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Persistence and Change in the Food Security of Families With Children, 1997-99

By Sandra L. Hofferth, Department of Family Studies,
University of Maryland

ERS project representative: Parke Wilde

Abstract

This report uses data from the Panel Study of Income Dynamics to examine the prevalence of and changes in food security between 1997 and 1999 among individual families with children younger than 13. About half of the families that were food insecure in 1997 became food secure by 1999, with the rest remaining food insecure. Meanwhile, about 7 percent of the families who were food secure in 1997 became food insecure in 1999. Although the food security status for individual families changed substantially, the prevalence of food insecurity was relatively stable: In both years, about 1 family in 10 was food insecure. The report also examines families' characteristics, income, and Food Stamp Program participation.

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Summary

On average, about 90 percent of families with children younger than 13 were food secure in 1997 and 1999, and about 10 percent were insecure. Although the food security of these families, on average, changed only slightly between 1997 and 1999, food security changed substantially for individual families. This report presents the results of a study on the prevalence of and changes in food security between 1997 and 1999 among individual families with children younger than 13. The study also examined how family characteristics and changes in the characteristics were associated with changes in food security status of the same families over time. Food security means that all household members have access at all times to enough food for an active, healthy life.

Using data from the Panel Study of Income Dynamics, a nationally representative study of families that began in 1968, this first examination of the dynamic interdependence of food assistance, food insecurity and a variety of family characteristics over time demonstrates the critical contribution of changing family circumstances to food insecurity.

Other findings on the prevalence of and changes in food security are as follows:

- ◆ Food security changed little over the 2-year period. About 83 percent of families were food secure in both years, 5 percent were insecure in both years, 5.4 percent were food insecure in 1997 but not in 1999 (exited food insecurity), and 6.5 percent were food insecure in 1999 but not 1997 (entered food insecurity).
- ◆ Food insecurity increased slightly. The share of food-insecure families in 1999 only (families that entered food insecurity) exceeded the share of food-insecure families in 1997 only (families that exited).
- ◆ A small share (7 percent) of the families that were food secure in 1997 became food insecure by 1999.
- ◆ About half of the families that were food insecure in 1997, however, became food secure by 1999, with the rest remaining food insecure.

Major findings on the influence of family characteristics on food insecurity prevalence and change are as follows:

- ◆ Family composition and structure were linked to the prevalence of food insecurity. Families with young, single heads and a large number of young children tended either to be food insecure in 1997 or to become food insecure by 1999. Immigrant families were also more likely than nonimmigrant families to be food insecure or to become food insecure, as were families headed by individuals who were less educated or disabled.
- ◆ Families with low incomes in both years were likely either to be food insecure in both years or to become food insecure by 1999.

- ◆ Changes in economic conditions were linked to persistence in food insecurity. Food-secure families that moved into low-income status between 1997 and 1999 were more likely to remain food insecure than those that were in low-income status in both years.
- ◆ Changes in family structure were linked to whether or not food-secure families became food insecure. Families that went from having two parents to one parent between 1997 and 1999 were more likely to become food insecure than those that had one parent in both years. Food-insecure families with two parents in at least one year were less likely to remain food insecure than those with one parent in both years.
- ◆ Families that were food insecure and receiving food stamps in 1997 were more likely to remain food insecure if they left the Food Stamp Program. Likewise, families that were food secure and receiving food stamps in 1997 were more likely to become food insecure if they left the program.

Persistence and Change in the Food Security of Families With Children, 1997-99

Sandra L. Hofferth

Introduction

Having sufficient food is a necessary condition for children's normal growth and development. The academic achievement of children who grow up under insecure conditions has been shown to suffer (Reid, 2001). Consequently, food security is an important condition to examine in the context of children's well-being. Families with children are more likely to be insecure than all families because parents are younger and family sizes are larger; additional resources are needed if these families are to have a standard of living equal to an average family (Andrews, et al., 2000; Nord, Andrews, and Carlson, 2002). This report focuses on variation in food security and food insecurity among family households with children younger than 13, an important subgroup of the U.S. population. The report first examines changes in food security and insecurity between 1997 and 1999 among individual families with children under age 13. Food security means that all family members had access at all times to enough food for an active, healthy life. The report then examines how characteristics and changes in characteristics are associated with changes in families' food insecurity status.

Food insecurity is measured here using data from the Panel Study of Income Dynamics (PSID), a large-scale survey. Families are screened by asking whether, in the past 12 months, they sometimes or often did not have enough to eat because they did not have enough money for food. If the answer is yes, they then answer a set of 18 questions that will identify whether the family has consistently had access to enough food in the past 12 months (Hamilton et al., 1997). (See box for examples of the 18 questions.) Families that answer the first three questions (see box) as sometimes or often in the previous year are said to be food insecure. The questions further distinguish among food-insecure families those that have had food insecurity with hunger, family members went without food or were hungry because they did not have enough food, and food insecurity without hunger. For four out of five food-insecure families, food insecurity is not a chronic problem. Families that experience only one severe episode of food insecurity or hunger during the year are considered to be food insecure. Because of a single severe episode, for example, some families with annual incomes considerably above poverty may still be considered food insecure for the year. To be classified as food insecure with hunger requires recurring

episodes of food insecurity (Nord, Andrews, and Carlson, 2002). Families that answered affirmatively to whether adults cut the size of meals or skipped meals *three or more times* in the last year as well as to less severe conditions are considered food insecure with hunger.¹ This report is based primarily upon the dichotomous measure of family food insecurity; in the data used here, the number of families that experienced hunger in either 1997 or 1999 is too small to estimate changes over time in the proportion of families that are food insecure with hunger.

The prevalence of food security and food insecurity for national samples is well known. According to national data from the Current Population Survey (CPS), 87 out of 100 households with children under age 18 were food secure in 1997 and 85 out of 100 were food secure in 1999 (table 1, panel A) (Andrews et al., 2000; Bickel, Carlson, and Nord, 1999). This means that the vast majority of households in the United States reported that they were able to acquire adequate food to meet the basic needs of their households throughout the year. However, 13-15 percent reported that they had more serious concerns about their ability to feed their families adequately. Although the results in table 1 are reported separately for children and for their families, the results differ little whether the unit of analysis is families with children or just children. In this report, the family household is the unit because we focus upon family characteristics and discuss our findings with reference to all families in the U.S. Food insecurity is also measured for the family, not the individual.

Examples of Questions From the PSID Food Security Supplement

“We worried whether our food would run out before we got money to buy more. Was that often, sometimes, or never true for your household in the last 12 months?”

“The food that we bought just didn’t last, and we didn’t have money to get more. Was that often, sometimes, or never true for your household in the last 12 months?”

“We couldn’t afford to eat balanced meals. Was that often, sometimes, or never true for your household in the last 12 months?”

“In the last 12 months did you (or other adults in your household) ever cut the size of your meals or skip meals because there wasn’t enough money for food?” If yes, “How often did this happen – almost every month, some months but not every month, or in only 1 or 2 months?”

¹ Although USDA also provides a measure of hunger among children, this report focuses on the food security and hunger of the entire household and does not use the measure of food insecurity with hunger among children. The focus of the study is household food insecurity. Not all individuals are necessarily food insecure; we cannot identify the specific individuals to which food insecurity applies.

Table 1: Food security of children and their families, 1997 and 1999

Panel A: Current Population Survey						
Category	Year	Food secure	Food insecure without hunger	Food insecure with hunger	Total (%)	Population estimates
Families with children under age 18	1997	87.2	9.1	3.7	100.0	37,497,000
Families with children under age 18	1999	85.2	11.5	3.3	100.0	37,884,000
Children under age 18	1997	85.4	10.5	4.1	100.0	70,948,000
Children under age 18	1999	85.1	11.2	3.7	100.0	71,493,000
Panel B: Panel Study of Income Dynamics						
Category	Year	Food secure	Food insecure without hunger	Food insecure with hunger	Total (%)	Sample size
Families with children under age 13	1997	89.6	8.2	2.2	100.0	2,258
Families with children under age 13	1999	88.6	9.2	2.3	100.0	2,267
Children under age 13	1997	89.0	8.9	2.2	100.0	3,380
Children under age 13	1999	87.4	10.0	2.6	100.0	3,391

Food Insecurity With Hunger

According to CPS data, fewer than 15 percent of families with children under age 18 were food insecure in 1997 or 1999. Of those, fewer than one-third, specifically, 3.7 percent in 1997 and 3.3 percent in 1999, were food insecure with hunger (table 1, panel A). Between 1997 and 1999, the share of families that were food insecure with hunger fell slightly and the share that were food insecure without hunger rose slightly.

The first objective of this report is to understand changes in food insecurity over time. Although the average proportion of families with children that were insecure may not have increased, some families that were secure may have become insecure and others that were insecure may have become secure. The overall stability of the mean masks changes in individual families' well-being. Food insecurity could be stable because the same families are food insecure year after year with little change. Or, it could be that there is considerable movement of families in and out of food insecurity, but that entries balance exits. While the CPS provides excellent data on food security at one point in time, it cannot show patterns of entry and exit. The PSID has been widely used to examine trends in family experiences with poverty and with welfare participation (Duncan, 1991; Duncan, Hill, and Hoffman, 1988; Hofferth, Stanhope, and Harris, 2002).

Additionally, while previous research has analyzed changes in food insufficiency over time using a single-item measure (Ribar and Hamrick, 2003), it has not examined food insecurity. This report improves upon previous research by using the 18-item index of food security designed by USDA for this purpose (Nord, Andrews, and Carlson, 2002). Thus, this report is the first to provide information on changes in the food security status of the same families over time.

The second objective of the report is to understand how characteristics and changes in characteristics are associated with changes in food security status. Looking at the same families over time helps explain the sources of change. Because food insecurity is likely to be episodic rather than chronic, changes in family circumstances, including changing family size and composition (marital separation, divorce, remarriage, having a baby), and in economic resources (unemployment, job changes) will likely be associated with entry into or exit from food insecurity.

Research using cross-sectional data shows a strong inverse correlation between either annual household income or income relative to the poverty line and food insecurity (Hamilton et al., 1997). For example, 36.5 percent of households with poverty ratios of under 1.0 are food insecure compared with 18.9 percent of households with incomes under 185 percent of poverty and 4.9 percent of families with incomes over 185 percent of poverty (Nord, Andrews, and Carlson, 2002:Table 2). A substantial proportion of families lose income (Duncan 1991) and may also experience food insecurity. In addition, although economic resources and family structure are likely to be critical, changes in disability may also occasion food-insecure periods. Finally, receipt of food assistance in the form of food stamps may be associated with food insecurity. At any one point in time, those who receive food stamps are also the most needy and therefore the most food insecure (Gundersen and Oliveira 2001). Thus, on the one hand, we expect food insecurity and receipt of food stamps to go together. On the other hand, participating in the Food Stamp Program may reduce food insecurity while leaving the program may increase the risk of becoming food insecure. Research shows that receipt of a high level of food assistance is associated with a significantly higher probability of a family obtaining sufficient food, defined by a level slightly above the thrifty food plan, than not obtaining it (Daponte, Haviland, and Kadane, 2002). This report shows how characteristics of the family and changes in family composition and size, receipt of food stamps, disability, and financial resources are associated with changes in food security status.

Data and Measurement

Data

The data for this report are drawn from the Panel Study of Income Dynamics (PSID), a nationally representative longitudinal study of families that began in 1968.² Data on income, cash and noncash transfers, and marital and fertility behavior have been collected annually through 1997 and biennially thereafter. When appropriate weights are used, as was the case here, the data are representative of the population of the United States in each year. See appendix A for more information on this study.

Comparable data on food security were collected from families with children under age 13 interviewed in 1997 and from all families interviewed in 1999. The subset of children's families interviewed in 1997 was matched to their families in 1999 to form the longitudinal data for this study.

Measurement of Persistence and Entry Into Food Insecurity

In order to examine changes in food security of children's families, we first categorized families as (a) food secure in both 1997 and 1999, (b) food insecure in both years, (c) food insecure in 1997 but not in 1999, and (d) food insecure in 1999 but not in 1997. Categories (a) and (b) indicate continuation of the 1997 food security status from 1997 to 1999, while categories (c) and (d) indicate a change in food security status. We examine these four categories according to family demographic and economic characteristics, such as age of child, age of head, race, education, family size, family structure, having low family income (under 185 percent of the poverty line), disability, immigrant/citizen status, and receipt of food stamps. These characteristics have been shown to be associated with food insufficiency or food insecurity in other studies (Borjas, 2002; Gundersen and Oliveira, 2001; Nord, Andrews, and Carlson, 2002; Ribar and Hamrick, 2003). Our variables include not only the characteristics of families in 1997, but also changes in them between 1997 and 1999. We examine changes in family size, family structure, low income, receipt of food stamps, and disability. Thus, this report describes not only how levels of these characteristics (e.g., the amount of family income in a year) but also how changes in family characteristics (e.g., the amount by which income changed between 1997 and 1999) are related to the level and change in food insecurity status between 1997 and 1999.

To better describe the dynamics of food insecurity over the period, we calculated two additional statistics: persistence and entry. Persistence is the proportion of food-insecure families with children in 1997 that were still food insecure in 1999, calculated as the number of food insecure families in both years divided by the number of food insecure families in both years plus the number of food insecure families in 1997 only. Subtracting the proportion that persists from 1 equals the proportion that became food secure, "exitors." Because the fraction of food insecure families is small, changes comprise a large proportion of the base. Entry is the proportion of families who were not food insecure in 1997 but became food insecure by 1999, calculated as the

² The PSID is a study of families. Because cohabiting partners are treated as married partners and included in the family and all our families have children, the PSID family is equivalent to the Census Bureau's "family household." A small number of subfamilies are counted as separate families in the PSID instead of being counted as part of the household in which they reside.

number of food insecure families in 1999 only, divided by the number of food secure families in both years plus the number of food secure families in 1999 only. The fraction that is food secure is large and includes high- as well as low-income households; entrants, therefore, constitute only a small fraction of the food-secure group from year to year. Even if entrants are equal in number to persisters, entrants can still comprise only a small fraction of those families eligible to enter. If entrants and exiters are similar in absolute numbers, the total number of food-insecure/food-secure families remains stable from year to year. If, as we show here, entrants exceed exiters, food insecurity rises.

We report how each of the demographic and economic characteristics is related to the four categories of food insecurity in 1997 and 1999 and then to persistence and to entry between the two time points. This model assumes that food insecurity persistence and entry result from economic and family circumstances in 1997 and changes in those circumstances between 1997 and 1999. First, each characteristic alone is examined. In bivariate analyses, however, the separate impacts of each variable cannot be estimated because many of these characteristics co-occur. Consequently, using logistic regression, persistence (and, then, entry) is regressed on all of these family characteristics and circumstances simultaneously.³ The coefficients in this model indicate the influence of a single variable on persistence or entry net of all the other variables. Because the model is not linear, coefficients are not as easily interpreted as in ordinary least squares regression. We have transformed each coefficient into an odds ratio by exponentiating. If the independent variable is categorical, the result is the risk ratio or odds ratio of each category relative to the omitted category (table 3, columns 3 and 6). Subtracting 1 from the odds ratio and multiplying by 100 represents the percentage increase or decrease in the adjusted odds of persisting in or becoming food insecure associated with the category of interest relative to the comparison category. If the variable is continuous, the difference between the odds ratio and 1 multiplied by 100 represents the percentage increase or decrease in the adjusted odds of a 1-unit change in the independent variable.

³ $\ln(P_{it} / (1 - P_{it})) = \alpha_i + \beta_x x_i + \beta_z z_{it} + e_{it}$

where:

P_{it} is a probability of a particular transition, either entry or persistence.

x_i is a vector of time-invariant explanatory variables for family i.

z_{it} is a vector of time-varying explanatory variables for family i in year t.

e_{it} is an error term for family i in year t.

Results

First, we examine the overall levels of food insecurity of families with children in 1997 and 1999 as reported in the PSID and compare them with data from the CPS to demonstrate how the smaller sample survey compares with larger national data on the same food security scale. Second, we examine the relationship between each of the demographic and economic variables and food insecurity, both separately and in a multivariate context controlling for other factors.

PSID Estimates of Food Insecurity in 1997 and 1999

Table 1, panel B, shows the proportion of families with children under age 13 that were food secure and food insecure with and without hunger in 1997 and 1999, according to the PSID. The food security of children's families declined from 89.6 percent to 88.6 percent, and food insecurity rose from 10.4 percent to 11.5 percent. Food insecurity with hunger stayed the same over the period, about 2.2 percent, while food insecurity without hunger rose from 8.2 percent to 9.2 percent.

The proportion of PSID families that were food secure is slightly higher in these data than in comparable CPS figures for families with children. In 1999, 88.6 percent were food secure, according to the PSID, and 85.2 percent were food secure, according to the CPS. This difference could result from differences in the population covered, because the PSID includes only families with children under 13 in 1997 whereas the CPS includes households with any children under age 18.

In addition, the proportion of children that are in food-secure families is higher in the PSID data than in the CPS. In 1999, 87.4 percent of children were in food-secure families in the PSID and 85.1 percent of children under age 18 were in food-secure families in the CPS. The discrepancy may be due to the difference in ages of children included. In this report, the focus is on children's families because we lack information on food security for individual children.

Analysis of Food Insecurity and Food Insecurity Dynamics

The top row, "All," of table 2 shows the prevalence of food security in families in 1997 and 1999. Overall, 83.2 percent of American families with children were food secure in both 1997 and 1999, 5 percent were food insecure in both years, 5.4 percent were food insecure in 1997 but secure by 1999, and 6.5 percent were secure in 1997 but insecure by 1999. A higher proportion entered food insecurity (6.5 percent) than exited (5.4 percent), leading to a decline in food security (table 1).

Food insecurity is low but persistent over the 2-year period. Only 10.4 percent were food insecure in 1997 (obtained by summing the 5.0 percent food insecure in both years and the 5.4 percent food insecure in 1997 only). The "Persistence" column of table 2, and the top row, "All households," of figure 1 show the persistence in food insecurity between 1997 and 1999. About half (48 percent) of those families who were food insecure in 1997 were still food insecure in 1999. The other half (52 percent, not shown) became food secure--that is, they "exited" the status of food insecure and became food secure.

Table 2: Food security of families with children under 13, 1997 and 1999

Category	Food secure in both years(%) ^a	Food insecure in both years(%)	Food insecure in 1997 only(%)	Food insecure in 1999 only(%)	Total(%)	Persistence ^b (%)	Entry ^c (%)	Sample size
All	83.2	5.0	5.4	6.5	100.0	48	7	2,258
Age of youngest child, 1997								
< 3	80.8	5.6	4.6	9.0	100.0	55	10	762
3-5	81.5	4.6	6.1	7.9	100.0	43	9	575
6-9	83.8	5.9	5.5	4.7 *	100.0	52	5	532
10-13	88.6 **	3.0	5.7	2.8 ***	100.0	35	3	389
Total number	1,826	119	143	170				2,258
Race								
White	88.1	3.4	3.6	4.8	100.0	49	5	1,086
Black	77.5 ***	6.2 *	6.9 *	9.4 **	100.0	47	11	928
Hispanic	59.8 ***	12.3 ***	14.4 ***	13.5 ***	100.0	46	18	144
Other	75.4 **	9.0 *	7.4	8.2	100.0	55	10	81
Total n	1,812	118	142	167				2,239
Age of family head in 1997								
<25	67.6	8.2	10.4	13.8	100.0	44	17	202
25-34	80.1 **	6.5	6.1	7.3 *	100.0	51	8	736
35-49	85.9 ***	4.1	4.3 *	5.7 **	100.0	48	6	1,171
>49	90.2 ***	1.7 *	5.7	2.4 **	100.0	23	3	149
Total n	1,826	119	143	170				2,258
Education of family head in 1997								
<12	64.9	13.5	8.5	13.1	100.0	62	17	546
12	81.1 ***	4.2 ***	7.1	7.6 **	100.0	37	9	688
13-15	88.6 ***	3.8 ***	4.6 *	3.0 ***	100.0	45	3	502
>15	96.0 ***	0.0 ***	1.8 ***	2.2 ***	100.0	0	2	412
Total n	1,741	114	136	157				2,148
Number of children, 1997								
1	87.2	3.2	4.5	5.1	100.0	41	6	706
2	86.3	3.4	5.1	5.3	100.0	39	6	914
3-9	74.1 ***	9.4 ***	6.6	9.9 ***	100.0	59	12	638
Total n	1,826	119	143	170				2,258
Added child between 1997 and 1999								
Yes	76.9	6.0	4.8	12.3	100.0	56	14	326
No	84.1 **	4.8	5.5	5.6 ***	100.0	47	6	1932
Total n	1,826	119	143	170				2,258
Family status								
Become single parent	72.7	3.1 *	11.7	12.6	100.0	21	15	137
Become two parents	73.8	3.9 *	8.4	14.0	100.0	32	16	118
Two parents in both years	87.9 ***	3.2 ***	4.0 **	5.0 *	100.0	44	5	1,390
Single parent in both years	71.7	12.3	7.7	8.4	100.0	61	10	613
Total n	1,826	119	143	170				2,258
Low income, 1997-1999								
Low income in 1997 only	79.6 ***	3.2	12.2 ***	5.0	100.0	21	6	273
Low income in 1999 only	84.1 **	5.0 *	3.5	7.4	100.0	59	8	150
Low income in both years	54.9 ***	16.9 ***	12.0 ***	16.2 ***	100.0	59	23	609
Low income in neither year	93.1	1.4	2.1	3.4	100.0	40	4	1,209
Total n	1,815	119	142	165				2,241

See footnotes at end of table.

Continued—

Table 2: Food security of families with children under 13, 1997 and 1999—Continued

Category	Food secure in both years(%) ^a	Food insecure in both years(%)	Food insecure in 1997 only(%)	Food insecure in 1999 only(%)	Total(%)	Persistence ^b (%)	Entry ^c (%)	Sample size
Citizenship								
<i>Citizen</i>	85.8	3.8	4.8	5.6	100.0	44	6	2,127
Noncitizen	55.0 ***	17.8 ***	11.3 **	15.9 ***	100.0	61	22	131
Total n	1,826	119	143	170				2,258
Immigrant status								
<i>Immigrant</i>	61.4 ***	14.4 ***	9.5	14.7 ***	100.0	60	19	183
Nonimmigrant	86.1	3.7	4.8 *	5.4	100.0	43	6	2075
Total n	1,826	119	143	170				2,258
Food stamps received								
Leave food stamps	52.6 ***	14.1 ***	14.9 ***	18.5 ***	100.0	49	26	213
Start food stamps	55.1 ***	7.8 **	20.3 ***	16.8 ***	100.0	28	23	88
Food stamps received in both years	53.4 ***	26.8 ***	7.8 *	12.0 ***	100.0	77	18	264
<i>Food stamps received in neither year</i>	90.1	1.8	3.7	4.4	100.0	33	5	1,689
Total n	1,824	119	143	168				2,254
Family head disabled								
Head disabled in 1997 only	73.5 *	3.4	10.0	13.1 *	100.0	25	15	93
Head disabled in 1999 only	75.8 *	13.5 ***	4.4	6.2	100.0	75	8	129
Head disabled in both years	66.8 ***	12.7 ***	9.0	11.6 *	100.0	59	15	126
<i>Head disabled in neither year</i>	85.0	4.0	5.1	5.9	100.0	44	7	1,878
Total n	1,800	118	142	166				2,226

^aThe comparison category for statistical tests is italicized.

^bPersistence = Insecure in both years/(insecure in both years+insecure in 1997 only).

^cEntry = Insecure in 1999 only/(secure in both years+insecure in 1999 only).

* = p<0.05, ** = p<0.01, *** = p<0.001.

Almost 9 out of 10 families were food secure in 1997 (sum of 83.2 percent and 6.5 percent). Among those who were food secure in 1997, about 7 percent became food insecure by 1999 (Table 2, “Entry” column and fig. 2, top row, “All households”). A person who was food insecure in 1997 was almost seven times (48 percent vs. 7 percent) as likely to be food insecure in 1999 as a person who was food secure in 1997.

These data summarize trends over all families with children under age 13. Food insecurity levels, persistence, and entry rates differ by family characteristics. Next, we examine how each of these family and socioeconomic characteristics is related to food insecurity prevalence, persistence, and entry.

Age of Youngest Child

Adults in families with young children are likely to be young and financially insecure because they are just starting their careers. We expect them to be less food secure as well. According to the data, 80.8 percent of families with the youngest child under age 3 were food secure in both

Figure 1. Percentage of families that were food insecure in 1997 that remained food insecure in 1999

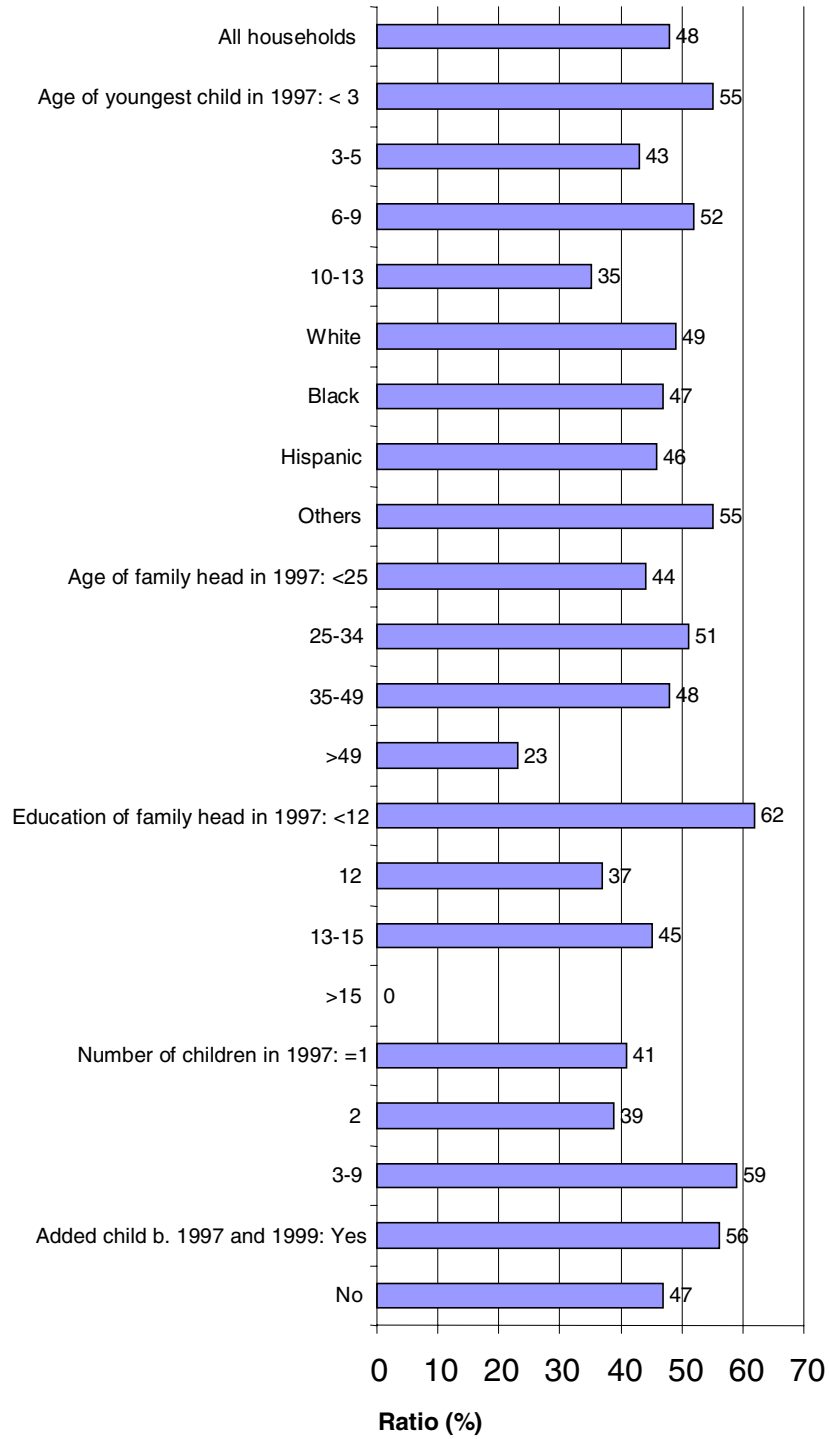


Figure 1. Percentage of families that were food insecure in 1997 that remained food insecure in 1999—Continued

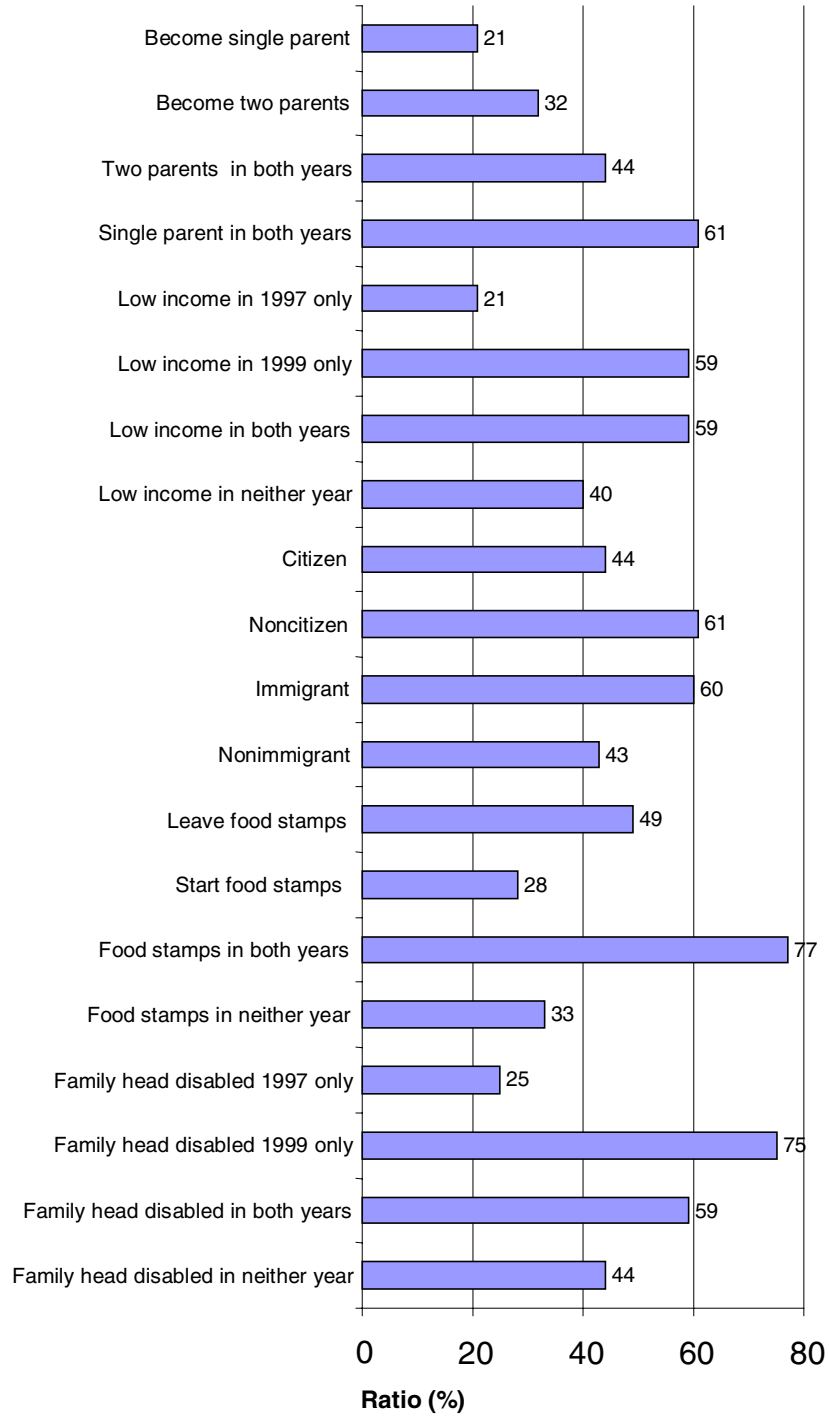


Figure 2. Percentage of food secure families in 1997 that became food insecure in 1999

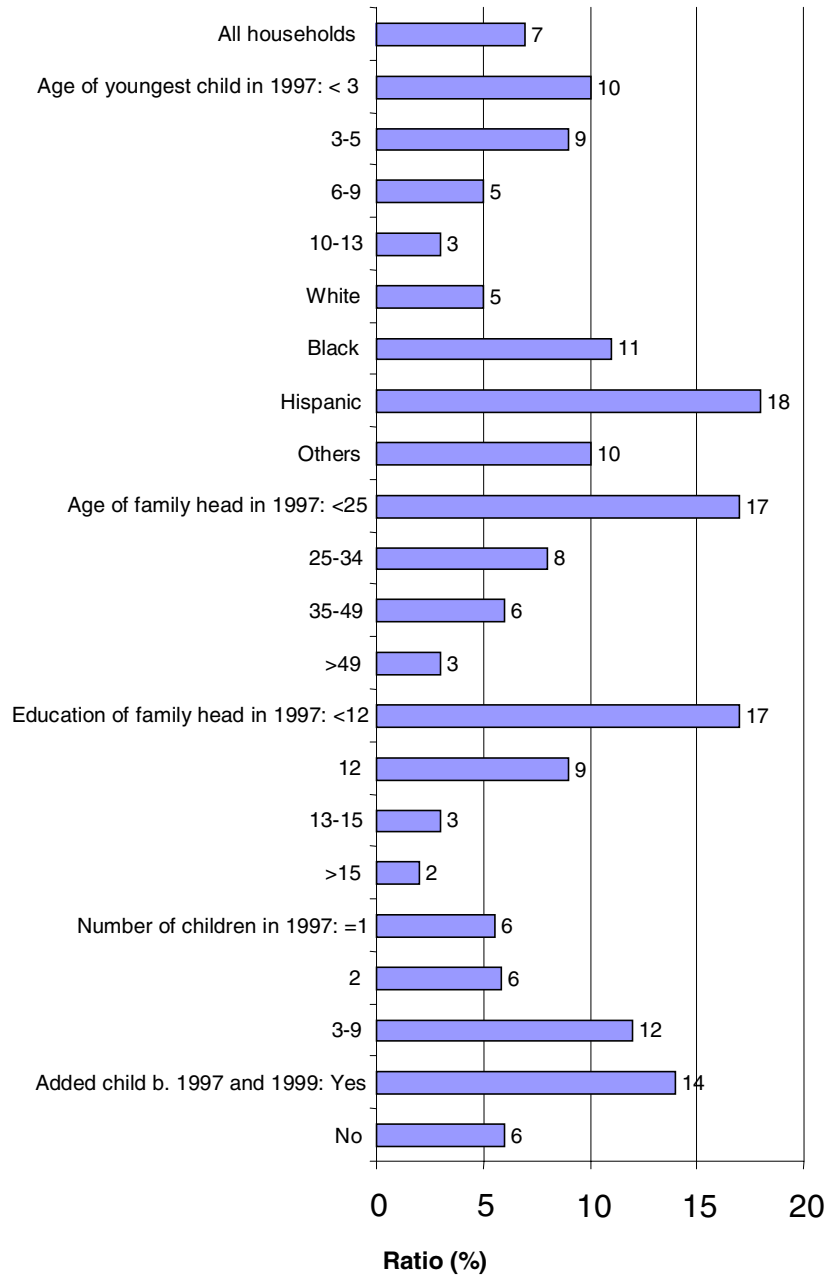
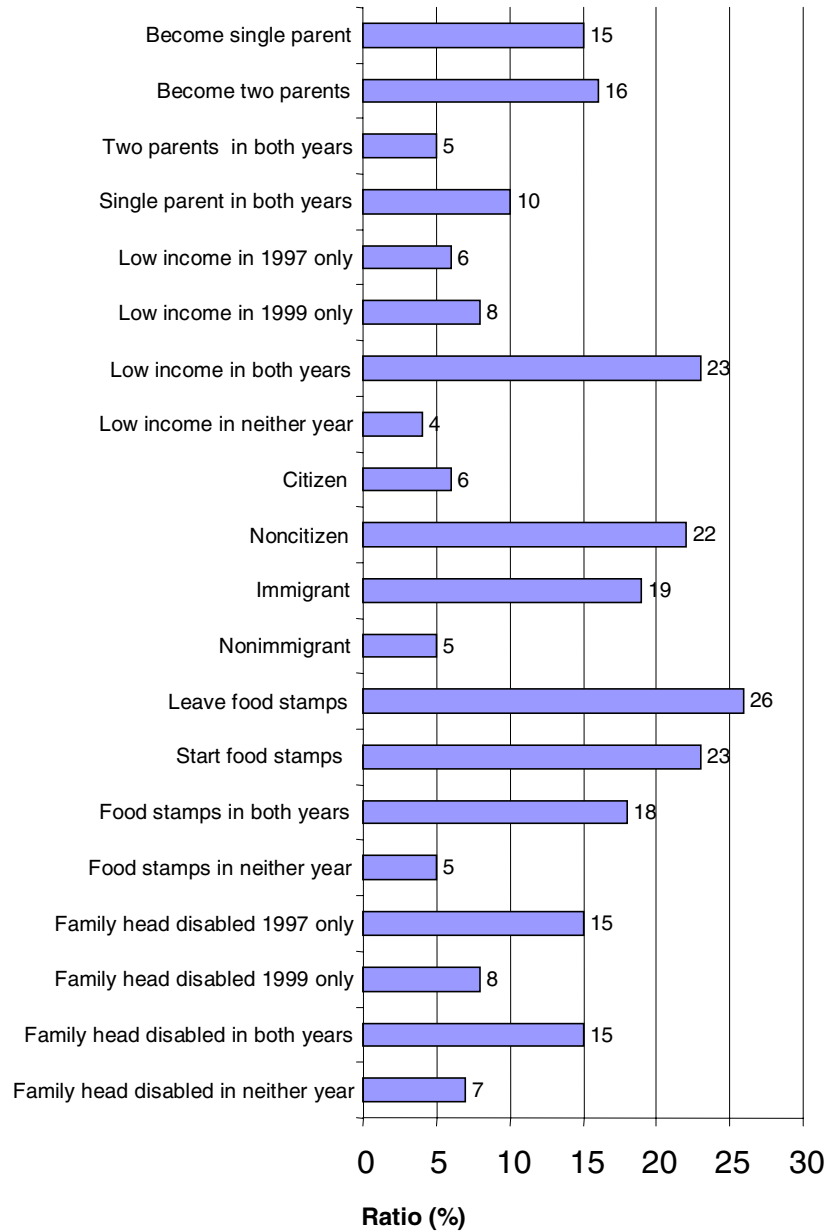


Figure 2. Percentage of food secure families in 1997 who became food insecure in 1999—Continued



1997 and 1999, compared with 88.6 percent of families with children ages 10-13, a significant difference (table 2).

Persistence in food insecurity between 1997 and 1999 is high (table 2, “Persistence” column and fig. 1). If families were food insecure in 1997, they were likely to remain food insecure in 1999. However, food-insecure families with children ages 10-13 were least likely to remain insecure. Only 35 percent remained food insecure between 1997 and 1999. In contrast, 55 percent of families with a youngest child under age 3 remained food insecure. When other factors are controlled (table 3, “Persistence” columns), the age of the youngest child in 1997 is no longer related to food insecurity. This is likely because we have controlled for the kinds of income differences that distinguish between families with younger and with only older children.

Food-secure families with young children under age 3 or between ages 3 and 5 are also more likely to enter food insecurity than families with children age 6 and older and none younger. About 10 percent of the former become food insecure compared with 3-5 percent of families with only older children (table 2, “Entry” column and fig. 2). The multivariate analysis (table 3, “Entry”) shows that the risk of food-secure families becoming food insecure declines about 6 percent for each year of age of the youngest child, even after controlling for income and other factors. Having younger children reflects not just lower income but a less secure life-cycle stage.

Race/Ethnicity

Black families, Hispanic families, and families of other races/ethnicities are less likely to be food secure than White families, 88 percent of whom were food secure in both 1997 and 1999, with Hispanic families least likely to be food secure (table 2). Although the proportion of Hispanic families that were food secure in both 1997 and 1999 (60 percent) is considerably lower than the other groups, it is not unreasonable. The proportion of Hispanic families with children in the PSID that were food secure in 1999 (73.3 percent, obtained by summing the proportion that were food secure in both years and food insecure in 1997 only) is about the same as the proportion of Hispanic children’s families in the CPS who were food secure in 2001 (71.4 percent) (Nord, Andrews, and Carlson, 2002, table 6).

Among food insecure families in 1997, persistence varies little across race/ethnic groups (table 2 and fig. 1). There are no large differences in persistence by race/ethnicity, which is borne out in the multivariate models (table 3). The persistence coefficients for Black, Hispanic, and other families are not statistically significant.

In contrast, ethnic groups differ in entry into food insecurity. In the bivariate analysis (Table 2 and fig. 2), Hispanic families were more likely to *become* food insecure between 1997 and 1999 than other families. However, differences in food insecurity between Hispanic and White families (table 2) are likely to result from different financial resources since Hispanic families were 75 percent less likely to enter food insecurity in the multivariate analysis that controlled for such income differences (table 3). Families of other race/ethnicities are also less likely to become food insecure, net of other factors.

Table 3: Logistic regression estimates of persistence and entry into food insecurity of families with children

	Entry (Becomes food insecure)			Persistence (Remains food insecure)		
	β	Std. Error	Risk Ratio	β	Std. Error	Risk Ratio
Intercept	0.192	0.613		1.943	1.224	
Age of head	-0.046 ***	0.013	0.955	-0.017	0.026	0.984
Education of head	-0.078 **	0.027	0.925	-0.184 **	0.064	0.832
White	omitted			omitted		
Black	0.190	0.282	1.209	-0.638	0.477	0.528
Latino	-1.388 *	0.578	0.250	-0.759	0.721	0.468
Other	-1.523 *	0.682	0.218	-0.825	0.851	0.438
Age of youngest in 97	-0.063 +	0.034	0.939	-0.056	0.056	0.946
Added child 1997-99	0.425	0.263	1.530	0.435	0.557	1.545
Number of children in 1997	0.281 **	0.099	1.325	0.295 +	0.173	1.343
Received food stamps in 1997 only	0.594 +	0.324	1.811	0.833 +	0.471	2.300
Received food stamps in 1999 only	0.178	0.415	1.195	0.720	0.718	2.055
Received food stamps in both years	-0.053	0.351	0.948	1.809 ***	0.543	6.107
Received food stamps in neither year	omitted			omitted		
Low income in 1997 only	-1.229 **	0.372	0.293	-0.139	0.552	0.870
Low income in 1999 only	-0.832 *	0.386	0.435	1.471 +	0.809	4.351
Low income in neither year	-1.242 ***	0.292	0.289	1.287 *	0.533	3.623
Low income in both years	omitted			omitted		
Two parents only in 1997	0.649 +	0.366	1.914	-2.092 **	0.778	0.123
Two parents only in 1999	0.268	0.424	1.308	-1.688 *	0.820	0.185
Two parents in both years	-0.253	0.293	0.776	-0.936 *	0.440	0.392
Single parent in both years	omitted			omitted		
Immigrant	2.238 ***	0.497	9.378	0.932	0.676	2.538
Disabled only in 1997	0.178	0.490	1.195	-1.069	0.835	0.343
Disabled only in 1999	0.036	0.435	1.036	-0.071	0.604	0.931
Disabled in both years	0.880 *	0.355	2.410	-0.005	0.577	0.995
Disabled in neither year	omitted			omitted		
- 2 Log Likelihood	760.112			238.932		
p-value	<.0001			<.0001		
Number of cases	1,855			247		

* = $p < 0.05$, ** = $p < 0.01$, *** = $p < 0.001$, + = $p < 0.10$.

Age of Head

Older heads are more mature and may be better experienced in obtaining the types of resources they need for food security. Overall, families with older heads are more likely to be food secure than those with younger heads (table 2). In both years, 90 percent of families with heads age 50 or older reported being food secure, compared with 67.6 percent of families with heads under age 25.

When we examine persistence, we find that families with the oldest heads (age 50 plus) that were food insecure in 1997 were less likely to be insecure in 1999 than food insecure families with heads under age 50 (table 2 and fig. 1). However, when controls are introduced for income and other factors (table 3), the age difference in persistence disappears. Given two families who are food insecure initially, the age of the head per se does not predict which one will remain insecure 2 years later.

However, the age and, therefore, the maturity of head are important in entry into food insecurity. In the bivariate analysis, families with the youngest heads (under age 25) are the most likely to become food insecure (table 2 and fig. 2). Between 1997 and 1999, 17 percent of families with a head under age 25 became food insecure, compared with only 3 percent of families with a head 50 and older. This negative relationship between age of head and entry remains even after controlling for income, education and other factors (table 3). Each additional year the head is older is associated with a 4.5-percent reduction in the chance of a food-secure family entering food insecurity.

Education of Head

Less-educated heads may have trouble getting or adequately managing the resources of the family. In the bivariate analysis, we see that children's families were more likely to be food secure in both years if the head had completed high school or some college than if the head had completed fewer than 12 years of school (table 2).

Families in which the head had completed fewer than 12 years of school were also very likely to remain food insecure, once in that state. Between 1997 and 1999 62 percent remained food insecure (table 2 and fig. 1). In contrast, none of the families that were insecure in 1997 but headed by an individual with a college degree or higher remained insecure. The multivariate analysis shows a significant negative relationship between a family head's education and persistence in food insecurity even after controlling for family income (table 3), suggesting that a low level of education does not lead to food insecurity through lower income but through unmeasured factors, such as the ability to manage resources.

Families headed by a poorly educated head were also highly likely to enter food insecurity between 1997 and 1999 (table 2 and fig. 2). The multivariate results, which show a significant negative relationship between head's education and entry into food insecurity, after controlling for other factors, are consistent with the bivariate findings (table 3). Each additional year of schooling is associated with a 2.5-percent decline in entry into food insecurity.

