

Dimensionality of the USDA Food Security Index

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In April 1995, the Current Population Survey (CPS) included the first Food Security Supplement (Module) designed to measure the amount of food insecurity and hunger prevalent in the nation during the twelve months prior to April 1995. The questions in the Food Security Module were used to develop a scale of the underlying food insecurity and hunger prevalent in the nation. Based on this scale, all households in the survey were placed into four basic categories according to their responses to the questions on the Food Security Module: food secure, food insecure without hunger, food insecure with moderate hunger, and food insecure with severe hunger (Hamilton, etal. 1997a)

The scale (USDA Food Security Index) of the underlying food insecurity and hunger prevalent in the nation was developed using a probabilistic model from the field of Item Response Theory (IRT) called the Rasch model. In terms of educational testing, the Rasch model seeks to model the probability that an examinee will correctly answer a test question or item as a function of the difficulty of the item and the latent (unobserved) ability of the examinee. The probabilistic Rasch model is defined as

$$P_i(\theta) = \frac{1}{1 + \exp[-1.7(\theta - b_i)]}$$

where θ is the ability of the examinee, b_i is the difficulty of the i th item, and $P_i(\theta)$ is the probability of a correct response on the i th item.

In terms of measuring food security and hunger through the Food Security Module, the latent ability of the examinee θ is the amount of food insecurity and hunger experienced by the household and the difficulty of the i th item b_i is the severity of the food insecurity and hunger assessed by the item (question). The Rasch model then finds the probability that a household with food insecurity and hunger θ will respond affirmatively to the i th question with severity b_i .

The Rasch model contains a parameter for each item b_i and a parameter for each household (θ). The IRT Rasch model program BIGSTEPS was used to estimate these parameters using the responses from the 1995 CPS Food Security Module. The ordered item parameter estimates b_i were then used to define the scale of food insecurity and hunger present in the nation (Hamilton, etal, 1997(b)).

To fit a Rasch model to the responses from the 1995 Food Security Module, two assumptions are necessary. The first assumption is that all items discriminate equally well between levels of household food insecurity and hunger (θ). This first assumption implies the only difference in the probabilities of correctly answering two items is the difficulties (severities) of the two item. The second assumption is that the level of household food insecurity and hunger (θ) as determined by the responses to the items can be measured as a single construct. This assumption is called unidimensionality.

Many researchers have looked at the effects of violating the assumption of unidimensionality by fitting a unidimensional model, such as the Rasch model, to multidimensional data (Ackerman, 1989; Reckase 1979; Kirisci & Hsu, 1995). In general, they have found small to moderate violations of the assumption of unidimensionality have little to no effect on the item parameter (b_i) estimates. However, severe violations of the assumption of unidimensionality make the item parameter estimates (b_i) biased. The bias can simply affect the value of the severity estimates or the bias can cause the ordering of the severity estimates to be different than their true ordering. The latter type of potential bias in the item parameter estimates is particularly important since the food insecurity and hunger scale was developed using the ordered item severity parameter values.

In developing the original food insecurity and hunger scale, the programs LISREL and NO-HARM were used to fit an exploratory non-linear factor analysis model to the household responses from the 1995 CPS Food Security Module. Only responses from households with children that were administered the 18 question 1995 Food Security Module were used for this analysis. The results

suggested to the researchers that the level of household food insecurity and hunger was indeed a unidimensional construct (Hamilton, etal, 1997(b)). Nord & Bickel (2001) analyzed the same data using a principal component analysis of the residuals obtained from the Rasch model. This analysis suggested the presence of a second dimension relating to the extent to which children in the household were protected from hunger.

This paper looks at the dimensionality of the USDA Food Security Index using other analyses from the field of Item Response Theory. Similar to the previous research in this area, the focus is on the dimensionality of the index for households with children. Section 1 of this paper introduces the IRT definition of dimensionality. Based on this definition, section 2 describes two different exploratory dimensionality analyses and gives the results of these analyses of the 18 question 1995 CPS Food Security Module administered to households with children. Section 3 then describes a confirmatory dimensionality analysis and gives the results of this analysis for the Food Security Module. Section 4 gives the results of the same analyses from section 2 and 3 if the three follow-up questions from the 1995 Food Security Module are removed from the scale. The results of this paper are summarized in section 5.

1 Background on Dimensionality

Item Response Theory assumes examinee responses to test items depend upon both the characteristics of the items themselves and upon the latent examinee random ability vector $\boldsymbol{\theta}$. The probability a randomly sampled examinee with ability vector $\boldsymbol{\Theta} = \boldsymbol{\theta}$ answers item i correctly is given by the conditional probability

$$P_i(\boldsymbol{\theta}) = P(U_i = 1 | \boldsymbol{\Theta} = \boldsymbol{\theta}) \quad (1)$$

This is generally referred to as the Item Response Function (IRF) or the Item Characteristic Curve (ICC) for item i .

For the latent variable model defined in equation (1) to be psychometrically reasonable, two assumptions are often made. First, the latent variable probability model is assumed to be monotone increasing coordinatewise in $\boldsymbol{\theta}$ for each item i . This implies that as the ability of an examinee increases coordinatewise in $\boldsymbol{\theta}$, the probability the examinee correctly answers the item increases as well.

Second, the latent variable probability model is assumed to be locally independent. A latent variable model is locally independent if

$$P(\mathbf{U} = \mathbf{u} | \boldsymbol{\Theta} = \boldsymbol{\theta}) = \prod_{i=1}^n P(U_i = u_i | \boldsymbol{\Theta} = \boldsymbol{\theta}) \quad (2)$$

holds for all $\boldsymbol{\theta}$ and all possible response patterns \mathbf{u} . Thus, given the value of the latent examinee ability vector $\boldsymbol{\Theta}$, examinee responses to test items are independent. In other words, the abilities in the random vector $\boldsymbol{\theta}$ should be the only aspect that influences examinee responses to the test items.

The dimensionality of a test is then defined as the minimum number of dimensions of the latent vector $\boldsymbol{\Theta}$ required to produce a locally independent and monotone increasing latent variable probability model. In other words, the latent ability vector $\boldsymbol{\Theta}$ contains only the abilities that affect examinee performance on the test items. Note that the definition of the dimensionality of a test assumes only that we have a monotone increasing and locally independent model for the IRFs. The definition of dimensionality **does not** specify a particular model for the IRFs, **nor** does it specify the distribution for the latent random vector $\boldsymbol{\theta}$.

To determine the dimensionality of a test, the assumption of local independence requires proving 2^n equations hold for each possible value of $\boldsymbol{\theta}$. In practice, the requirement of local independence of the latent variable model is usually replaced with the requirement of weak local independence. A latent variable model displays weak local independence if

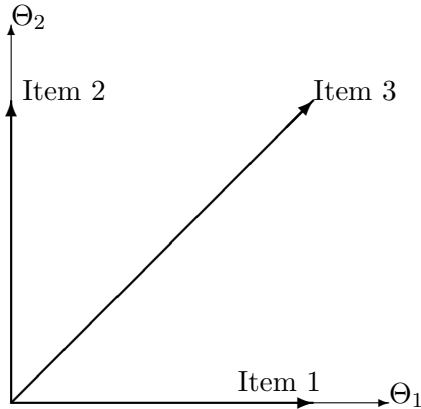
$$\text{Cov}(U_i, U_l | \boldsymbol{\Theta} = \boldsymbol{\theta}) = 0 \quad (3)$$

for each $n(n-1)/2$ item pairs (i,l) and for every $\boldsymbol{\theta}$. Therefore, a working definition of dimensionality is the minimum number of dimensions required to produce a latent variable model that is both monotone increasing and displays weak local independence. Note that the working definition of dimensionality, just like the formal definition, **does not** specify a particular model for the IRFs, **nor** does it specify the distribution for the latent random vector $\boldsymbol{\theta}$.

1.1 Conditional Covariances

The basis of the working definition of dimensionality is the assumption of weak local independence. This assumption is based on the value of the conditional covariance between two items. One can therefore investigate dimensionality by studying these conditional covariances graphically (see for example, Ackerman, 1996). For example, assume a test has two dimensions, denoted by Θ_1 and Θ_2 (the latent random vector $\boldsymbol{\theta}$ consists of two abilities (θ_1, θ_2)). The dimensions can be represented by a coordinate system, as shown in Figure 1. In Figure 1, Item 1 represents an item that measures the Θ_1 ability but not the Θ_2 ability, while Item 2 represents an item that measures the Θ_2 ability but not the Θ_1 ability. Item 3 represents an item that measures both the Θ_1 and Θ_2 abilities. Thus, Item 3 best measures some composite ability of Θ_1 and Θ_2 .

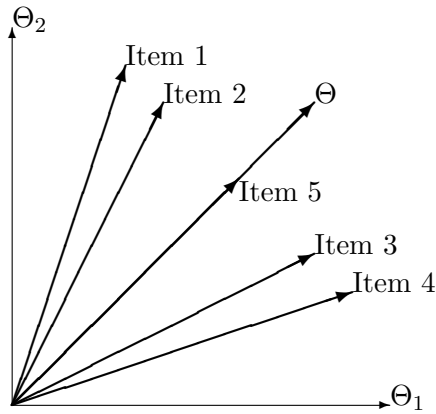
Figure 1: Two-Dimensional Coordinate System



This multidimensional representation of item vectors can be used to explain the role of conditional covariances in determining the dimensionality of a test (Zhang & Stout, 1999a). Figure ?? represents a two dimensional test with the dominant ability the test is designed to measure, also called the direction of best measurement of the test, denoted as Θ . (The direction of best measurement of both an item and a test is rigorously defined in Zhang & Stout, 1999a).

The conditional covariances between two items on the same side of the latent conditioning variable Θ (Items 1 and 2 and Items 3 and 4) will be positive, and the conditional covariances between two items on different sides of the latent conditioning variable Θ (Items 1 and 3, Items 1

Figure 2: Graphical Representation of Conditional Covariances



and 4, Items 2 and 3, and Items 2 and 4) will be negative. In addition, if either item of an item pair lies in the same direction as the latent conditioning variable Θ (all item pairs containing Item 5), the conditional covariance for that item pair will be zero. (Zhang & Stout (1999a) show similar, but more complex results hold for conditional covariances when the dimensionality of a test is greater than two).

The magnitude and sign of the conditional covariance of an item pair thus provide information about the dimensional structure of test items given a particular conditioning variable Θ . If a test is unidimensional, each test item will lie in the same direction as the direction of best measurement of the test Θ . Therefore, all conditional covariances between item pairs conditioned on Θ will be zero. However, if a test is multidimensional, all test items will not necessarily lie in the same direction as Θ . Therefore, some of the conditional covariances between item pairs conditioned on Θ will be different from zero, indicating the multidimensional nature of the test.

2 Exploratory Dimensionality Analysis

Two programs are currently available that use these conditional covariances to assess the dimensional structure of a test. Both programs are completely nonparametric in nature. They make no assumptions about either the form of the IRFs or about the distribution of the latent ability vector. The first program is called HCA-CCPROX (Roussos, Stout & Marden, 1998). This program calculates a proximity matrix of the test items using conditional covariances. Then, using this proximity matrix, the test items are clustered using a hierarchical cluster analysis. At the first stage, all items are placed in a separate cluster. At each successive stage, the two clusters with the closest proximity measure are combined to form one new cluster. This process continues until all items are placed in one single cluster.

The output from HCA-CCPROX is very informative. Items which combine into clusters in the early stages of the cluster analysis are closer dimensionally than items which combine into clusters in the later stages of the cluster analysis. The main drawback of this program is it makes no determination which clustering of the items is optimal.

The second program, called DETECT (Zhang & Stout, 1999b), attempts to fix this limitation in the HCA-CCPROX program. The program calculates a DETECT statistic, using the conditional covariance matrix of the test items, for a given clustering of test items. The DETECT program

then attempts to find an optimal clustering of the test items by searching for the specific clustering that maximizes the DETECT statistic. Thus, DETECT attempts to find both the dimensionality of the test, and to assign items to each dimension.

2.1 Exploratory Analysis of the 1995 CPS Food Security Module

To analyze the dimensional structure of the USDA Food Security Index, household responses were obtained from the 1995 Current Population Survey Food Security Module. Only the 7,888 households with children who were administered all 18 possible items in the food security module were used in this dimensionality analysis. To provide for cross-validation using confirmatory dimensionality analysis (see next section), the exploratory programs HCA-CCPROX and DETECT were run using only 2500 randomly selected households from the 7,888 available.

The DETECT program found the optimal number of dimensions present in the data is three. The items belonging to the three clusters are given in Table 1.

Table 1: DETECT Cluster Analysis of 18 Question 1995 CPS Food Security Module

Cluster 1	24	25	28	29	32	35	38		
Cluster 2	40	43	44	47	50	55	56	57	58
Cluster 3	53	54							

The output from the HCA-CCPROX program consists of 18 separate cluster analyses obtained from each stage of the hierarchical cluster analysis. In Table 2, each stage of the HCA is a column with clusters in each stage divided by the symbol ***.

3 Confirmatory Dimensionality Analysis

DETECT and HCA-CCPROX are completely exploratory in nature. Neither program can evaluate the resulting clusters to determine if they are truly dimensionally distinct. The DIMTEST program (Stout, 1987; Nandakumar & Stout, 1993; Froelich & Stout, 2002) completes the analysis of dimensionality by providing a nonparametric hypothesis test of unidimensionality of the test data. In this program, the test items are divided into two groups, the Assessment Subtest (AT), and the Partitioning Subtest (PT). The DIMTEST procedure then tests whether the AT items measure the same dimension or a different dimension than the PT items. In this manner, clusters found by DETECT, HCA-CCPROX, or any other reasonable exploratory method can be evaluated to determine their true dimensional distinctiveness.

To form a test of hypothesis, the DIMTEST statistic is calculated using the conditional covariances of the AT items, conditioned on the examinee's total score on the PT items. The resulting statistic (after standardizing and applying a bias correction) has an asymptotic standard normal distribution as both the number of items and the number of examinees tends to infinity. Thus, the null hypothesis of unidimensionality is rejected with asymptotic level α if the DIMTEST statistic is greater than the $100(1 - \alpha)$ th percentile of the standard normal distribution.

3.1 DIMTEST Analysis of the 1995 CPS Food Security Module

To provide for cross validation with HCA-CCPROX and DETECT, the DIMTEST program was run several times on a second set of 2,500 randomly selected households from the remaining 5,388 house-

Table 2: HCA-CCPROX Cluster Analysis of 18 Question 1995 CPS Food Security Module

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
**	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
54	***	***	***	***	***	***	***	***	***	***	***	***	24	24	24	24	24
**	24	24	24	24	24	24	24	24	24	24	24	24	25	25	25	25	25
24	***	25	25	25	25	25	25	25	25	25	25	25	32	32	32	32	32
**	25	***	***	***	32	32	32	32	32	32	32	32	35	35	35	35	35
25	***	32	32	32	***	***	***	35	35	35	35	35	38	38	38	38	38
**	32	***	***	***	35	35	35	***	38	38	38	38	28	28	28	28	28
32	***	35	35	35	***	***	***	38	***	***	***	28	29	29	29	29	29
**	35	***	***	***	38	38	38	***	28	28	28	29	***	***	40	40	40
35	***	38	38	38	***	***	***	28	29	29	29	***	40	40	47	47	47
**	38	***	***	***	28	28	28	29	***	***	***	40	47	47	43	43	43
38	***	28	28	28	***	29	29	***	40	40	40	47	***	43	44	44	44
**	28	***	***	***	29	***	***	40	***	47	47	***	43	44	***	***	55
28	***	29	29	29	***	40	40	***	47	***	***	43	44	***	55	55	56
**	29	***	***	***	40	***	***	47	***	43	43	44	***	55	56	56	58
29	***	40	40	40	***	47	47	***	43	***	44	***	55	56	58	58	57
**	40	***	***	***	47	***	***	43	***	44	***	55	56	58	57	57	50
40	***	47	47	47	***	43	43	***	44	***	55	56	58	57	***	50	
**	47	***	***	***	43	***	***	44	***	55	56	58	57	***	50		
47	***	43	43	43	***	44	44	***	55	56	58	57	***	50			
**	43	***	***	***	44	***	***	55	56	58	57	***	50				
43	***	44	44	44	***	55	55	56	58	57	***	50					
**	44	***	***	***	55	56	56	58	57	***	50						
44	***	55	55	55	56	58	58	57	***	50							
**	55	***	56	56	58	***	57	***	50								
55	***	56	***	58	***	57	***	50									
**	56	***	58	***	57	***	50										
56	***	58	***	57	***	50											
**	58	***	57	***	50												
58	***	57	***	50													
**	57	***	50														
57	***	50															
**	50																
50																	

holds (2,500 households were already used in the exploratory data analysis using HCA/CCPROX and DETECT). For each run, different AT and PT Subtests were chosen and the value of the DIMTEST statistic was calculated. The AT and PT Subtests chosen and the resulting DIMTEST statistics and p-values are given in Table 2 below.

Table 3: DIMTEST Analysis of the DETECT Clusters from Table 1

AT Subtest	PT Subtest	DIMTEST Statistic	p-value
Cluster 1	Cluster 2 & 3	6.67	0.0000
Cluster 1	Cluster 2	5.79	0.0000
Cluster 1 & 3	Cluster 2	5.94	0.0000
Cluster 3	Cluster 1 & 2	-0.26	0.6027
Cluster 3	Cluster 1	0.21	0.4166
Cluster 3	Cluster 2	-0.57	0.7153

From the DIMTEST analysis, the dimensional distinctiveness of Clusters 1 and 2 have been verified. Cluster 3 does not appear to be dimensional distinct from either Cluster 1 or from Cluster 2. The null hypothesis of unidimensionality is not rejected for Cluster 3 vs either Cluster 1 or Cluster 2 or both Cluster 1 and 2. It is not completely apparent using DIMTEST if items 53 and 54 belong to Cluster 1 or to Cluster 2. However, the output from the HCA-CCPROX program leads one to combine items 53 and 54 with Cluster 1 since these two clusters combine first in the cluster analysis. Therefore, it appears the data is two dimensional with the two dimensions consisting of the items from Cluster 1 and 3 and the items from Cluster 2 as shown in Table 4.

Table 4: Dimensions for the 18 Question 1995 CPS Food Security Module

Dimension 1	24	25	28	29	32	35	38	53	54
Dimension 2	40	43	44	47	50	55	56	57	58

To eliminate any potential problems with repeated hypothesis testing, the DIMTEST program was run one last time using the remaining 2,888 households with children that were administered the 18 question CPS Food Security Module. The AT Subtest was chosen as Dimension 1 and the PT Subtest was chosen as Dimension 2. The value of the DIMTEST statistic was 7.39 with a p-value of 0.0000. Thus, the null hypothesis of unidimensionality of the 18 questions from the 1995 Current Population Survey Food Security Module administered to households with children is overwhelmingly rejected.

4 Removal of Follow-up Questions

Answers on three of the 18 questions (numbers 25, 29 and 44) on the 1995 CPS Food Security Module are dependent upon the responses to the previous question (numbers 24, 28 and 43). Depending on their response to these base questions, households were instructed to skip the follow-up question. The responses to these three pairs of questions will therefore violate the assumption of local independence. In other words, regardless of the value of the household's food insecurity and hunger level (θ), the response to the follow-up questions will be determined in part by the

household's response to the parent questions. Thus, these three follow-up questions should be removed from the dimensionality analysis to provide a complete picture of the dimensional structure of the USDA Food Security Index.

4.1 Exploratory Analysis

The 7,888 examinee responses from the 1995 Current Population Survey Food Security Module were used to analyze the dimensional structure of the remaining 15 questions administered to households with children. As before, to provide for cross-validation using DIMTEST (see next section), the exploratory programs HCA-CCPROX and DETECT were run using only responses from 2,500 households with children that were administered the 1995 CPS Food Security Module.

The DETECT program found the optimal number of dimensions present in the data was two. The items belonging to the two clusters are given in Table 5 below.

Table 5: DETECT Cluster Analysis of Remaining 15 Question CPS Food Security Module

Cluster 1	24	28	32	35	38	50	53	54
Cluster 2	40	43	47	55	56	57	58	

As before, the output from the HCA-CCPROX program will now consist of 15 separate cluster analyses obtained from each stage of the hierarchical cluster analysis. In Table 6, each stage of the HCA is a column with clusters in each stage divided by the symbol ***.

Table 6: HCA/CCPROX Cluster Analysis of Remaining 15 Question CPS Food Security Module

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
**	54	54	54	54	54	54	54	54	54	54	54	54	54	54
54	***	***	***	***	***	***	***	24	24	24	24	24	24	24
**	24	24	24	24	24	24	24	32	32	32	32	32	32	32
24	***	***	32	32	32	32	32	35	35	35	35	35	35	35
**	32	32	***	***	***	35	35	28	28	28	28	28	28	28
32	***	***	35	35	35	***	28	***	***	***	38	38	38	38
**	35	35	***	***	***	28	***	38	38	38	***	***	55	55
35	***	***	28	28	28	***	38	***	***	***	55	55	56	56
**	28	28	***	***	***	38	***	55	55	55	56	56	58	58
28	***	***	38	38	38	***	55	56	56	56	58	58	57	57
**	38	38	***	***	***	55	56	58	58	58	57	57	40	40
38	***	***	55	55	55	56	58	57	57	57	***	40	47	47
**	55	55	56	56	56	58	57	***	***	***	40	47	43	43
55	***	56	***	58	58	57	***	40	40	40	47	43	***	50
**	56	***	58	***	57	***	40	***	47	47	43	***	50	
56	***	58	***	57	***	40	***	47	***	43	***	50		
**	58	***	57	***	40	***	47	***	43	***	50			
58	***	57	***	40	***	47	***	43	***	50				
**	57	***	40	***	47	***	43	***	50					
57	***	40	***	47	***	43	***	50						
**	40	***	47	***	43	***	50							
40	***	47	***	43	***	50								
**	47	***	43	***	50									
47	***	43	***	50										
**	43	***	50											
43	***	50												
**	50													
50														

4.2 Confirmatory Analysis

To provide for cross validation with HCA-CCPROX and DETECT, the DIMTEST program was run using the remaining 5,388 households with children that were administered the 1995 CPS Food Security Module. The AT Subtest was chosen to be Cluster 2 from the DETECT Cluster Analysis in Table 5 and the PT Subtest was chosen to be Cluster 1 from the same table. The value of the DIMTEST statistic was 9.9461 with a corresponding hypothesis testing p-value of 0.0000. Therefore, the null hypothesis of unidimensionality of the remaining 15 question CPS Food Security Module administered to households with children was overwhelmingly rejected. The two dimensions present in the module are given in Table 7.

Table 7: Dimensions for the Remaining 15 Question CPS Food Security Module

Dimension 1	24	28	32	35	38	50	53	54
Dimension 2	40	43	47	55	56	57	58	

5 Conclusions

The dimensionality analyses using the nonparametric IRT procedures HCA-CCPROX, DETECT and DIMTEST provide overwhelming evidence of two dimensions present in the USDA Food Security Index using the 18 questions from the 1995 CPS Food Security Module administered to households with children. An analysis of the 18 items shows that the items appear to split into two dimensions according to whether they are adult/household items or whether they are children items. In looking at the dimensionality analysis when the 3 follow-up questions are removed, all items in Dimension 1 are adult/household items, except for item 50; while all items in Dimension 2, except for item 55, are children items.

Item 50 asks households if children have gone all day without eating due to a lack of money to purchase food. Only 34 out of the 7,888 households with children responding to the module answered this question affirmatively. This explains why Item 50 is the last item to be added to the HCA/CCPROX cluster analysis (see Tables 2 and 6). With so few affirmative responses, the conditional covariance between Item 50 and all other items will be extremely low. As a result, the dimensionality of this item is difficult to assess. Item 50 could really belong in either one of the two dimensions. This explains why this children item is present in Dimension 1 with the adult/household items.

From the HCA-CCPROX output in Tables 2 and 6, item 55 forms a cluster with item 56 in the third stage. This implies these two items are very similar dimensionally. Both of these items measure whether the members of the household were able to eat balanced meals; item 55 asks about the adults in the household and item 56 asks about the children in the household. The HCA/CCPROX output also shows that items 55 and 56 are dimensionally similar to items 57 and 58. Items 57 and 58 both measure the level of food insecurity for children; item 57 asks whether children in the household are not eating enough and item 58 asks whether adults have fed children in the household low-cost foods. Thus, the HCA/CCPROX output explains why the adult/household item (number 55) is present in Dimension 2 with the children items.

The level of multidimensionality found in the 18 question 1995 CPS Food Security Module administered to households with children is very high. The hypothesis testing procedure DIMTEST

overwhelmingly rejected the null hypothesis of unidimensionality for this data. This result, combined with the exploratory analysis from HCA/CCPROX and DETECT, **very strongly** indicates the presence of two distinct dimensions in the USDA Food Security Index for households with children. The items in the first dimension measure the food insecurity and hunger of the household/adults and the items in the second dimension measure the food insecurity and hunger of the children in the household.

The analysis in this paper shows there is a clear violation of the assumption that food insecurity and hunger in households with children is a unidimensional construct. These results indicate a potential bias of the item severity estimates used to construct the USDA Food Security Index. Further research is necessary to find the amount of this bias and to determine a method of dealing with the multidimensionality of food insecurity and hunger present in households with children.

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Appendix

Table 8: 1995 Current Population Survey Food Security Items

Item Code	Summary of Questions
NHES24	Adult cut size or skipped meals
NHES25	Adult cut size or skipped meals, 3+ months
NHES28	Adult not eat whole day
NHES29	Adult not eat whole dat, 3+ months
NHES32	Adult eat less than felt they should
NHES35	Adult hungry but didn't eat
NHES38	Adult lost weight
NHES40	Cut size of child's meals
NHES43	Child skipped meal
NHES44	Child skipped meal, 3+ months
NHES47	Child hungry
NHES50	Child not eat for whole day
NHES53	Worried food would run out
NHES54	Food bought did not last
NHES55	Adult not eat balanced meals
NHES56	Couldn't feed child balanced meals
NHES57	Child not eating enough
NHES58	Adult fed child few low-cost foods