

#### **4. IMPACT OF SURVEY SEASON ON FOOD SECURITY PREVALENCE**

Although the Food Security Supplement has been included in the Current Population Survey (CPS) yearly since 1995, the data have not been collected in the same month in all years. The months of collection were as follows: April 1995; September 1996; April 1997; August 1998; April 1999 and September 2000. Starting in 2001, the Food Security Supplement will be fielded annually in early December. Prior to that an extra collection was conducted in April 2001. To date, several comparisons have been made across the five-year time period since the supplement was included in the CPS. The most recent report (Andrews, et al, 2000) raised the issue as to whether annual estimates include a “seasonality” component because of the alternation between Spring and Fall collection.

Theoretically this should not be true because people are asked about their experiences for the past 12-month period. However, it is possible that people’s answers reflect their most recent experiences more than they do the experiences of 11 or 12 months earlier. In this case, estimates will have a seasonal component if food deprivation varies seasonally in similar ways in a majority of food insecure and near food insecure households. An analysis of food insecurity and hunger prevalence rates across five years, taking into account the season in which data were collected, suggests that survey season does affect the measured prevalence of food insecurity and hunger.

##### **A. Data Sources**

The analysis of the impact of the survey season on food security status utilized annual household food insecurity and hunger prevalence statistics. Since there were screening differences in the survey administration across the five-year span, data were adjusted to a common screen for comparability. The analyses used data for all households, focusing on overall food insecurity and food insecurity with hunger. The prevalence rates used for the year 1995 were published in the *“Measuring Food Security in the United States-Household Food Security In The United States 1995-1998 (Advanced*

*Report*),” (Bickel et al.1999). The prevalence rates for 1996 through 1999 were derived directly from public use data sets.

The analyses were conducted using linear regression models with “year” as the unit of observation. The dependent variable in the first model is the proportion of households that were food insecure. In the second model the dependent variable is the proportion of households that were food insecure with hunger. Independent variables in both models included season (Spring or Fall) and time. Time is measured as the number of months since the first Food Security Supplement was collected (April 1995). The inclusion of a time variable controls for long-term trends in prevalence rates.

## **B. Results**

Tables 4.1 and 4.2 present the results for the estimated regression equations for the effect of season and time on food insecurity and food insecurity with hunger. The season coefficient is relatively large when compared to the standard errors for annual estimates (available for 1998 and 1999). Despite the fact that there are only two degrees of freedom for the season coefficient, it approaches statistical significance ( $p=.13$ ) for food insecurity and is statistically significant for hunger ( $p=.04$ ).

## **C. Summary**

The results above suggest that seasonality has an impact on the annual estimates of food insecurity and food insecurity with hunger. They suggest that food insecurity estimates are 1.15 percentage points higher in the Fall than in the Spring and that food insecurity with hunger estimates are 0.6 percentage points higher in the Fall than in the Spring. However, the residuals suggest that other differences, perhaps related to factors specific to the year of the survey, may also impact the results. It is important to note that the small number of data points limits the reliability of these results. They are consistent with an effect of seasonality but do not provide conclusive evidence. Further exploration using the September 2000 and planned April 2001 surveys will be needed to verify whether season does, in fact, bias prevalence estimates.

**Table 4.1: Effect of Survey Season on Measured Prevalence of Food Insecurity, Regression Analysis Results**

<p style="text-align: right;"> <b>Number of observations</b> = <b>5</b>  <b>R-squared</b> = <b>.829</b>  <b>Coefficients and Significance:</b>  <b>Season = Fall</b> = <b>1.150</b>  <b>Significance</b> = <b>P=.13</b>  <b>Time (months)</b> = <b>-.0316</b>  <b>Significance</b> = <b>P=.16</b> </p>				
<b>Case</b>	<b>Season</b>	<b>Percentage of Households with Food Insecurity</b>	<b>Percentage of Households with Food Insecurity (Standard Error)</b>	<b>Residual</b>
1995	Spring	10.3	n.a.	.33
1996	Fall	10.4	n.a.	-.18
1997	Spring	8.7	n.a.	-.51
1998	Fall	10.1	.17	.18
1999	Spring	8.7	.19	.18

Source: Tabulations of Current Population Survey, Food Security Supplement data.

**Table 4.2: Effect of Survey Season on Measured Prevalence of Food Insecurity with Hunger, Regression Analysis Results**

Number of observations = 5 R-squared = .963 Coefficients and Significance: Season = Fall = .639 Significance = P=.04 Time (months) = -.0235 Significance = P=.03					
Case	Season	Time (months)	Percentage of Households with Food Insecurity with Hunger	Percentage of Households with Food Insecurity with Hunger (Standard Error)	Residual
1995	Spring	0	3.9	n.a.	.05
1996	Fall	17	4.1	n.a.	.04
1997	Spring	24	3.1	n.a.	-.15
1998	Fall	40	3.5	.12	.04
1999	Spring	48	2.8	.07	.10

Source: Tabulations of Current Population Survey, Food Security Supplement data.