor)	(0.045)	(0.052)	(0.067)
Self-Reported Health Change	--------	--------	-0.203**
(time 2-time 1)			(0.062)
Receives SSI, 1998 *(=1)*	-0.439**	-0.267#	-0.157
	(0.141)	(0.290)	(0.169)
Residence: *(Cleveland is omitted)*			
Los Angeles	0.046	-0.049	-0.176
	(0.140)	(0.163)	(0.174)
Miami	0.195	0.105	0.059
	(0.141)	(0.156)	(0.166)
Philadelphia	0.007	0.052	0.058
	(0.149)	(0.160)	(0.171)
Constant	--------	3.127*	4.176**
-2 Log L	--------	2036.6	1817.5
Observations	--------	1544	1444

Significance Levels: # = p < 0.10; * = p < 0.05; ** = p < 0.01; *** = 0 < 0.001.

Table 5: Depression (in 1999) and Food Security Status in 2000/2001, Urban Change Ethnographic Sample (N=36).

	Low Depression in 1999	**High Depression in 1999**
	% *(n)*	*%* *(n)*
Food Secure in 2000 and 2001	72.7 (16)	21.4 (3)
Food Insecure in 2000 and/or 2001	27.3 (6)	78.6 (11)
Column Total	100 (22)	100 (14)