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Family Structure and Income Volatility:
Association with Food Stamp Program Participation

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Abstract

Using the Fragile Families and Child Well-Being Study, this paper investigates how income volatility and union stability and transitions influence patterns in Food Stamp Program (FSP) participation among a sample of young families (n=1263). Multinomial logistic regression models suggest that families that experience significant declines in income are related to constant and transitional participation. Families that stay married are more likely not to participate, while other stable unions (e.g., stably cohabiting couples and stably singles) and unions in transition are associated with always participating. We also found immigration status, health, public agency support, public health insurance, and housing assistance from the government or friends/family, to be significant in predicting participation. Strategies to increase participation are discussed.

KEYWORDS: food stamp program participation, income volatility, union transitions, cohabitation, fragile families

Family Structure and Income Volatility:

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The Food Stamp Program (FSP) provides key support to needy households and to those making the transition from welfare to work by helping low-income households buy the food they need for a nutritionally adequate diet. Food stamps have been found to increase the purchasing power of a family of four who are supported by a full-time, year-round minimum wage worker by about 36 percent (Rosenbaum & Super, 2005). Although nonparticipation by those eligible for receipt in FSP is quite high (Barrett & Poikolainen, 2006; FNS, 2006), researchers and policymakers are concerned with the large variability in participation rates, especially over the last 10 to 15 years. It is estimated that of the population with incomes less than 130 percent of the Federal poverty threshold (those most likely to be eligible), in 1990, 1995, and 1998; 41, 49, and 39 percent respectively participated, followed by caseloads increases of 26 percent between 2000 and 2003 (Currie, 2003; FNS, 2006). The fluctuations seen in the 1990's and 2000's happened concurrently with the passage of welfare reform, changes in food stamp policies, and varying macroeconomic characteristics.

Economic prosperity as seen in the later half of the 1990's and fluctuations in personal income can influence greater participation in public assistance (McKernan & Ratcliffe, 2003; Yeung & Hofferth, 1998). Existing research on income volatility, or drops in annual income of 30 percent, have found 21 to 45 percent of samples experience income instability (Mayer, 1997; Yeung, Linver, & Brooks-Gunn, 2002). Household income volatility can lead low-income families to cycle in and out of eligibility status for food assistance. This is of importance because income volatility is more likely among the lowest income population and substantial increases in volatility for this population were seen between 1992 and 2003 (Bania & Leete, 2007). For

example, ERS found that approximately two-thirds of the households that had incomes below

185 percent of the poverty level in at least one month of the year had one or more changes in

eligibility status. One-fifth of the households had three or more eligibility status changes in a

single year (Newman, 2006). Furthermore, eligible non-participants of the FSP are more likely

to have greater income volatility than eligible participants of the FSP (Farrell, Fisherman,

Langley, & Stapleton, 2003). Thus, it is not only the level of income but the magnitude of

income loss that influences eligibility status and participation. This study considers the role that

income volatility plays in determining constant and transitional participation in the FSP.

Another factor that can influence FSP participation is marital status. Literature on family

structure suggests that marital status is an important determinant of participation in the FSP,

namely being married is associated with low food stamp participation rates. In 1994, a period

with high participation, almost all single-parent eligible households participated, whereas only

78 percent of eligible households with children and two or more adults did (U.S. Committee on

Ways and Means, 1998). However, in the past thirty years, the demography of the family,

namely family structure, has also undergone drastic changes with decreases in marriage and

increases in cohabitation. Although, there are approximately 5.5 million cohabiting couples

(U.S., Bureau of the Census, 2001), recent research indicates cohabitation is short-lived, with

most unions ending in dissolution rather than marriage, and with transitions into marriage

unlikely among poor women (Lichter, Qian, & Mellott, 2006). Despite an increased interest in

union stability and transitions among scholars (Carlson, McLanahan, & England, 2004; Lichter,

et al., 2006; Sassler & McNally, 2003; Weagley, Chan, & Yan, 2007) and policymakers alike,

there is a lack of work examining the relationship between union stability and transitions and

food assistance program participation. While union dissolution is associated with a loss in

income (Mauldin & Mimura, 2007; Yeung & Hofferth, 1998) and union formation is associated with a gain in income[1], family structure dynamics is particularly important to participation in the FSP. This association is also particularly important in the context of welfare reform and healthy marriage initiatives designed to encourage marriage among low-income families, with marriage seen as a way out of poverty.

Research based on the family stress theory suggests that families who are subjected to economic pressure adjust in order to prevent maladaptive outcomes (Conger and Elder, 1994). According to economic theory, families may adjust to the economic changes by pooling their financial resources to obtain the best possible outcome (or utility) for themselves (Becker, 1991). For some, the best way to pool resources would be to form a union, either through cohabitation or marriage, with the premise of forming and staying in a union out way the costs. Using the Fragile Families and Child Wellbeing Study (FFCW), the paper focuses on how income volatility (e.g., economic pressure) and union stability and transitions (e.g., pooling or dismantling of resources) simultaneously are associated with patterns of FSP participation, taking into account individual-level demographic characteristics, policy variables, and macroeconomic conditions. It is hypothesized that experiencing income volatility is associated with FSP participation. Second, we hypothesize that couples who dissolve a union or are stably single, which are associated with a loss or a lack of income and resources respectively, will be more likely to participate in the FSP. Last, families that pool their resources by forming a union or staying in a union (e.g., cohabitation or marriage) will be less likely to participate in the FSP.

Background

In order for the FSP to be effective in influencing the food security of the low-income population, that is the access to sufficient, safe, and nutritious food to meet dietary needs,

eligible households need to enroll or "take-up" the program. Individuals may choose not the

participate for a variety of reasons including insufficient information about eligibility (Daponet,

Sanders, & Taylor, 1999), expectation of low benefits (Blank & Ruggles, 1996), they do not

perceive a need (McConnell & Nixon, 1996), or program participation is stigmatizing (Moffitt,

1983). Thus, it is important to understand what characteristics, at the individual level, might be

responsible for differences in program take-up. Recent empirical work suggests that several

demographic characteristics are significantly associated with food stamp receipt. In general this

research indicates that FSP non-participation is more likely among eligible people who are more

economically advantaged. Specifically compared to those in the food stamp caseload, non-

participating eligibles had higher average household income, and were more likely to have

income from earnings and Social Security income (e.g. Bartlett & Burstein, 2004; Cunnyngham,

2002; Gleason, Schochet, & Moffitt, 1998). Non-whites and those with less than a high school

education are more likely to participate, as are those with larger families and very young children

(Cancian et al., 2001; Ponza et al., 1999). Additionally, despite having incomes below the

poverty threshold, non-participants are more likely to own a car (Zedlewski & Gruber, 2001).

Caseloads for welfare and other benefit programs fell dramatically in the wake of welfare

reform (Blank, 2002), with the declines steeper for immigrants than for native-born citizens (Fix

& Passel, 1999) even when immigrant families remain eligible for assistance. Welfare reform

policies originally made most legal immigrants ineligible for food stamps until they attained

citizenship, although these components of the law were never fully implemented and benefits

were restored to nearly 1/3 of the pre-enactment immigrants who became ineligible after 1996

(Carmody & Dean, 1998). As a result of these changes, immigrant families faced a vastly

different policy environment—one marked by a confusing and ever-changing set of rules

concerning their eligibility to access social institutions and public assistance (Zimmerman &

Tumlin, 1999). This confusion about eligibility and fears about immigration status may also exist

with respect to FSP participation years later.

Confusion about food stamp eligibility also arises when families leave welfare. Often,

families leaving welfare are unclear that they maintain both food stamp and Medicaid eligibility,

and because each program operates independently, findings indicate that families are more likely

to lose their food stamps (even when they remain eligible) but more likely to retain Medicaid

(Quint & Widom, 2001). However, the relationship between Medicaid and food stamps is less

clear. Like food stamps, rates of Medicaid declined following welfare reform alerting scholars

and policymakers to potential negative health outcomes associated with reductions in these

programs. These issues have lead to recommendations that states coordinate their efforts between

these two health-related programs for low-income families (Schott, Dean, & Guyer, 2001).

This paper adds to the existing research on who participates in the FSP in several

important ways. By examining a rich set of demographic, health, and economic hardship

measures that are not readily available in other data sets[2], this paper will help identify factors

associated with participation during a period of marked change both within the Food Stamp

program, the economy and family stability. This study covers participation between 1999 and

2003, a period that followed dramatic declines in participation (40 percent decline between 1994

and 1999) with an increase in participation between 2000 and 2003 of 26 percent. Further,

during this time the economy slowed dramatically, and entered a recession in 2001. This is

particularly relevant given our analysis consists of a low-income population with children, those

who are most likely to be food-insecure. Finally, this paper will simultaneously examine these

associations with important information on economic and policy variables. Controlling for

economic and policy variables will not only provide researchers and policymakers with information on the impact of these variables, but also by controlling for them, the individual- and family-level influences can be evaluated. This stylistic analysis will enable us to understand some of the factors associated with selection into food assistance programs, qualities that are important from a policy perspective. Last, the analysis will also aid researchers learning how income volatility and union stability and transitions influence constant and transitional FSP participation.

Method

Data for this paper are drawn from the *Fragile Families and Child Wellbeing Study* (FFCW), a longitudinal study that examines the conditions and capabilities of new unmarried parents and the welfare of their children. The FFCW study follows a cohort of 4,898 births born in 20 U.S. cities between 1998 and 2000 (For information on sample and design of the study please see Reichman, Teitler, Garfinkel, & McLanahan, 2001).

Analyses focused on mothers who participated at the 12- and 30-month follow-up surveys (no program information was collected at baseline) and provided information on demographic, household, socioeconomic characteristics ($n = 4,629$). Mothers who were not part of the nationally representative sample were also excluded (1,284 observations) to ensure our analysis is representatives of non-marital births in large urban centers. Mothers who reported multiple births (95 observations) or were not living with the child at either wave (92 observations) were also excluded from our analyses.[3] Mothers with missing values on the dependent variables (program participation) at either interview were also excluded (433 observations). Further, the sample is restricted to only mothers who report household incomes less than $40,000 annually at the wave 2 interview (when the child is 12 months old). Because

the FSP has eligibility requirements, understanding factors associated with participation require

that the respondents are similar to those who are eligible for programs and services. The cut-off

of $40,000 was used because it represents approximately two-times the poverty threshold for a

family of four and a common definition for the working poor.[4]

For observations missing less than one percent of the covariates, observations were

dropped (392 observations), whereas for observations missing greater than one percent, (e.g.,

mothers' race – two percent; own reliable car – nine percent) dummy flags were constructed for

those covariates (Nepomnyaschy, 2007). The final analysis resulted in a sample of 1,263 where

mothers reported on both the dependent and independent variables.

FSP Participation

At the 12-month and 30-month surveys mothers reported on FSP participation. At the

12-month interview mothers reported on whether or not they had participated in the past year

(equivalent to since the child's birth). At the 30-month survey mothers reported on whether or

not they had participated since the child's first birthday (equivalent to time since the last survey

interview). Several mutually exclusive dichotomous variables were created to measure changes

in FSP participation. Mothers who reported participating in the FSP at both interviews were

classified as "always" participating; while mothers who reported not participating in the FSP at

both time points were classified as "never" participating. Mothers who responded they had not

participated in the FSP at the 12-month interview, but indicated they were participating at the 30-

month interview were classified as "entering" the program. Last, mothers who reported they

were participating at the 12-month interview, but indicated they were not participating in the FSP

at the 30-month interview were considered as "exiting" the program.

Independent Variables

Child, maternal, and household characteristics. Child's gender (boy=1, girl=0) was asked at time of birth and child's age in months is measured at the 12-month survey. Measured at baseline, mother's race includes Non-Hispanic White, Non-Hispanic Black (omitted), Hispanic, Non-Hispanic other race (e.g., groups Asian, American Indian, and other), and whether this variable was missing. Mother's age in years, education, and employment was measured at the 12-month survey. Education is captured with three dichotomous variables: less than high school degree, high school degree or General Educational Development (GED), and any college (omitted). Employment is a continuous variable that captures the number of weeks worked in the past year, ranging from zero to 52.

Three dummy variables are used to measure mother's citizenship from two questions posed in the baseline survey. Mothers who stated they were born in the U.S. were coded U.S. born. Foreign born mothers were asked in what year they came to the U.S., namely differentiating between those arriving in the U.S. before 1996 and those arriving in the U.S. after 1996 (omitted).[5] Because all children were born in the U.S. they are eligible for programs, but due to changes in the welfare reform legislation, those entering the U.S. after 1996 may face a different policy environment and eligibility. Finally, the number of minors living in the household was measured at the 12-month survey and ranges from one to four.[6]

Child and maternal health. Measures of the child's health were based on mother report at the 12-month survey with the exception of low birth weight (LBW) which was calculated at baseline. Mother's reported if the child's health in general is excellent, very good, good, fair, or poor. Given the relatively uncommon occurrence of less than good health among children, following Currie and Stabile (2002), if the mother stated that the child is in "good", "fair", or "poor" health they are coded as in "poor" health. Children who weighed less than 2,500 grams

at birth were classified as LBW. Mothers also reported whether or not the child had any physical disabilities, and whether or not the child was *ever* breastfed.

Two indicators were used to measure mother's health at the 12-month follow-up. The first indicator is the self-rated measure where mothers who stated that they were in "fair" or "poor" health were coded as having "poor" health. The second indicator of mother's health is a measure of depression derived from the Composite International Diagnostic Interview Short Form (CIDI-SF) (Walters et al., 2002). This measure is designed to determine feelings of sadness and depression, loss of interest in hobbies and pleasurable activities, and being tired or low on energy. A dichotomous measure of depression was created where mothers who endorsed three or more symptoms were classified as probable cases of depression, while mothers who endorsed two or less symptoms were coded as not-probable (for more information see CRCW, 2006).

Economic hardship. Seven variables were created to depict various types of economic hardship including measures of household hardship (material hardship, food insecurity, and informal financial support) and measures of government support (health insurance, agency support, housing, and transportation) all taken from the 12-month survey. If a mother responded affirmatively to experiencing any of the following seven hardships, the household is considered having experienced material hardship (Kenney, 2003): (1) receiving free food or meals, (2) not paying the full amount of rent or mortgage, (3) having been evicted from home or apartment for not paying the rent or mortgage, (4) not paying the full amount of gas, oil, or electricity bill, (5) service turned off by the gas or electric company, (6) telephone service disconnected, and (7) not visiting a doctor or going to the hospital because of cost.

Because the survey does not include traditional measures of food insecurity, families were considered food insecure if either the mother or child experienced hunger in the past 12 months (Knab, McLanahan, Garfinkel, 2006). Informal financial support is a dichotomous variable indicating whether mothers reported receiving financial support from other people besides than the father.

Several individual control variables are included to determine the family's experience with government agencies and institutions. Mothers reported whether she or her children are currently covered by Medicaid or another public, federal, or state health assistance program that pays for medical care.   Second, mothers reported whether she or the child received help from any of the following government agencies: child support agency, parenting class (including Healthy Start), Head Start or Early Head Start, child care referral agency, employment office, Welfare or TANF, or Supplemental Security Income (SSI).

Home ownership was used as a proxy measure for assets/wealth and is captured in four dichotomous variables: own home, live in government assisted housing, live with friends or family members, or rent the home in which they and the child reside (omitted). Finally, three dichotomous variables were created to designate whether mothers (or her spouse when applicable) had a car the family could rely on: had a reliable car (omitted), had no reliable car, or if this variable was missing.

Macroeconomic conditions and policy variables. Because states differ in their economic and policy environments, models control for local area unemployment rates and state-level FSP participation rates from the USDA and FNS that existed at the time of the 12-month survey (conducted between 1999 and 2001). Area unemployment rates are the annual unadjusted local area unemployment rates provided by the Bureau of Labor Statistics for a given metropolitan

area (http://data.bls.gov/cgi-bin/surveymost?la). Local unemployment and state-level FSP

participation were included to control for characteristics that might influence participation rates

at the family-level.

The USDA's Food and Nutrition Service (FNS) calculates state-by-state participant

access rates (PARs) for the Food Stamp Program. The PAR can be thought of as a measure of

the extent to which low-income people (eligibles) are participating in the food stamp program,

though it is not the official participation rate.[7] Because of difficulties in precisely estimating

participant access rates, this paper will use the State's location in the distribution compared to

other states. Three mutually exclusive and collectively exhaustive categories were created: the

state is in the top 25 percent, the state is in the middle 50 percent (omitted), or the state is in the

bottom 25 percent.

Family structure and income volatility. Mothers' marital status and income were

reported in both the 12-month and 30-month surveys. Mothers were asked whether they were

married to the focal child's biological father or another man, cohabiting with the focal child's

biological father or another man, or single at both interviews. Several mutually exclusive

dichotomous variables were created to measure changes in family structure. If mothers were

married, cohabiting, or single at both interviews, they were considered either in a stable marriage

(omitted), a stable cohabiting relationship, or a stable single relationship, respectively. Mothers

who were single at the 12–month survey but then either reported being in a cohabiting

relationship or a marriage at the 30-month survey were classified as forming a union. Finally,

those who reported being married or cohabiting at the 12-month interview but indicated they

were single in the 30-month interview were classified as dissolving a union.[8]

Income and income volatility were created from several questions in the survey. First, mothers were asked to add up their household income before taxes from all sources (from everyone living in the household) including income from jobs and public assistance, as well as any other sources such as rent, interest, etc. Mothers who responded to this question provided a continuous measure of income. However, some mothers indicated that they did not know or were unsure, and were then asked a follow-up question designed to elucidate their income by providing nine potential ranges in which their income fell. These ranges were (1) less than 5,000; (2) 5,001 to 10,000; (3) 10,001 to 15,000; (4) 15,001 to 20,000; (5) 20,001 to 25,000; (6) 25,001 to 30,000; (7) 30,001 to 40,000; (8) 40,001 to 60,000; and (9) more than 60,001. For those who did not know their annual incomes and provided a range instead, a mean income variable was created. To impute income for those providing a range, the mean of the continuous incomes for that range was calculated.[9] For example, to impute the incomes of those reporting incomes less than $5,000, the mean of the continuous incomes that also fall within that range was calculated ($2,353 for the 12-month survey).[10] All models control for a dichotomous variable that indicates if either of the measures of income were imputed.

Based on previous research (e.g., Mayer, 1997; Yeung, Linver, & Brooks-Gunn, 2002), a mother was reported to have experienced income instability if the household income declined by 30 percent or more from the 12-month survey to the 30-month survey. Because all incomes are adjusted any changes observed are real changes in annual household income and not a function of changes in the value of the dollar over the study period.

Analytic Strategy

Multinomial logistic regression models were used to test the association between family structure patterns and income volatility and patterns of food stamp participation. Descriptive

statistics and regression results were calculated using the weights provided by the FFCW 30-month survey. All regression analyses correct the standard errors using the Huber-White sandwich estimator of the variance to account for multiple observations within a city (clustering on the city identifier). Finally, all analyses also include city-level fixed effects to control for variation in policy environments between cities.

<div align="center">Results</div>

Sample Description

Table 1 presents the weighted means and standard deviations of all variables in the analysis ($N = 1,263$), by FSP participation category. Those who participate at both waves of the survey (always) are primarily Non-Hispanic Black and have the lowest household income. These mothers are also more likely to be US born and least likely to be in a stable marriage. Those who never participate are more likely to be married over the study period and least likely to experience an income decline. Those who entered or exited the program between the two waves are primarily US born, and mothers report that approximately 10% of the children and about 20% of the mothers are in poor health. Participants who enter and exit the program also are in diverse family structures. Participants who exit the program also depend immensely (78%) on agency support.

Multivariate results

Multinomial logistic regression analyses were used to examine the relationship between individual and household characteristics and patterns of FSP participation. Several multinomial logistic analyses were conducted, however only the most pertinent comparisons are shown (full results available upon request). Table 2 presents the coefficients, standard errors, and relative risk ratios (RRRs) from these models. The RRR is interpreted as the effect of a one-unit change

in the independent variable on the probability of being in the dependent variable category over the reference category (holding other independent variables constant). If the RRR is greater than 1, there is an increased likelihood of the dependent variable category over the reference category. Likewise, if the RRR is less than 1, there is a decreased likelihood of the dependent variable over the reference category. Model fit statistics includes the log likelihood score and the Pseudo R-square.

Always versus never participate. Several factors are significantly associated with the always participating relative to the never participating group. Mothers who did not complete high school are more likely to always participate compared to never participate, as are those mothers who breastfeed their child. Factors of economic hardship, such as experiencing material hardship, receiving agency support, and receiving public health insurance are also all positively associated with always participating. Likewise, owning a home is associated with a lower likelihood of always participating in the FSP versus never participating. Family structure is significantly associated with always versus never participating in the FSP. Compared to those who are stably married, all family structures are significantly more likely to always participate. Further, income volatility is also significantly associated with always participating versus never participating. In post-estimation tests, none of the family structure types are significantly different from one another.

Enter versus never participating. There are several factors that distinguish families who enter the FSP from those who never participate. Mothers born in the United States and those who immigrated to the United States before 1996 compared to mothers who immigrated to the United States after 1996 have a higher likelihood of entering the FSP program versus never participating. Families who have children who display poor health have a decreased likelihood

of entering versus never participating in the FSP. In addition, mothers who experience material hardship or receive government housing assistance are associated with an increase likelihood of entering the FSP versus never participating. Last, stable cohabiting couples are more likely to enter versus never participate compared to stable married couples. Families are also more likely to enter versus never participate when they experience income volatility. Post-estimation tests suggest that stably cohabiting couples also differ from stably single households.

Exit versus never participating. Various factors differentiate families who exit the FSP compared to those who never participate. White mothers compared to Black mothers are less likely to exit the program versus never participate, whereas mothers with a high school degree or GED are more likely to leave the FSP versus to never participate. Mothers born in the US also have a higher likelihood of exiting the FSP program versus never participating. Families where children experience poor health are at a lower likelihood of leaving the FSP, however families where mothers experience poor health are at a higher likelihood of leaving the program. Mothers that tap into agency support are associated with a greater likelihood of exiting the program versus never participating. Yet, mothers who live with friends or family have a decrease likelihood of exiting the FSP versus never participating. Various family structures do not differ from married couples in exiting the FSP compared to never participating, however, post-estimation tests suggests that unions that dissolve differ from unions that form and stably single households. Last, families are more likely to exit the FSP than never participate when they experience a decline in income of 30%.

Discussion

This study complements existing studies on understanding selection into programs by examining the relationship between income volatility and union stability and transitions on

patterns of FSP participation among young parents. Specifically, we investigated whether

pooling resources (e.g., union formation, marriage, and cohabitation) is related to a decrease

likelihood of participating in the FSP; while a lack of income/resources or a reduction in

available resources through experiencing income volatility or union dissolution or staying single

is associated with an increase likelihood of FSP participation. In general, significant declines in

income are related to constant and variable participation in the FSP. However, we found union

formation to not always be associated with a decrease likelihood of FSP participation. For

example, we found marriage to be associated with never participating in the FSP, but found

cohabitation to be associated with participation. Thus, cohabitation does not result in the same

FSP participation patterns as marriage. We also found important relationships between FSP

participation and immigration status, health, several economic hardship variables, and PARs.

There are several limitations to our study that may impact the magnitude of the effects we

find. First, because the independent and dependent variables are measured at the same two time

points the findings cannot be considered causal. Specifically, it is not possible to disentangle the

direction of the effects. Second, not all families report continuous incomes and therefore have

their incomes imputed. Our efforts to use as much of the continuous reports as possible, and to

use those reports to impute incomes who report income ranges allows us to maximize the

information available and minimize the bias associated with using the midpoint of income ranges

(Micklewright & Schnepf, 2007). Finally, our eligibility criterion is based solely on income and

not on household resource limits. Currently households may have $2,000 in countable resources,

such as a bank account ($3,000 if at least one person is age 60 or older, or is disabled) and the

amount of the fair market value of a vehicle over $4,650 is counted. This is important as

availability of a reliable vehicle is an important component in our analysis, and because we are

not using asset limits in determining our potentially eligible sample we may be including people who are not eligible based on resources. However, we are less concerned with this issue because there are several circumstances under which vehicle values are not counted toward household assets: if they are used over 50 percent of the time for income-producing purposes, annually produce income consistent with the car's fair market value, are worth no more than $1,500, after any loans are paid off, among others. Additionally, categorically eligible households (e.g. those who receive welfare assistance or SSI) are exempt from asset limits.

Mother and Household Characteristics

The results suggest that mothers who have less than a high school degree are more likely to always participate in the FSP compared to never participate. This is consistent with previous research (Cancian et al., 2001; Coe & Hill, 1998; Ponza et al., 1999). In addition, we find important differences between U.S. born and immigrant mothers within the dataset. We found U.S. born mothers and foreign born mother who arrived in the U.S. before 1996, compared to foreign born mothers who arrived in the U.S. after 1996, are at greater likelihood of entering the FSP versus never participating in the program. This is somewhat surprising given that immigrants made up an increasingly larger percentage of the cash welfare caseload in the years leading up to 1996 when welfare reform was instituted (Bean, Van Hook, & Glick, 1997; Borjas & Hilton, 1996). However food stamp participation dropped 75 percent between 1994 and 1998 for citizen children with a non-citizen parent (Fix & Passell, 1999), and immigrant mothers in the post-welfare reform era have been less likely than US-born mothers to receive cash welfare and food stamps (Fix & Passel, 1999; Padilla, Radley, Hummer, & Kim, 2004). Thus changes in the 1996 welfare reform policies may have led to confusion regarding eligibility for public assistance among non-citizen parents whose U.S born children are eligible for benefits, and this

in part may reflect their lower rates of Food Stamp participation among foreigners who arrived after 1996. A number of qualitative studies suggest that immigrant parents may believe that seeking assistance for their eligible children will jeopardize their children's citizenship status or hinder other family members' efforts to obtain citizenship or legal status or their ability to re-enter and stay in the U.S. (Capps, 2001; Fix & Passel, 1999; Maloy, Darnell, Nolan, Kenney, & Cyprien, 2000; Schlosberg, 1998; Yoshikawa, Lugo-Gil, Chaudry, & Tamis-LeModa, 2005). One survey of low-income immigrants in New York City and Los Angeles in 1999-2000 found that half of the respondents answered two-thirds or more of the questions about eligibility incorrectly (Capps, Ku, & Fix, 2002).

Child and Mother's Health

The findings suggest that children's poor health at 12 months of age is associated with a decreased likelihood of both entering and exiting the FSP versus never participating. Although some of these children may have been nutritionally at-risk when they were first born, over time child health may not be as strong of an indicator of initiating FSP participation. However, once in the program, families who have a child in poor health have a lower likelihood of leaving the program. Contrary to children's health, women who report being in poor health are more likely to exit the program versus never participate. This potentially indicates that mother in poor health may disengage from services. Future research should continue to investigate the relationship between health and FSP participation, as these relationships may be bidirectional and understanding these processes more fully could enable outreach and take-up efforts. Specifically, by investigating the health of families who persistently participate in the food assistance program compared to those who transition in and out of the program, strategies emphasizing the health benefits of entering and remaining in the program can be developed. A

limitation of this analysis, however, is that reporter bias could be influencing the results as mothers report both their's and their children's health and FSP participation.

Economic Hardship

These findings also point to the important role that economic hardship plays in a family's decision to take-up the program. Experiencing material hardship is associated with a greater likelihood of remaining or initiating food stamp participation versus never participating, which should not be surprising if families who take-up the program are more disadvantaged compared to their counterparts who choose not to participate. Interestingly, receiving agency support is both associated with maintaining participation and exiting the program compared to never participating. Again, families consistently involved in the FSP may be more disadvantaged compared to those who do not participate, therefore they may be more dependent on the support from public agencies, in addition to the FSP, to make ends meet. Families who exit the program may be substituting other public agency support for food stamps, though it is less clear why this might be so.

Receiving Medicaid (and other public health insurance programs at the state level) is also associated with receiving food stamps at both points in time, a finding that supports family use of multiple social services. More possible however is that Medicaid offices may be more likely to educate recipients about other government programs such as food stamps, and more importantly some states have joint applications for Medicaid and food stamps or the offices are located in the same building (McConnell, 1991). Receiving government housing assistance or assistance from friends and family is related to initiating FSP participation and a decreased likelihood of leaving the FSP compared to never participating. Again, the families with greatest need may rely on multiple types of assistance.

Participant Access Rates

Families in the states with the best participation rate (top quartile) compared to families who live in states with mediocre participation (middle 50 percent) are more likely to always participate in the FSP, whereas families who live in the states with the worst participation rates (bottom quartile) compared to families who reside in the middle participation states are more likely to exit the program. Taken together, this suggests that residing in states that may make it more convenient or who provide more outreach and information allows for more consistent participation. However families who live in the states with the worst participation rates (bottom quartile) compared to families in the states in the middle 50 percent, are also more likely to always be involved in the FSP versus never participate. This founding is somewhat counterintuitive, but suggests that these states may be reaching out to the most disadvantaged families and could be exceptional in other government programs where eligibles apply. However, it is important to note that the PAR calculation is based on all recipients of the state, while this study focused on a cohort of young urban families. Thus, results cannot be generalized to older families and families living in rural areas, who may find it more difficult to apply for food stamps.

Family Structure

Mothers in all family structures that are measured in this study are more likely to always versus never participate compared to mothers in stable marriages. These results parallel findings in the existing literature that indicates that married couples are less likely to take up food stamps (U.S. Committee on Ways and Means, 1998). In addition being in a stable cohabiting relationship increases the likelihood of entering versus never participating in the FSP compared to stably married and stably single mothers. In other words, results suggest that cohabiting

couples do not behave in similar manner to married couples in regards to FSP, but also do not necessarily behave like stably single individuals either. Research comparing and contrasting married and cohabiting couples has found poorer relationship quality and a greater prevalence of domestic violence and infidelity among cohabiting couples (Brown & Booth, 1996; Stets, 1991; Treas & Giesen, 2000) which might indicate that instability at the household-level affects seeking out means of assistance. Although other research has suggested that cohabiting parents pool resources (Kenney, 2004), pooling resources does not seem to be enough for cohabiting couples to be independent of FSP. Men in these particular unions may be less economically stable (Edin & Reed, 2005), so living together may be more of an economic burden, resulting initiating or consistently participating in the FSP.

Income Volatility

Similar to previous research that has found fluctuations in income to be associated with FSP participation (McKernan & Ratcliffe, 2003), the current study found that income declines of 30% or more in the 18 months between the interviews was associated with greater likelihood of always participating, as well as a greater likelihood of entering and exiting the FSP versus never participating. Exiting the program while experiencing income volatility in unexpected, however, as previously stated these families may be substituting other forms of public assistance in lieu of FSP participation. Again, it is difficult to know the directionality of this relationship, and it is also important to note that FSP eligibility is based on monthly income and the Fragile Families data collects income based on 12-months. Thus, our findings may be downwardly biased, resulting in our income volatility findings to be underestimated. Furthermore, many previous studies did not control for the individual-level demographic, health, and economic hardship

variables that we are able to with the Fragile Families data, yet we still find significant associations between income fluctuations and participation.

Summary

Overall, income volatility and marital status both influence FSP participation. Families that experience income declines are more likely to experience constant and transitional participation. Whereas stably married couples are more likely to never participate in the program, other types of unions that are stable and transitional are more likely to always participate. Aside from behaving differently from stably married couples, cohabitating couples also differ from stably single mothers by increasing the likelihood of initiating participation in the FSP versus never participating. Findings suggest that states-level attempts to increase take-up, as measured by participation access rates, make a difference at the individual-level and that exposure to FSP alone may increase take-up. Other ways to increase visibility are through outreach at places where eligible families might also participate such as Early Head Start and Head Start locations and WIC agencies. If food stamps serve an important role in the health and nutrition of children, concentrating efforts on improving participation among eligibles is an important public health goal.

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Footnotes

[1]Most research on union formation and cohabitation has been on urban samples and it has found union formation to be associated with a gain in income. However, Snyder and McLaughlin (2006) is an exception finding that nonmetropolitan cohabiting households with children have poor economic well-being.

[2]Nationally representative datasets commonly used to study food assistance program participation are the Survey of Income and Program Participation (SIPP), the Current Population Survey (CPS), and the Panel Study of Income Dynamics (PSID).

[3]These exclusion criteria were followed because a) the survey follows only one focal child and b) we are interested in program participation in families where children reside.

[4]Actual income-to-needs is not available in the public use data set; therefore the family's poverty status is not measurable.

[5]The survey does not adequately assess mothers' citizenship; that is whether or not she is a permanent resident, and therefore no distinctions can be made. All children, however, because they were born in the U.S. are by definition citizens.

[6]Because of skewness, this variable was top coded at four, where four indicates there were four or more children residing in the household. These children are not necessarily the mothers,' but could be her nieces/nephews, brothers/sisters, or other family or non-family member of the household

[7] The official participation rate takes into account not only household income but also other eligibility criteria (e.g. citizenship status, household resources, etc). Because calculating the official participation rate requires significant lag time, the PAR enables examining more recent participation trends. Additionally, one of the factors considered in the monetary awards

that USDA makes under the high performance bonuses established in the 2002 Farm Bill is the

state's PAR. For more information see

http://www.fns.usda.gov/oane/MENU/Published/FSP/FSPPartState.htm

[8]Variables that explored more finite changes in family structure were not created because

of small cell sizes. For example, not enough of the cases reported being married at the 12-month

survey and reported being single at the 30-month survey. It is also possible that a woman could

be cohabiting with a man at the 12-month survey and then cohabiting with a different man at the

30-month survey. This relationship would be coded as a stable cohabitation in our categories.

[9]All incomes are adjusted to constant 2000 dollars using the Bureau of Labor Statistics

Consumer Price Index (ftp://ftp.bls.gov/pub/special.requests/cpi/cpiai.txt).

[10]Of those mothers who report ranges in the 12-month survey, 40 percent report incomes

less than $5,000, 26 percent report incomes between $5,000 and $10,000 (mean $8,141), 10

percent report incomes between $10,000 and $15,000 (mean $13,183), 10 percent report incomes

between $15,000 and $20,000 (mean $18,202), five percent report incomes between $20,000 and

$25,000 (mean $23,075), 5 percent report incomes between $25,000 and $30,000 (mean

$28,189), and five percent report incomes between $30,000 and $40,000 (mean $35,360).

Among all 1,263 mothers 21 percent did not report a continuous income in the 12-month survey

and 38 percent did not report a continuous income in the 30-month survey. Approximately 20

percent of the sample had their incomes imputed in both surveys. Income information based on

mother report at the 30-month survey is available upon request.

Table 1

Weighted Descriptive Statistics by Food Stamp Program Participation Category

	Always Mean or %	SD	Never Mean or %	SD	Enter Mean or %	SD	Exit Mean or %	SD
Child characteristics								
Male	59%	---	48%	---	56%	---	57%	---
Age (months)	13.67	2.91	13.51	2.78	13.74	3.11	13.59	2.73
Mother & household characteristics								
Age (years)	25.07	4.98	27.43	5.76	25.07	6.24	26.87	5.64
Non-Hispanic White	12%	---	31%	---	18%	---	10%	---
Hispanic	23%	---	36%	---	34%	---	44%	---
Non-Hispanic Black	62%	---	26%	---	47%	---	46%	---
Non-Hispanic of other race	1%	---	3%	---	0%	---	0%	---
Less than high school education	48%	---	32%	---	31%	---	35%	---
High school education	32%	---	41%	---	46%	---	46%	---
Any college	19%	---	22%	---	20%	---	18%	---
Employment (weeks)	14.27	18.64	18.62	21.44	20.23	22.50	16.71	20.08
Income	11518	9381	21935	11154	15989	9841	14220	7999
Median income	9288	---	23076	---	18203	---	14512	---
Born in U.S.	93%	---	62%	---	81%	---	93%	---
Foreign born (US arrival before 1996)	7%	---	27%	---	14%	---	7%	---
Foreign born (US arrival after 1996)	1%	---	11%	---	5%	---	1%	---
Number of children in the household	2.52		2.15		1.99		2.70	
Children's health								
Poor health	17%	---	21%	---	11%	---	7%	---
Low birth weight	8%	---	7%	---	9%	---	19%	---
Physical disability	5%	---	3%	---	2%	---	2%	---
Breastfed	50%	---	59%	---	55%	---	37%	---

Mother's health

Poor health	16%	---	16%	---	20%	---	17%	---
Depression	17%	---	10%	---	9%	---	15%	---

Economic hardship

Material hardship	45%	---	38%	---	38%	---	35%	---
Food insecurity	6%	---	5%	---	9%	---	4%	---
Financial support	55%	---	32%	---	53%	---	39%	---
Agency support	86%	---	23%	---	38%	---	78%	---
Public health insurance	91%	---	60%	---	74%	---	79%	---
Home ownership	2%	---	23%	---	6%	---	8%	---
Home government assistance	22%	---	6%	---	17%	---	23%	---
Home other assistance	11%	---	8%	---	17%	---	3%	---
Rent	65%	---	62%	---	59%	---	65%	---
Reliable car	21%	---	57%	---	30%	---	39%	---
No reliable car	67%	---	35%	---	58%	---	59%	---

Macroeconomic & policy characteristics

Local area unemployment rate	4.47	0.84	4.58	0.78	4.52	0.78	4.56	0.81
State in top 25 percent of PAR	27%	---	20%	---	23%	---	17%	---
State in middle 50 percent of PAR	56%	---	53%	---	58%	---	56%	---
State in bottom 25 percent of PAR	17%	---	27%	---	19%	---	27%	---

Family structure volatility

Stable marriage	6%	---	57%	---	20%	---	25%	---
Stable cohabiting	29%	---	14%	---	33%	---	25%	---
Stable single	37%	---	13%	---	17%	---	23%	---
Union dissolution	14%	---	6%	---	18%	---	13%	---
Union formation	13%	---	10%	---	13%	---	15%	---

Income volatility

Income declines 30%	18%	---	6%	---	16%	---	23%	---
Unweighted n	*429*		*517*		*171*		*146*	

Table 2

Multinomial Logistic Regression Models (N = 1263)

	Always				Enter				Exit			
	B		SE B	RRR	B		SE B	RRR	B		SE B	RRR
Child												
Male	0.47	*	0.22	1.60	0.29		0.35	1.33	0.25		0.36	1.28
Age (months)	0.02		0.11	1.02	0.07		0.05	1.07	0.04		0.05	1.04
Mother & Household												
Age (years)	0.05		0.06	1.05	0.01		0.03	1.01	0.02		0.05	1.02
Non-Hispanic White	-1.06		0.82	0.34	-0.95		0.59	0.39	-1.19	*	0.51	0.30
Hispanic	-0.12		0.85	0.89	0.37		1.13	1.45	0.46		0.77	1.59
Non-Hispanic of other race	-0.87		1.05	0.42	-2.40		2.15	0.09	-1.00		1.48	0.37
Less than high school degree	1.05	**	0.37	2.86	0.36		0.34	1.43	0.53		0.55	1.71
High school degree or GED	0.34		0.27	1.40	0.23		0.41	1.25	0.87	**	0.32	2.39
Employment (weeks)	-0.03		0.02	0.97	-0.01		0.01	0.99	-0.01		0.01	0.98
Income	-0.88	*	0.36	0.41	-0.79	*	0.36	0.46	-0.63	*	0.25	0.53
Born in U.S.	3.25		1.96	25.84	2.24	***	0.38	9.37	2.64	***	0.60	13.99
Foreign born (US arrival pre-1996)	1.61		1.25	5.03	1.07	***	0.23	2.92	-0.16		0.98	0.85
Number of children in household	0.05		0.15	1.05	-0.25	*	0.12	0.78	0.33		0.18	1.38
Child's Health												
Poor health	-0.81		0.47	0.45	-1.18	*	0.46	0.31	-1.45	*	0.72	0.24
Low birth weight	-0.96		0.62	0.38	-0.33		0.33	0.72	0.72		0.63	2.06
Physical disability	0.64		0.81	1.89	0.29		1.19	1.33	-0.39		0.79	0.68
Breastfed	0.63	*	0.30	1.87	0.49		0.29	1.63	0.09		0.41	1.09
Mother's Health												
Poor health	-0.12		0.43	0.89	0.55		0.54	1.73	0.62	*	0.28	1.86

	b	sig	SE	RRR	b	sig	SE	RRR	b	sig	SE	RRR
Depression	0.21		0.64	1.23	-0.56		0.48	0.57	0.41		0.64	1.51
Economic Hardship												
Material hardship	0.67	*	0.31	1.96	0.36	*	0.18	1.44	0.08		0.38	1.08
Food insecurity	1.02		0.75	2.78	1.43		0.77	4.18	0.99		0.90	2.68
Financial support	0.63		0.36	1.87	0.62		0.57	1.86	0.02		0.23	1.02
Agency support	2.55	***	0.67	12.85	0.19		0.29	1.21	2.28	***	0.55	9.81
Public health insurance	1.95	*	0.79	7.00	0.18		0.31	1.20	0.58		0.45	1.78
Home ownership	-2.40	*	1.02	0.09	-0.87		0.50	0.42	-0.62		0.33	0.54
Home government assistance	0.24		0.64	1.27	1.03	*	0.41	2.81	0.02		0.56	1.02
Home other assistance	-0.61		0.42	0.54	0.79		0.79	2.20	-1.42	*	0.60	0.24
No reliable car	1.45		0.74	4.25	0.91		0.55	2.49	0.70		0.73	2.01
Macroeconomic and Policy												
Local area unemployment rate	0.05		0.53	1.06	-0.16		0.73	0.85	-0.48		0.64	0.62
State in top 25% of PAR	1.52	*	0.70	4.58	-0.25		0.56	0.78	-0.17		0.59	0.84
State in bottom 25% of PAR	2.20	**	0.83	9.02	0.75		0.52	2.12	1.97	**	0.72	7.16
Family Structure Volatility												
Stable cohabiting	2.24	**	0.84	9.35	1.50	*	0.63	4.47	0.60		0.64	1.83
Stable single	1.80	**	0.65	6.04	0.10		0.42	1.10	0.43		0.50	1.53
Union dissolution	2.38	*	0.98	10.86	1.98		1.08	7.22	1.43		1.20	4.19
Union formation	2.08	*	0.97	7.98	1.06		0.70	2.88	1.72		1.06	5.59
Income Volatility												
Income declines 30%	1.10	**	0.41	3.02	1.00	***	0.29	2.73	0.71	*	0.33	2.04
Constant	-2.48		3.92	---	1.10		2.98	---	-0.35		2.48	---
-2 Log Likelihood	-840.56				-840.56				-840.56			
Pseudo R^2	0.43				0.43				0.43			

Note: Relative risk ratios (RRR) correspond to the risk of the category relative to the risk of the base category (ie. e^b). State fixed effects are included in the models. Controls for imputed income, missing mother race, and missing reliable car measure are also included. Omitted categories include Non-Hispanic Black, any college, foreign born (arrived after 1996), rents home, has a reliable car, stable marriage, no income instability, state-level PAR is in the middle 50 percent. * $p < .05$. ** $p < .01$. *** $p < .001$.