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The Extent of Trafficking in the Supplemental Nutrition Assistance Program: 2012–2014

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The Extent of Trafficking in the Supplemental Nutrition Assistance Program: 2012–2014

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Table of Contents

APPENDICES

A. Estimation Error
B. Approaches for Detecting Trafficking, Data Sources, and Creation of Analysis Files
C. Post-Stratification Estimation Methodology
D. Variables Employed in the Raking Model
E. Estimate Definition
F. Statistics on Investigations and Administrative Actions
G. Statistics on Comparisons between Retailers in the Investigative Sample and in the Population of Retailers
H. Estimate Intervals
I. Sensitivity of Estimates to Violation Definitions

EXECUTIVE SUMMARY

This is the seventh in a series of periodic analyses to estimate the extent of trafficking in the Supplemental Nutrition Assistance Program (SNAP). One type of trafficking occurs when SNAP recipients sell their benefits for cash at a discount to food retailers. An expanded definition of trafficking was established in Food and Nutrition Service (FNS) regulations published in February, 2013.[1] Although trafficking does not represent a cost to the Federal Government, it is a diversion of program benefits. Benefits are intended to help low-income households access a nutritious diet, and trafficking impedes the program's mission and undermines its integrity. This trafficking update provides an important overview of SNAP integrity from 2012 through 2014.

APPROACH

As with previous analyses, current trafficking estimates are based on two types of FNS investigations: those occurring covertly in stores and those based on SNAP Electronic Benefit Transfer (EBT) administrative (i.e., SNAP purchase) records. Both types of investigations focus on retailers that exhibit suspicious behavior; and thus are not representative of the retailer population. National estimates of trafficking calculated simply by using these sources, therefore, would be higher than in the retailer population as a whole. In order to correct for at least some of this bias, this and prior reports utilize methods that adjust the trafficking outcomes from investigation activity to more accurately reflect the population of SNAP authorized retailers and their level of redemptions.

The report contains trafficking estimates generated from data on investigations conducted by FNS and by the U.S. Department of Agriculture's Office of the Inspector General, and State law enforcement agencies. These estimates also incorporate a broader population of stores with suspect redemption patterns that have been identified through the Agency's fraud detection system, the Anti-fraud Locator using EBT Retailer Transactions (ALERT) system.

The following indicators of trafficking were estimated:

- Total value of SNAP redemptions that were trafficked;
- Trafficking rate, or the proportion of SNAP redemptions that were trafficked; and
- Store violation rate, or the proportion of authorized stores that engaged in trafficking.[2]

TRAFFICKING IN 2012–2014

Based on the best data available for 2012–2014, estimates indicate the following:

- Trafficking diverted an estimated $1.1 billion annually from SNAP benefits;

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[1] For detailed information on the regulations, see http://www.fns.usda.gov/snap/rules/regulations/pdfs/022113.pdf .
[2] The study focuses only on active stores, i.e., stores that redeemed SNAP benefits at some point between 2012 and 2014.

- Overall, approximately 1.5 percent of total SNAP benefits were trafficked; and
- Approximately 11.8 percent of all authorized SNAP stores engaged in trafficking.

A variety of store characteristics and settings were associated to the level of trafficking. Small stores—largely composed of smaller and medium sized groceries, and convenience stores—accounted for about 16 percent of all redemptions, but were estimated to account for just over 94 percent of all trafficking redemptions.[3] No trafficking was found to occur among publicly owned stores. Trafficking was much more likely among retailers located in higher poverty neighborhoods than those in areas with less poverty. Trafficking rates are also highest in the most urban areas.

TRENDS OVER TIME

Exhibits E-1 through E-3, provide the most up-to-date estimates for each study period. Since the first trafficking estimate was generated in 1993, the amount trafficked has declined from $811 million annually to a low of $241 million annually in the 2002-2005 period (Exhibit E-1). Since then, however, the amount has risen—mostly due to the rate of growth in SNAP redemptions.[4] Although the value of benefits trafficked has increased substantially over time, the rate of trafficking has remained low (see Exhibit E-2). The rate of store violations has somewhat increased over time, from 10.5 percent in the last study period to 11.8 percent in the current study period (see Exhibit E-3).

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[3] It should be noted that the trafficking estimate for supermarkets is highly volatile, reflecting their low presence among retailers who are investigated or sent charge letters, issues with detecting trafficking in these large, complexly organized stores, and the large share of redemptions accounted for by these stores. It is feasible that the amount of trafficking accounted for, given the methodology, can change dramatically from one study period to the next.

[4] Estimates reported for the periods since and including 2002-2005 are based on what is known as the "current estimate." Estimates earlier than those reported for 2002–2005 are based on similar but less comprehensive definitions of the investigative sample and trafficking. In previous studies in 1993 and 1996–1998, the estimates were referred to as the "original" estimates, and the estimates in the 1999–2002 study were referred to as the "revised" estimates. Details on estimate definitions are provided in Appendix E.

Exhibit E-1: Annualized Dollar Amount of Trafficking, by Study Period

Amount Trafficked (in Millions)

- 1993: $811 (Original Estimate)
- 1996-1998: $660 (Original Estimate)
- 1999-2002: $393 (Revised Estimate)
- 2002-2005: $241 (Current Estimate)
- 2006-2008: $330 (Current Estimate)
- 2009-2011: $858 (Current Estimate)
- 2012-2014: $1,077 (Current Estimate)

Study Period

Legend: ■ Original Estimate ■ Revised Estimate ■ Current Estimate
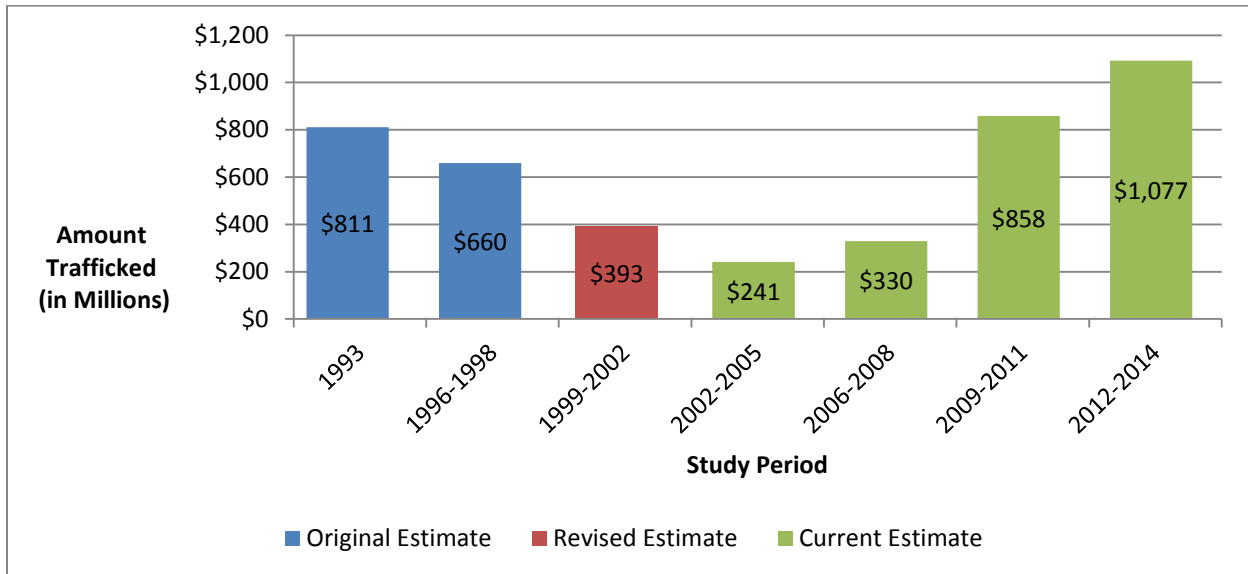
Exhibit E-2: Rate of Trafficking, by Study Period

Percentage of Benefits Trafficked

- 1993: 3.8% (Original Estimate)
- 1996-1998: 3.5% (Original Estimate)
- 1999-2002: 2.5% (Revised Estimate)
- 2002-2005: 1.0% (Current Estimate)
- 2006-2008: 1.0% (Current Estimate)
- 2009-2011: 1.3% (Current Estimate)
- 2012-2014: 1.5% (Current Estimate)

Study Period

Legend: ■ Original Estimate ■ Revised Estimate ■ Current Estimate
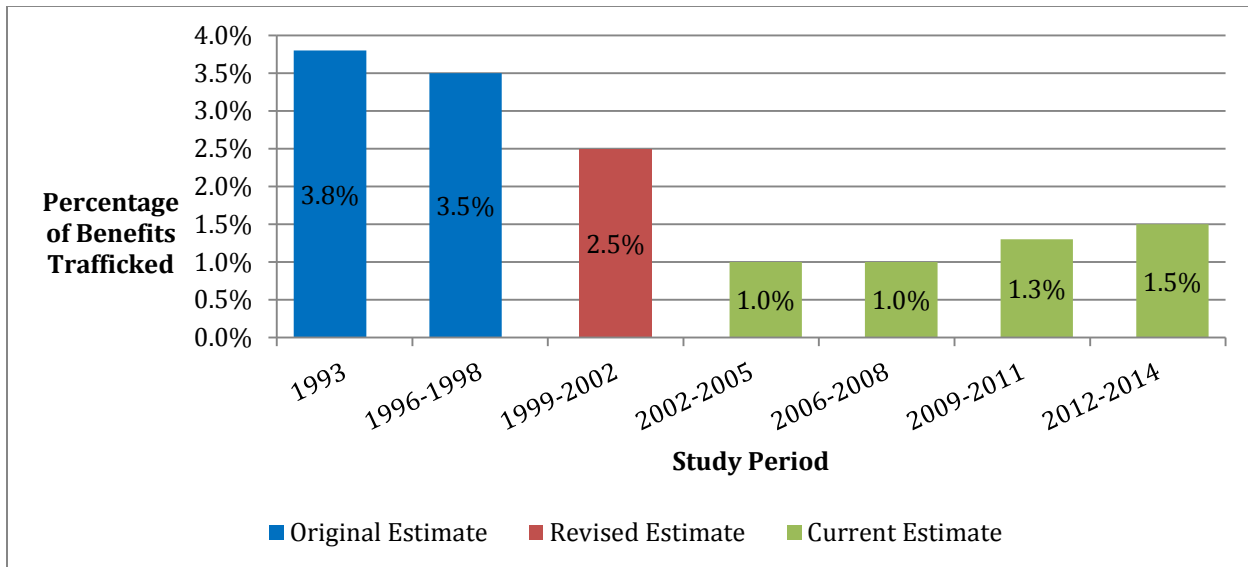
Exhibit E-3: Rate of Store Violations, by Study Period

Chart showing Percentage of Stores Trafficking by study period:
- 1993 (Original Estimate): 9.4%
- 1996-1998 (Original Estimate): 11.7%
- 1999-2002 (Revised Estimate): 9.3%
- 2002-2005 (Current Estimate): 7.4%
- 2006-2008 (Current Estimate): 8.2%
- 2009-2011 (Current Estimate): 10.5%
- 2012-2014 (Current Estimate): 11.8%

Legend: ■ Original Estimate   ■ Revised Estimate   ■ Current Estimate
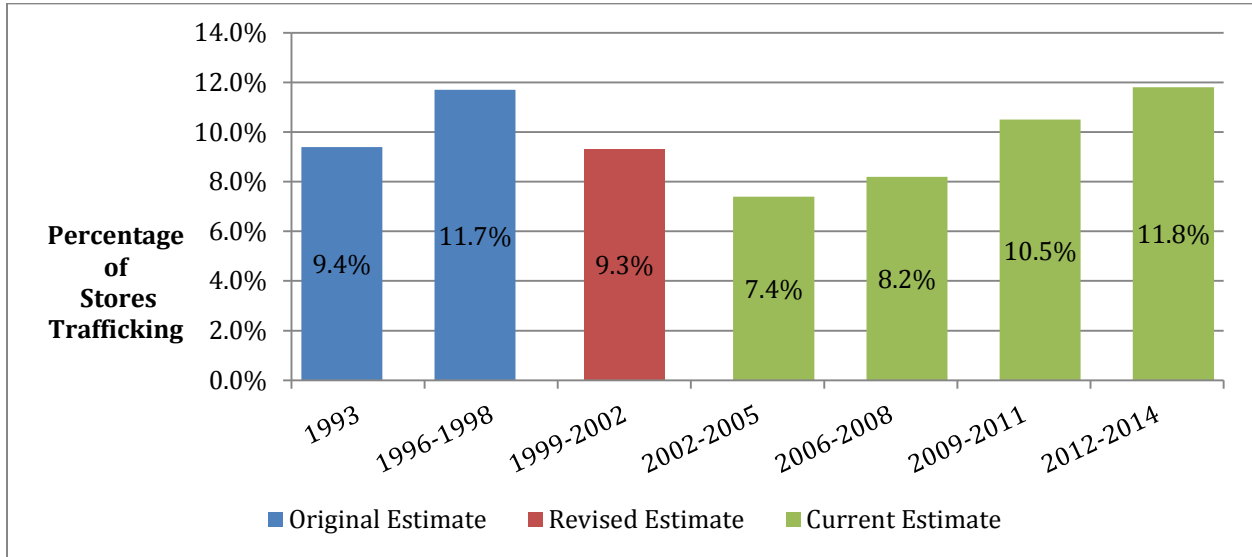
1. INTRODUCTION

1.1. BACKGROUND AND PURPOSE

The Food and Nutrition Service (FNS) administers the Supplemental Nutrition Assistance Program (SNAP), which in fiscal year 2015 issued just under $70 billion in benefits to almost 46.7 million low-income participants to help them obtain a nutritious diet.[1]

SNAP benefits are permitted for the purchase of eligible food items from authorized food retailers. The sale or exchange of SNAP benefits for anything other than food sold by an authorized SNAP retailer is illegal. Trafficking is defined in the regulations (CFR Title 7, Subtitle B, Chapter II, Subchapter C, Part 271, §271.2)[2] by six categories of activities, most of which involve retailer participation (and, hence, retailer trafficking):

(1) The buying, selling, stealing, or otherwise effecting an exchange of SNAP benefits issued and accessed via Electronic Benefit Transfer (EBT) cards, card numbers and personal identification numbers (PINs), or by manual voucher and signature[3], for cash or consideration other than eligible food, either directly, indirectly, in complicity or collusion with others, or acting alone;

(2) The exchange of firearms, ammunition, explosives, or controlled substances, as defined in section 802 of title 21, United States Code, for SNAP benefits;

(3) Purchasing a product with SNAP benefits that has a container requiring a return deposit with the intent of obtaining cash by discarding the product and returning the container for the deposit amount, intentionally discarding the product, and intentionally returning the container for the deposit amount;

(4) Purchasing a product with SNAP benefits with the intent of obtaining cash or consideration other than eligible food by reselling the product, and subsequently intentionally reselling the product purchased with SNAP benefits in exchange for cash or consideration other than eligible food; or

(5) Intentionally purchasing products originally purchased with SNAP benefits in exchange for cash or consideration other than eligible food.

(6) Attempting to buy, sell, steal, or otherwise affect an exchange of SNAP benefits issued and accessed via Electronic Benefit Transfer (EBT) cards, card numbers and personal identification numbers (PINs), or by manual voucher and signatures, for cash or consideration other than eligible food, either directly, indirectly, in complicity or collusion with others, or acting alone.

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[1] Source: http://www.fns.usda.gov/pd/SNAPsummary.htm.
[2] Source: http://www.ecfr.gov/cgi-bin/text-idx?SID=68173889b0a9e4a8d281c8b0f9797f68&mc=true&node=pt7.4.271
[3] Under the terms of the Agricultural Act of 2014, manual vouchers will be phased out.

Food retailers authorized by FNS are the primary agents that can redeem SNAP benefits with the Federal Government (meal service programs that serve specific disadvantaged populations can also redeem SNAP benefits), and therefore are the primary loci of trafficking. FNS is responsible for authorizing and managing retailer participation. As part of this responsibility, FNS employs monitoring and investigations staff to identify and curb benefit trafficking. These efforts include covert investigations as well as ongoing review of SNAP benefit redemption or transaction data. Investigations are also initiated by the U.S. Department of Agriculture's (USDA) Office of the Inspector General (OIG), and a limited number of State law enforcement bureaus authorized to assist FNS with store investigations. Although these activities can provide a general sense of trafficking patterns, they do not provide an accurate estimate of benefits diverted through trafficking since they focus on retailers identified as potential traffickers. To remedy this, FNS has funded studies to statistically adjust the information provided by these administrative actions to provide more accurate estimates.

This report is the seventh in a series of periodic reports[4] that provide updated estimates of the following:

- Total value of SNAP redemptions that were trafficked;
- Trafficking rate, or the proportion of SNAP redemptions that were trafficked; and
- Store violation rate, or the proportion of authorized stores that engaged in trafficking.

The estimates reflect redemption activity beginning on January 1, 2012, and ending on December 31, 2014.

1.2. APPROACH

Since the initial study was completed in 1993, FNS trafficking estimates have been generated from a systematic analysis of the best available data on redemption monitoring (EBT redemption pattern analysis) and investigations of authorized retailers. This systematic analysis recognized that a somewhat biased perspective on SNAP trafficking would result from using investigative and administrative EBT data sources without adjustment. Because this bias is based on stores that have exhibited suspicious behavior, it likely overestimates the extent of trafficking. In contrast, even with statistical adjustment, investigations and monitoring activities cannot catch all instances of trafficking, thereby introducing some downward bias in the estimates. On balance, the analysis and approach adopted err on the side of overestimation. (See Appendix A for a discussion of sources of underestimation and overestimation.)

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[4] Previous estimates are reported in Macaluso, T. 1995. *The Extent of Trafficking in the Food Stamp Program;* Macaluso, T. 2000. *The Extent of Trafficking in the Food Stamp Program: An Update;* Macaluso, T. 2003. *The Extent of Trafficking in the Food Stamp Program: 1999–2002;* Mantovani, R. E., and C. Olander. 2006. *The Extent of Trafficking in the Food Stamp Program: 2002–2005;* and Mantovani, R. E., and H. Wilson. 2011. *The Extent of Trafficking in the Supplemental Nutrition Assistance Program: 2006–2008.;* Mantovani, Richard, Eric Sean Williams, and Jacqueline Pflieger. *The Extent of Trafficking in the Supplemental Nutrition Assistance Program: 2009–2011.* These reports are available from FNS http://www.fns.usda.gov/

1.3. REPORT OVERVIEW

The remainder of the report is organized with 3 substantive chapters. Chapter 2 provides an overview of the procedures used to estimate trafficking, along with descriptions of their key limitations and strengths. Chapter 3 provides best estimates of trafficking indicators for calendar years 2012–2014. With the nationwide implementation of the Electronic Benefit Transfer (EBT) screening system, the sources of information used to identify and record trafficking expanded, and trafficking estimates, beginning with the 2002–2005 estimates, made use of these additional sources of data. This chapter also presents the results of some subgroup analyses comparing types of stores and store locations. Finally, Chapter 4 examines trafficking trends over time.

2. METHODS

2.1. GENERAL APPROACH

The estimates presented in this report were generated using the same strategy as in the previous six studies and applied the strategy to generate an estimation measure (current estimate) used in the last three studies. This approach is based on identifying trafficking retailers from among those retailers that were investigated and from among those retailers subject to additional monitoring. This investigative sample and the trafficking outcomes were then translated into the number of violating stores and the dollar amount of trafficked redemptions in the retailer population as a whole.

The investigative sample was generated from two sources:

- **Investigations**—These cases are based on covert activities pursued by FNS, the USDA OIG, the States, and other entities. Investigations target stores with suspicious behavior and identify stores in this group that manifest trafficking behavior.
- **EBT data-based cases**—These cases include stores considered to be suspicious as a result of screening EBT transaction records. Such cases are resolved through an administrative process in which specific transactions are identified as being in violation (indicative of trafficking).

This information was used to define a trafficking rate. (See Appendix B for more details on these sources and Appendix F for statistics on the investigations and EBT data-based cases.) The denominator of the rate consists of all stores that were investigated or were identified as potential traffickers through administrative review of EBT redemption patterns, and the numerator includes stores that trafficked with an investigator or had been permanently disqualified based on an administrative (EBT) case.[5] As mentioned earlier, this rate overestimates trafficking in that it is based on stores that have exhibited suspicious behavior. To partially correct for this bias, we used a post-stratification raking approach to adjust the sample estimates to better represent the retailer population as a whole. The raking approach provides weights based on store characteristics that project the sample value to a population value. For example, if proportionately fewer supermarkets are in the sample than in the population, the supermarkets in the sample have larger weights than other stores. Because supermarkets have traditionally demonstrated a proportionately lower rate of trafficking in the sample, this lower rate would be translated to the population.

The post-stratification raking procedure weights sample stores to the population based on strata formed by variables that distinguish among stores that are under investigation or that have had an administrative (EBT) case opened. (See Appendix C for a description of the raking process.)

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[5] Trafficking is defined as buying or selling benefits for cash or consideration other than eligible food, and the penalty is permanent disqualification. Permanent disqualification occurs when a retailer's authorization to redeem SNAP benefits is revoked. Some stores (those that can prove that they had a robust, documented compliance training program in place prior to the violations and that the store owners did not benefit from the violations) may pay compensation in lieu of permanent disqualification. These stores are treated as permanently disqualified for the purposes of this study.

For this and previous analyses, the following variables were used (see Appendix D for information on how these dimensions were defined):

- Store size and type (e.g., supermarket, grocery, convenience store),
- Ownership (private or public),
- Poverty level of the store's neighborhood,
- Urbanization level of the store's neighborhood, and
- SNAP redemption level.

The calculated weights were applied to information for each retailer in the sample to estimate the overall number of stores that trafficked and the total amount of trafficked redemptions in the population. Redemptions were further adjusted to account for legitimate SNAP sales that occur in trafficking stores.[6] The store violation rate and trafficking rate estimates were calculated as the percentage of all SNAP stores that trafficked and the proportion of all benefits that were trafficked, respectively. Estimates were calculated for various subgroups of stores (i.e., type of ownership, poverty level, and degree of urbanization).

2.2. LIMITATIONS

There are three key limitations associated with our approach. First, although post-stratification may reduce potential bias, it cannot eliminate it. Estimates of trafficking are based on the activities of *suspicious* retailers, and these estimates are extrapolated to the population. Estimates based on a sample of suspected retailers are likely to overstate the population value of trafficking. However, the post-stratification process works only as well as the variables used in the process. The variables used for determining strata were identified as related to trafficking in the 1993 study (based on FNS investigations) and have been carried forth in subsequent studies for consistency.

A second, related limitation concerns the definition of the strata within each of the variables that are used in the raking process. In particular, the variables are defined by simple or ordered categories. These categories are critical to creating the strata used to calculate adjusted weights. For example, we use four levels of poverty to define the location of a store. The estimates might be different if we characterized poverty levels differently.[7]

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[6] Among stores that trafficked, 60 percent of all redemptions in large stores and 10 percent of all redemptions in small stores were assumed to have been legitimate sales. This is a potential source of overestimation if a larger portion of the redemptions represents legitimate transactions. However, it is consistent with the aim of creating conservative estimates.

[7] The variables and cut points were determined by an analysis performed as part of the 1993 estimates. As part of the sensitivity analyses for the 2002–2005 report, the effect of varying the cut points was examined. The cut points are the particular categories that are created within the variables. For instance, that study denoted the cut-point for very highly urbanized areas as 90 percent. Alternatively, it could have specified 95 percent. In the sensitivity

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Third, the adjustment to account for legitimate redemptions in trafficking stores was set purposefully low to minimize the risk of underestimating the prevalence of trafficking. There is no empirical evidence that retailers that were caught trafficking or were permanently disqualified from the program trafficked at the rate that the adjustment would suggest.[8]

2.3.   CONSISTENT METHODS WITH IMPROVED DATA

In order to remain consistent with previous analyses, this study is based on data sources that allow us to represent a broader range of FNS trafficking-related activities. In addition to FNS investigations and EBT data-based cases, this study includes investigations conducted by OIG, the States, and other entities.

2.4.   ESTIMATES

This report presents a measure of trafficking consistent with the last three reports and which represents the most comprehensive measure in terms of utilizing all relevant data sources. In previous reports, this measure of trafficking was referred to as the current estimate.[9]

In addition to in-field investigations conducted by FNS and charge letters to retailers issued by FNS based on EBT analysis, the estimate includes closed cases on the Watch List (a prioritized list of suspicious stores identified by the Anti-fraud Locator using EBT Retailer Transactions (ALERT) system)[10] and retailers investigated by OIG, the States, and other entities. The numerator includes investigated retailers with a trafficking flag,[11] retailers permanently disqualified from the program or that paid a civil money penalty in lieu of permanent disqualification, and retailers found to be trafficking through investigations by OIG and the States. Retailers that were permanently disqualified or paid a civil money penalty in lieu of permanent disqualification are designated by FNS after official review as being indicative of those most often found to be trafficking and thus, they are included in the numerator.

The following indicators of trafficking were estimated:

- Total dollar amount of SNAP redemptions that are trafficked;
- Trafficking rate, or the proportion of SNAP redemptions that are trafficked; and

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analyses, it showed that varying the cut points, as long as they were not drastically different, did not have a significant impact on estimates (see the 2002–2005 report for details).

[8]The extent to which specific retailers traffic is unknown. Some retailers may traffic on all their SNAP transactions, whereas others will not traffic at all. The trafficking estimates presented in this report assume that if a small store is identified as trafficking, 90 percent of their SNAP redemptions are trafficked, and for large stores that are identified as trafficking, this percentage is 40 percent.

[9] See Appendix E for definition.

[10] The addition of closed Watch List case retailers broadens the definition of the denominator to any store that has been reviewed as a result of suspicious SNAP transaction patterns. Closed cases include stores for which the suspicious redemption patterns are explained as legitimate or result in disqualification or withdrawal.

[11] When an in-store investigation is conducted and trafficking occurs, these instances are noted in the STARS systems by a flag.

- Store violation rate, or the proportion of authorized stores that engaged in trafficking.

3. SNAP TRAFFICKING IN 2012–2014

3.1. NATIONAL ESTIMATES

This report presents trafficking estimates for the calendar years between 2012 and 2014 and found the following:

- An estimated $1.077 billion in SNAP benefits annually were trafficked and thereby diverted from their intended purpose;
- Overall, about 1.5 percent of total SNAP benefits were trafficked; and
- Approximately 11.8 percent of all authorized SNAP stores engaged in trafficking.

These figures are in the context of a program in which retailers redeemed an average of just under $72 billion annually in benefits per year between 2012 and 2014. It should be noted that the figures reported in the study period 2009–2011 for the proportion of benefits trafficked and the proportion of SNAP retailers trafficking was about 1.3 percent and 10.5 percent, respectively.

3.2. TRAFFICKING BY STORE TYPE

Since the 1993 report on SNAP trafficking, store type has always been a critical variable for determining the potential for trafficking.[12] As observed in previous studies, small stores, particularly small groceries and convenience stores, were notably more likely to be involved in trafficking than other stores. About 23 percent of those stores classified as small groceries and 19 percent of those classified as convenience stores were estimated to have trafficked (Exhibit 1, "Store Violation Rate"). For larger stores (supermarkets and large groceries), only 0.16 percent were estimated to have trafficked. In terms of redemptions, about 21 percent of redemptions at small groceries and 18 percent of redemptions at convenience stores were estimated to have been trafficked (Exhibit 1, "Trafficking Rate"). This compares with a rate of 0.1 percent for large stores. The contribution of stores included in the combination/other category to the estimates presented in this report were minimal, constituting about 1.3 percent of all trafficked redemptions between 2012 and 2014.[13]

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[12] Authorized SNAP retailers are presently classified into 16 different store-type categories. Consistent with previous reports, these store types were collapsed into seven more inclusive categories. Superstores were classified along with supermarkets for the purposes of this study. Large stores identified as combination stores were not. The combination/other store type served as a catchall for stores not otherwise categorized as well as a including stores whose food sales are not substantial when compared to revenues from other products. These are so-called "box stores."

[13] Although the amounts have been annualized to provide a summary of the average dollar amount of trafficking per year during the study period, the rates reflect a similar concept—that of summarizing the entire period.

Exhibit 1: Trafficking Estimates for Redemptions and Stores, by Store Type, Calendar Years 2012–2014

Type of Store	Total Annualized Redemptions	Annualized Amount of Trafficking	Trafficking Rate	Total Stores	Trafficking Stores	Store Violation Rate
Large Stores						
Supermarkets	$59,497, 396, 453	$53,002,643	0.09%	40,370	30	0.07%
Large groceries	$1,120,872, 364	$7,723,094	0.69%	4,361	42	0.97%
Subtotal	$60,618,268,817	$60,725,737	0.10%	44,731	72	0.16%
Small Stores						
Medium-sized groceries	$1,468,307,862	$117,652,108	8.01%	14,816	1,700	11.47%
Small groceries	$840,597,702	$177,683,203	21.14%	20,794	4,850	23.32%
Convenience stores	$3,489,630,987	$616,756,054	17.67%	133,645	25,954	19.42%
Specialty foods	$858,789,026	$43,466,111	5.06%	12,366	948	7.66%
Combination/other	$4,776,655,312	$61,180,974	1.28%	77,170	2, 366	3.07%
Subtotal	$11,433,980,889	$1,016,738,450	8.89%	258,791	35,818	13.84%
All stores	**$72,052,249,707**	**$1,077,464,187**	**1.50%**	**303,522**	**35,891**	**11.82%**

Note: Totals may not match individual row amounts due to rounding

3.3. TRAFFICKING BY STORE OWNERSHIP

Trafficking was not found to have occurred in any publicly owned stores during this study period (see Exhibit 2).[14] In contrast, almost 16 percent of privately owned stores were estimated to have trafficked, with a redemption-based trafficking rate of 2.7 percent. As there were no publicly owned stores found to have trafficked, privately owned stores account for 100 percent of all benefit dollars trafficked although they account for only 54.6 percent of all SNAP redemptions.

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[14] Since there were no publicly owned stored found to have trafficked in the sample, there are none in the estimate.

Exhibit 2: Trafficking Estimates for Redemptions and Stores, by Store Ownership Type, Calendar Years 2012–2014

Store Ownership Type	Total Annualized Redemptions	Annualized Amount of Trafficking	Trafficking Rate	Total Stores	Trafficking Stores	Store Violation Rate
Privately owned stores	$39,308,646,673	$1,077,464,187	2.74%	225,027	35,891	15.95%
Publicly owned stores	$32,743,603,034	$0	0.00%	78,495	0	0.00%
All stores	**$72,052,249,707**	**$1,077,464,187**	**1.50%**	**303,522**	**35,891**	**11.82%**

Note: Totals may not match individual row amounts due to rounding

3.4. TRAFFICKING AND POVERTY LEVEL OF STORE LOCATION

As in previous reports, trafficking was more likely to occur in poorer neighborhoods. Stores in the most impoverished areas (where more than 30 percent of households live in poverty) were estimated to have a trafficking rate of 3.9 percent of all redemptions while stores in the least impoverished areas (where less than 10 percent of households live in poverty) had a 0.8 percent trafficking rate (see Exhibit 3). Although stores in the highest poverty area (>30 percent) represent approximately 12 percent of the total population of authorized stores, they account for slightly more than 31 percent of the total annualized amount trafficked.

In terms of the percentage of stores trafficking, there is more than a three-fold difference between stores estimated to have trafficked in the lowest poverty areas (5.9 percent) and those in the highest areas (21.6 percent).

Exhibit 3: Trafficking Estimates for Redemptions and Stores, by Poverty Rate in Retailer's Neighborhood, Calendar Years 2012 - 2014

Percentage of Households in Poverty in ZIP Code Where Store Is Located	Total Annualized Redemptions	Annualized Amount of Trafficking	Trafficking Rate	Total Stores	Trafficking Stores	Store Violation Rate
0–10%	$13,071,341,298	$105,513,250	0.81%	66,783	3,905	5.85%
11–20%	$31,697,908,861	$323,580,815	1.02%	130,055	14,167	10.89%
21–30%	$18,572,918,436	$309,120,681	1.66%	70,302	9,949	14.15%
More than 30%	$8,710,081,111	$339,249,441	3.89%	36,382	7,870	21.63%
All stores	**$72,052,249,707**	**$1,077,464,187**	**1.50%**	**303,522**	**35,891**	**11.82%**

Note: Totals may not match individual row amounts due to rounding

3.5. TRAFFICKING AND POPULATION DENSITY OF STORE LOCATION

Trafficking was most likely to occur in the most urban areas. Stores in the most urban areas (more than 91 percent urban) were estimated to have a trafficking rate of 1.88 percent while stores in each of the two most rural categories (less than 10 percent urban and 11 to 50 percent urban) each had a trafficking rate of 0.81 percent. Stores in the suburban category (51-90 % urban) had a trafficking rate of 0.57 percent. The store violation rate rises in accordance with the level of urbanization. The most rural areas have the lowest store violation rate of just above 5 percent and the most urban areas have the highest store violation rate of 14.4 percent.

Exhibit 4: Trafficking Estimates for Redemptions and Stores, by Urbanization Level in Retailer's Neighborhood, Calendar Years 2012–2014

Percentage Urbanization of ZIP Codes Where Stores Are Located	Total Annualized Redemptions	Annualized Amount of Trafficking	Trafficking Rate	Total Stores	Trafficking Stores	Store Violation Rate
0–10%	$2,319,221,038	$18,805,048	0.81%	28,835	1,468	5.09%
11–50%	$3,900,892,786	$31,659,890	0.81%	19,130	1,291	6.75%
51–90%	$16,274,063,513	$92,935,927	0.57%	66,250	5,862	8.85%
91–100%	$49,558,072,369	$934,063,322	1.88%	189,307	27,269	14.40%
All stores	**$72,052,249,707**	**$1,077,464,187**	**1.50%**	**303,522**	**35,891**	**11.82%**

Note: Totals may not match individual row amounts due to rounding

4. TRAFFICKING TRENDS

Trends in trafficking could be an important indicator for program improvement strategies, targeting investigative practices, changes in redemption processing, or retailer selection practices. Studies prior to the calendar year 2006–2008 study, showed decreasing trafficking trends, perhaps reflecting the introduction of EBT. Meaningful comparisons of the studies require that the same approach be used to calculate estimates at each point in time.

The data presented in Exhibits 5, 6, and 7 reflect the most up to date estimates for each study time period. The "current estimate" is based on estimates reported for the 2002-2005 period and later. This is because the estimates earlier than those reported for 2002–2005 are based on similar but less comprehensive definitions of the investigative sample and trafficking. The "original" estimates refer to estimates from studies in 1993 and 1996–1998, and the "revised" estimates are based on the 1999–2002 study. Details on estimate definitions are provided in Appendix E.

4.1.   TRENDS IN BENEFITS TRAFFICKED

From the first estimate for 1993 up to the 2006–2008 study period, the amount of trafficked benefits declined. However, beginning with the 2006–2008 study period, the amount of trafficked benefits has increased over time. This increase is a reflection of the overall growth of total SNAP redemptions in the past few years. For the estimates in 2012–2014, this amount increased by approximately $220 million from the previous study period in 2009–2011 (from $858 million to $1,077 million) (see Exhibit 5). At the same time there was an increase in annualized redemptions from $63.7 billion in the 2009–2011 study period to $72.1 billion in the 2012–2014 study period.[15]

The proportion of redemptions trafficked was still relatively small. The rate of trafficking increased from 1.3 percent in 2009–2011 to 1.5 percent in 2012–2014. This measure indicates the extent of trafficking, holding the total value of redemptions constant. Exhibit 6 presents trends in the trafficking rate by study period. The data show that the trafficking rate remained constant between the 2002–2005 and 2006–2008 study periods. The rate increased slightly between the 2006–2008 study period and the 2009–2011 study period, and increased slightly again in the current study period in 2012–2014, but remained low.
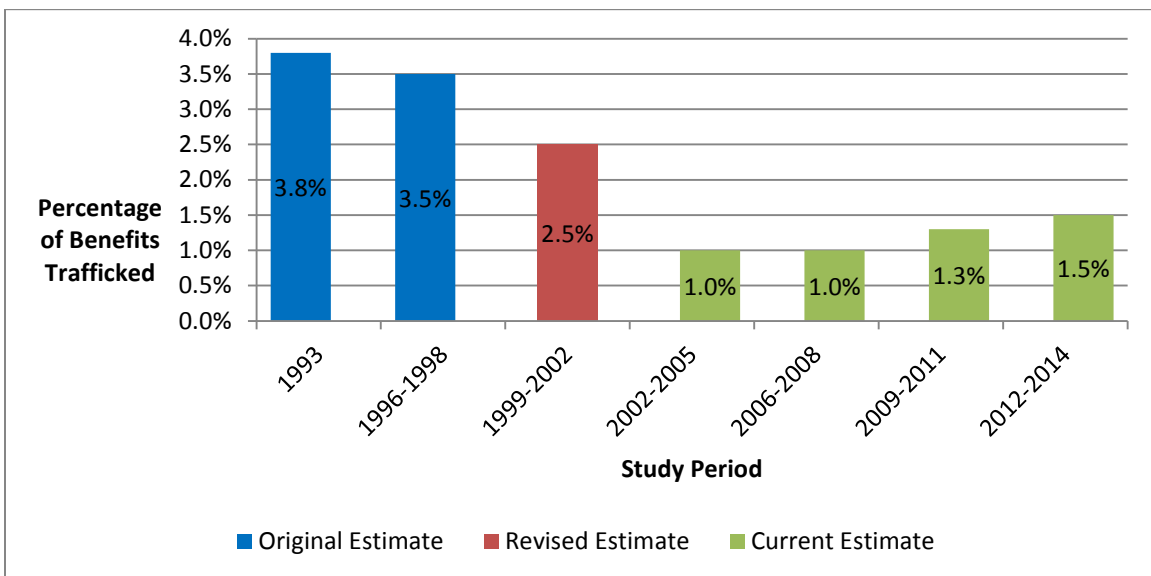
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[15] Certain store types, and States and territories were excluded from the analysis. In addition, only retailers with redemptions over the entire year were included.

Exhibit 5: Annualized Dollar Amount of Trafficking, by Study Period
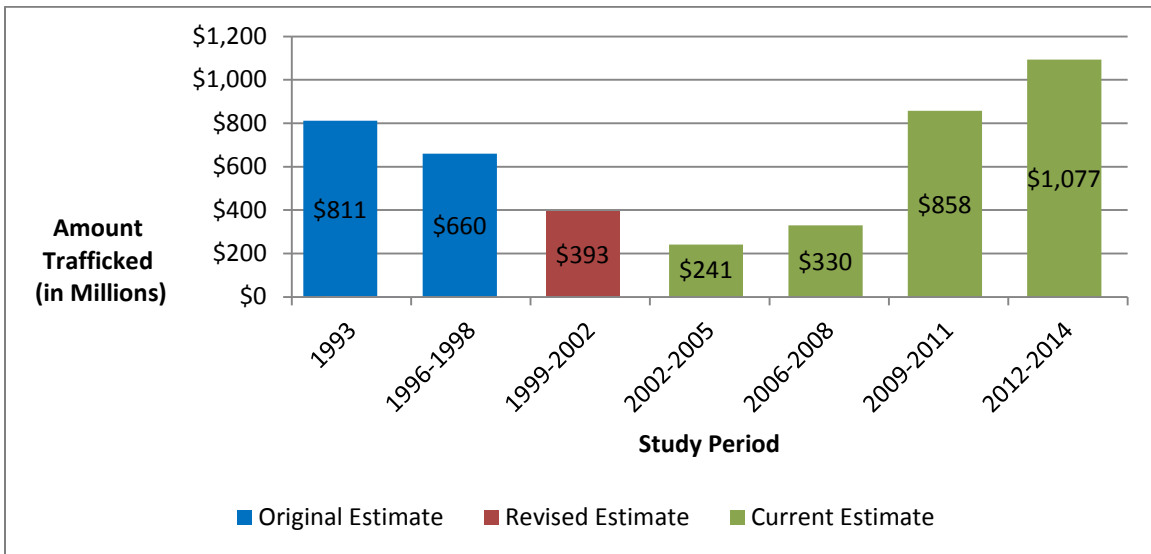
Exhibit 6: Rate of Trafficking, by Study Period


4.2. STORE VIOLATIONS

Store violation rates have increased in the 2012–2014 study period compared to the previous study periods. The proportion of store violations has increased over the past four study periods, from 7.4 percent in 2002–2005 to 8.2 percent in 2006–2008, to 10.5 percent in 2009-2011, and to 11.8 percent for the current study period (see Exhibit 7).

**Exhibit 7: Rate of Store Violations, by Study Period**
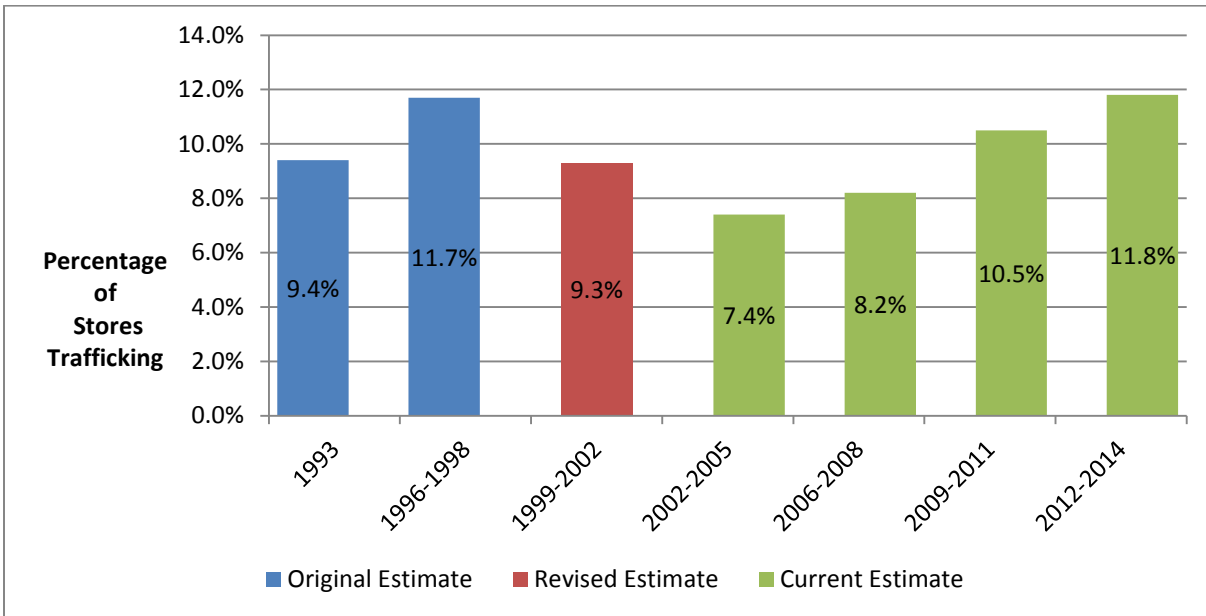
4.3.   EXPLAINING THE CHANGE IN TRAFFICKING

This study shows a slight increase in the rates and in the annualized amount of trafficking when compared to the previous study. Although the most dramatic growth in the total amount of SNAP redemptions occurred in the previous study period, overall SNAP redemptions continued to grow during this study period. The number of small retailers authorized to redeem benefits also continued to grow much faster than the number of large stores. The increases in the number of smaller stores, especially convenience stores, may have affected the increase in trafficking rates.

4.3.1. Growth of the Supplemental Nutrition Assistance Program

The largest part of the increase in the total dollar amount of trafficked benefits and the total number of stores estimated to be engaged in trafficking can be attributed to the growth in the size of the SNAP program over time. SNAP redemptions increased in the current study period when compared to the previous study period. However, the rate of growth between the 2009-2011 and 2012-2014 study periods was much lower than it was between the 2006-2008 and 2009-2011 study periods (see Exhibit 8). Total redemptions grew from $73 billion in 2011 to $74 billion in 2012 and remained at $74 billion in 2013. The amount of redemption fell in 2014 to $68 billion. The annual average of $72 billion for the 2012-2014 study period represents an increase from the almost $64 billion annual average for the 2009-2011 study period. The annual averages for the last two studies represent a major increase when compared to the 2006-2008 study period average of $32 billion.

Exhibit 8: Trends in SNAP Redemption Values (in Billions of Dollars), by Calendar Year
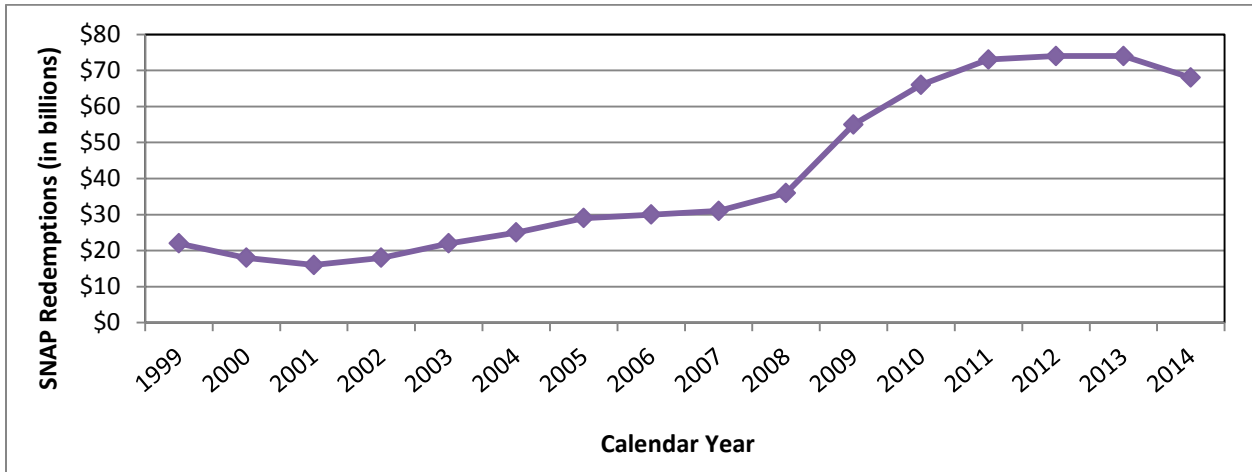
4.3.2. Effects of Store Composition

Exhibit 9 shows there were 303,522 retailers authorized to participate in SNAP and who redeemed SNAP benefits at any point within the contiguous 48 states between January 1, 2012 and December 31, 2014.[16] This represents a 14 percent increase over the 265,172 retailers in the previous three-year study period. As in the previous study period, almost all of this growth was due to the increase in the number of convenience stores (58 percent of all new stores) and combination/other stores (37 percent of all new stores). In terms of percentage change, convenience stores showed a growth of 25 percent, and combination/other stores increased by 27 percent (Exhibit 9). It should be noted that combination/other type of stores include large stores but also many smaller stores that sell a variety of items, such as gas/grocery store types. Overall, there was a reduction in the number of small groceries and specialty stores.

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[16] This would include all retailers except those omitted from the study population. See Appendix B for description of study population.

Exhibit 9: Changes in the Retailer Population 2009-2011 Through 2012–2014, by Store Type

Type of Store	2009-2011		2012-2014		Difference	
	No. of Stores 2009-11	Pct. of All Stores	No. of Stores 2012-14	Pct. of All Stores	Difference in Number of Stores	Percentage Change
Large Stores						
Supermarkets	38,968	14.70%	40,370	13.30%	1,402	3.60%
Large groceries	4,205	1.59%	4,361	1.44%	156	3.71%
Subtotal	43,173	16.28%	44,731	14.74%	1,558	3.61%
Small Stores						
Medium-sized groceries	14,220	5.36%	14,816	4.88%	596	4.19%
Small groceries	23,868	9.00%	20,794	6.85%	-3,074	-12.88%
Convenience	108,087	40.76%	133,645	44.03%	25,558	23.65%
Specialty	15,173	5.72%	12,366	4.07%	-2,807	-18.50%
Combination/other	60,651	22.87%	77,170	25.42%	16,519	27.24%
Subtotal	221,999	83.72%	258,791	85.26%	36,792	16.57%
All Stores	**265,172**	**100.00%**	**303,522**	**100.00%**	38,350	14.46%

Note: Totals may not match individual row amounts due to rounding

It was previously noted (Chapter 3.2) that convenience stores have a high estimated trafficking rate. The question is whether the growth in convenience stores led to the increase in the amount trafficked. To answer this question, we examine the change in the trafficking rates estimated for the 2009–2011 period and the 2012–2014 period for all retailers. Exhibit 10 shows an overall increase in the estimated trafficking rates for almost all categories of retailers classified as small stores. For small stores overall, the rate increased by over 1 percent. For small groceries, which had the highest estimated trafficking rates, the rate increased by over 5 percentage points. Convenience stores, the largest category of retailers, showed an increase in the trafficking rate of 1.5 percentage points. For large stores, the trafficking rates remained very low, below a third of a percent.

Exhibit 10: Comparison of Estimated Number of Trafficking Stores and Store Violation Rates for 2009–2011 and 2012–2014, by Store Type

Type of Store	2009-2011			2012-2014		
	Estimated No. of Stores Trafficking	Pct. of All Trafficking Stores	Store Violation Rate	Estimated No. of Stores Trafficking	Pct. of All Trafficking Stores	Store Violation Rate
Large Stores						
Supermarkets	108	0.39%	0.28%	30	0.08%	0.07%
Large groceries	30	0.11%	0.71%	42	0.12%	0.97%
Subtotal	138	0.50%	0.32%	72	0.20%	0.16%
Small Stores						
Medium-sized groceries	1,291	4.65%	9.08%	1,700	4.74%	11.47%
Small groceries	4,262	15.35%	17.86%	4,850	13.51%	23.32%
Convenience	19,107	68.80%	17.68%	25,954	72.31%	19.42%
Specialty	1,327	4.78%	8.75%	948	2.64%	7.66%
Combination/other	1,647	5.93%	2.72%	2,366	6.59%	3.07%
Subtotal	27,634	99.51%	12.45%	35,818	99.80%	13.84%
All Stores	**27,770**	**100.00%**	**10.47%**	**35,891**	**100.00%**	**11.82%**

Note: Totals may not match individual row amounts due to rounding

On the whole, there appears to be a relationship between the percentage of small stores in the population and the trafficking rate over time. As shown in Exhibit 11, while there are only three points to compare, the two variables appear to be related.

Exhibit 11: Changes in the Trafficking Rate and the Percentage of Small Stores in the Population of SNAP Authorized Stores – 2006-2008, 2009-2011, 2012-2014
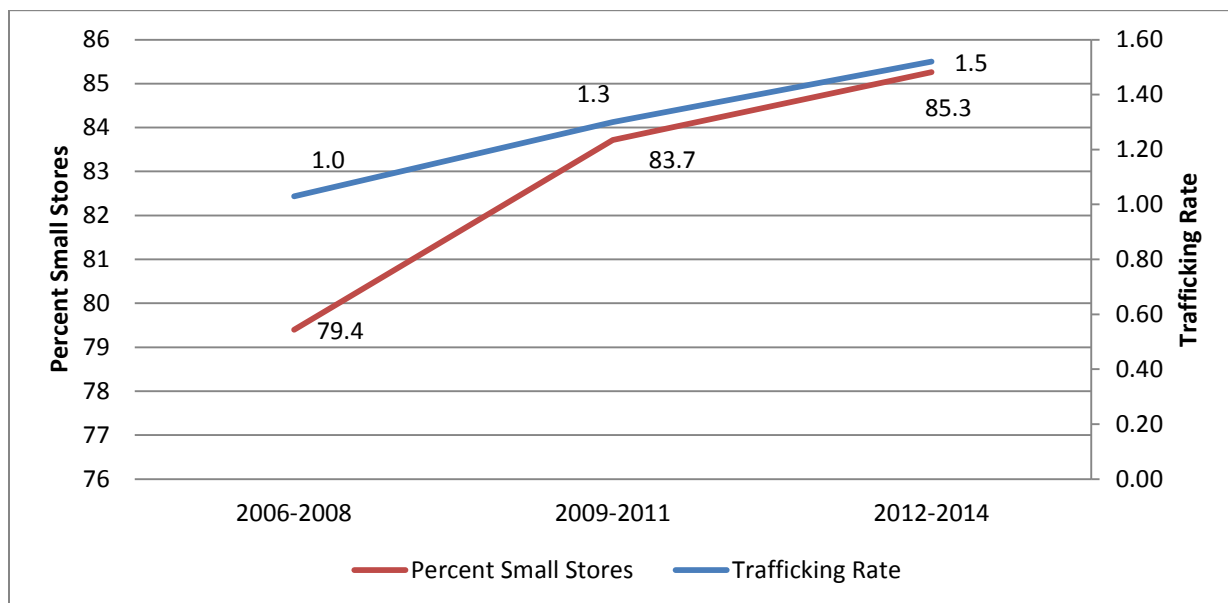
4.3.3. Other Factors

The trafficking estimates discussed above are subject to several types of variation related to how FNS identifies and tracks trafficking retailers. These variations can affect estimates within and across study periods. First, the violations sample compiled from investigations and administrative actions can be associated with sampling and measurement variation within and across periods of study. The sampling variation represents decisions to select some retailers for investigations or actions and not others. It should be noted that the sample is not a probability sample, and although it arises from a systematic selection process, it cannot provide exact estimates of statistical variation. A final important aspect affecting the estimates is how trafficking is defined. There are certainly other ways to define trafficking than the way we have used in this report. The effects of modifying what constitutes trafficking are explored in Appendix I.

APPENDIX A

ESTIMATION ERROR

The trafficking figures in this report are estimates and may be subject to multiple factors—some that understate and others that overstate actual trafficking rates.

SOURCES OF UNDERESTIMATION

Our procedures underestimate trafficking to the extent that the available data and detection procedures do not capture all instances of trafficking. Some violating retailers will traffic with strangers, whereas others restrict their illegal activities to known individuals. This latter type of behavior is known as network trafficking. Investigators can and do catch this type of trafficking, but it usually involves a more complicated investigation occurring over a longer period of time. Sustaining this type of investigation is difficult, particularly when resources are limited. As a result, some network trafficking will not be represented in our estimates.

EBT data-based cases, which depend on the analysis of observed EBT transaction patterns, can have greater success at identifying network trafficking. Given the range of filters used to detect suspicious cases in the Anti-fraud Locator using EBT Retailer Transactions (ALERT) system, it is possible to identify potential traffickers without an onsite investigation. Thus, the addition of EBT data-based cases to the estimate decreases, but does not eliminate, concern about underestimating this form of trafficking.

SOURCES OF OVERESTIMATION

Our approach is likely to overestimate the prevalence of trafficking. One source of possible overestimation is the decision rule used to specify the relative amount of legitimate and illegitimate food sales among stores that traffic. Investigations and administrative data tell us only whether a store has trafficked, not the extent to which trafficking occurred. In establishing an estimate, we assumed that if a large store (i.e., a supermarket or large grocery) trafficked, 40 percent of all the store's redemptions were illegitimate (even if the trafficking involved only a single clerk away from the register area). Among small stores caught trafficking, we assumed that 90 percent of redemptions were trafficked. We therefore assumed throughout the study period that a retailer that was caught trafficking did so many times. While these figures are unrealistically high, we purposefully chose them because they serve the goal of minimizing the risk of understating the value of benefits diverted by trafficking.

A major source of overestimation may result from the nature of the stores in the investigative sample and how trafficking is inferred. That portion of the estimate relying on in-store investigations might decrease substantially if investigators selected a representative sample of cases from all stores, rather than intentionally targeting stores that raised suspicions. Likewise, another portion of the estimate might be considerably smaller if the charge letters elicited from analysis of administrative data were sent to a representative sample of all stores, rather than just those identified by the screens for unusual EBT transaction patterns. This potential bias is somewhat offset for the estimates by including all closed cases on the Watch List as part of the

denominator.[1] Appendix G examines the distribution of stores used to produce the estimate denominator compared with the distribution of stores authorized to participate in the Supplemental Nutrition Assistance Program. The larger list of retailers used in the denominator allowed us to incorporate stores with varying degrees of suspicious behavior. The resulting sample was not as selective as the alternative measures (i.e., the original and revised measures) that were reported on in previous studies. Still, store selection bias is arguably one factor with the largest impact on our estimate.

Several other factors should be mentioned in terms of estimation:

- First, the weights, and therefore the estimates, are based on stores within different strata and should be representative of the stores in similar strata in the population if the variables describing the stores are good indicators of trafficking. The determination of the variables and the categorizations of strata are, therefore, important in developing unbiased estimates. If we have categorized retailers in a way in which one or more strata are affected by another unstated correlated factor, the weight obtained from the raking procedure will not adequately represent all retailers in that strata. To some extent this has been addressed by, for example, separating out convenience stores in urban areas from the same type of stores in rural areas. However, for example, it may also be important to distinguish stores in the convenience store strata that are relatively new to the program from those that are not, a factor that we did not take into account.

- Second, we have assumed that a retailer in the investigation sample and population is active throughout the estimation period. In reality, some stores are disqualified or leave the program for other reasons, and some retailers are authorized throughout the period. Although many stores remained in the program for all three years, many stores leave the program for various reasons. The absence of stores throughout part of the estimation period, however, can affect the estimates. For example, a store that traffics and is disqualified in the middle of the study period represents a lower amount of trafficked redemptions than if that store was present throughout the period. This is critical because the store's behavior is extrapolated through the raking process to the population, some of whom were present for the entire period.

- Third, the post-stratification process used to generate the estimates has some notable weaknesses, one of the most critical being the differential in cell sizes across the raking matrix. This differential results from the problems associated with the number of cells being generated by the five dimensions utilized in this study. This results in varying weights and issues in providing solid estimates. For instance, if there were two supermarkets investigated with one being found to have trafficked, this would translate to a very high trafficking rate among these stores and overall, which reflects the large volume of redemptions accounted for by these stores.

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[1] The Watch List is a compilation of stores exhibiting suspicious behaviors. It is further defined in Appendix B on page B-3.

APPENDIX B

APPROACHES FOR DETECTING TRAFFICKING, DATA SOURCES, AND CREATION OF ANALYSIS FILES

APPROACHES FOR DETECTING TRAFFICKING

For this report, trafficking is defined as buying or selling benefits for cash or consideration other than eligible food.[1] In order for this to occur, a transaction must take place between a retailer and an individual possessing an Electronic Benefit Transfer (EBT) card. It may be a one time or infrequent occurrence, or it may represent a continuing relationship between a retailer and a customer. In either case, the transaction is generally private. The Food and Nutrition Service (FNS) has two ways of identifying actual or potential trafficking:

- **Investigations**—One approach to identifying trafficking is through covert activities that simulate a purchase. After receiving a request for an investigation, an FNS Retailer Investigations Branch (RIB) investigator or confidential informant attempts to traffic with the retailer. Retailers caught trafficking by investigators are charged. Investigations of large-scale trafficking are escalated to the Office of the Inspector General (OIG), which may work with a variety of partners and investigative strategies.
- **EBT data analysis cases**—With the introduction of EBT benefit issuance, FNS introduced the Anti-fraud Locator using EBT Retailer Transactions (ALERT) system. The ALERT system analyzes EBT transaction data and identifies transaction patterns that suggest fraud. FNS reviews the information, along with store characteristics and many other factors. If, after examination, the store is judged to be in violation, a charge letter is issued.

All stores charged with trafficking have an opportunity to respond prior to the Agency's determination. Following a formal trafficking determination, the store is permanently disqualified. Retailers may request an administrative review of the sanction action, followed by an opportunity for judicial review.

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[1] The full definition of trafficking, as listed in 7 CFR 271.2 is: "Trafficking means:
(1) The buying, selling, stealing, or otherwise effecting an exchange of SNAP benefits issued and accessed via Electronic Benefit Transfer (EBT) cards, card numbers and personal identification numbers (PINs), or by manual voucher and signature, for cash or consideration other than eligible food, either directly, indirectly, in complicity or collusion with others, or acting alone;
(2) The exchange of firearms, ammunition, explosives, or controlled substances, as defined in section 802 of title 21, United States Code, for SNAP benefits;
(3) Purchasing a product with SNAP benefits that has a container requiring a return deposit with the intent of obtaining cash by discarding the product and returning the container for the deposit amount, intentionally discarding the product, and intentionally returning the container for the deposit amount;
(4) Purchasing a product with SNAP benefits with the intent of obtaining cash or consideration other than eligible food by reselling the product, and subsequently intentionally reselling the product purchased with SNAP benefits in exchange for cash or consideration other than eligible food; or
(5) Intentionally purchasing products originally purchased with SNAP benefits in exchange for cash or consideration other than eligible food.
(6) Attempting to buy, sell, steal, or otherwise affect an exchange of SNAP benefits issued and accessed via Electronic Benefit Transfer (EBT) cards, card numbers and personal identification numbers (PINs), or by manual voucher and signatures, for cash or consideration other than eligible food, either directly, indirectly, in complicity or collusion with others, or acting alone.

DATA SOURCES AND ESTABLISHING MASTER DATA FILES

The data used in deriving these estimates are from the Store Tracking and Redemption System (STARS) database, and Census data sources.

STARS

The primary source of data for this study is STARS. The data generated from STARS includes retailer characteristics, redemption histories, and compliance activities.

Authorized Food Retailer Characteristics and Redemption Histories

STARS contains characteristics for all food retailers ever authorized under the Supplemental Nutrition Assistance Program (SNAP).   Although this database file contains extensive information on authorized SNAP retailers, only a few data fields are relevant to this study. They include:

- **Store identification number**—This number is assigned by FNS to uniquely identify the retailer.
- **Store or business type**—Prior to June 2007, these categories were self-declared by the retailer according to categories specified on the SNAP application form and verified by an FNS Field Office worker. As of June 2007, a new business-type classification schema was established, and retailers were classified by FNS staff using multiple variables on the application form and a set of business rules. This change raised an issue regarding which classifications to use for this set of estimates. In the last study, a comparison was made to identify the impact of the new store classification schema on the estimates, with a conclusion that this impact was not a strong one.
- **Location information (including ZIP Code)**—This information is provided by the retailer on the application form and, when possible, verified against the address provided. The information represents the actual location of the store, rather than the mailing address. This information is used to locate the retailer in a correct ZIP Code Tabulation Area (ZCTA) and link the information to the demographic characteristics of that area from Census data.
- **Ownership type (private or public)**—Retailers are required to indicate ownership type on the application form. One category allows the retailer to specify that the store is publicly owned. This is the categorical variable used to differentiate privately owned from publicly traded retailers.

STARS also contains monthly redemption histories for all authorized stores. The unique store identification number allows the linkage of redemption information to the retailer characteristics information.

Investigations and Administrative Action Data

In studies prior to the 2002–2005 update, data files maintained by RIB were used for investigations. In general, these files offered the following data elements for each investigated case:

- Store identification number,
- Case number, and
- Outcome (trafficking/no trafficking).

For this 2012-2014 study period and the three prior study periods, the data on investigation-based and EBT data-based cases has been maintained within STARS. STARS contains histories for all cases scrutinized by FNS. These histories are maintained and described by a series of event and outcome codes. The identification of trafficking can be inferred from the events, activities, and activity outcomes (see Appendix E for details).

Watch List

The Watch List includes authorized food retailers that exceeded an ALERT score threshold and met other criteria that trigger additional scrutiny. It was used in the denominator of the trafficking estimate. Only closed Watch List cases were used for this analysis, and the store identification number was the single data element extracted.

Census Data

Data from the Census Bureau were used for identifying the degree of poverty and urbanization associated with retailer locations. The geographic unit of focus for this study was the Census ZCTA, which closely corresponds to U.S. Postal Service ZIP Code areas. Although many SNAP retailers can be associated with a particular ZCTA through their locational ZIP Code information,[2] some cannot; therefore, a labor-intensive effort was undertaken to determine the ZCTA nearest to those stores.[3] Information on urbanization, calculated from the number of persons classified as urban in the ZCTA, was derived from information generated from the 2010 Census effort. Information on poverty was generated from the American Community Survey, and represents the number of households in poverty within the last six months prior to the survey. Although the American Community Survey is an annual survey, various locations are surveyed each year, and can only provide a national profile at the ZIP Code level from a five-year aggregate.

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[2] The STARS system contains both the mailing and location addresses of the retailer. The mailing address could differ from the location since in the case of chains it usually refers to a national, regional, or local office and not to the store itself.

[3] The ZCTA had the aim of providing areas approximating postal ZIP Code areas and providing demographics for those areas. There are many business areas with their own ZIP Codes or smaller residential areas that are combined with other areas to form the ZCTA.

CREATION OF ANALYSIS FILES

A single analysis file was created from the data sources described above. The file was limited to all retailers that had positive redemptions between January 2012 and December 2014 and were located in the contiguous United States. Also eliminated were military commissaries. Household poverty and urbanization levels associated with each retailer's Census ZCTA designation were added. Edits were made to modify and collapse store-type and ownership fields. In addition, case data from STARS were added.

These case data included:
- All investigations conducted by RIB during the timeframe;
- All investigations conducted by OIG, the States, or other authorities during the timeframe;
- All cases in which a charge letter was sent to the retailer during the timeframe;
- All cases in which there was a permanent disqualification or in which a civil money penalty was assessed in lieu of permanent disqualification; and
- All cases on the Watch List that were closed during the timeframe.

The resulting case file is structured so that a particular retailer may be represented several times as the retailer enters and leaves particular action steps within the case-development process. The retailer may also be subjected to one or more of the above actions (e.g., a retailer may have trafficked with a RIB investigator and may have also received a charge letter).

To avoid multiple representations of a single retailer, we included only one case per retailer, selecting the case that represented a positive trafficking determination. Thus, if a retailer was represented in two cases, one with no finding of trafficking and one with a finding of trafficking, the latter was included. If none of the cases resulted in a positive trafficking determination, the retailer was coded as "investigated but no trafficking found."

APPENDIX C

POST-STRATIFICATION ESTIMATION METHODOLOGY

KEY STEPS FOR USING POST-STRATIFICATION TO ESTIMATE TRAFFICKING

Estimates for 2012–2014 were based on the approach used in previous updates. The steps are as follows:

1. Retailers that were examined or investigated based on questionable transaction patterns were assigned to categories associated with five variables: type of store, type of ownership, level of SNAP redemption, population density associated with the store's ZIP Code, and poverty level associated with the store's ZIP Code. Each store was counted only once.[1] The same procedure was applied to the corresponding amount of SNAP redemptions transacted by each of these retailers. This activity produced two five-dimensional tables—one for retailers and one for redemptions. Each table contained 1,120 cells.

2. All stores and the dollar value of SNAP benefits redeemed during the 2012–2014 timeframe were aggregated by the five variables described in step 1 to create five separate marginal distributions, each corresponding to a particular dimension as defined in step 1.

3. An analytic procedure known as raking was used to create weights for each category of store type and location. Raking is an iterative process by which the cell frequencies from the sample (the tables generated in step 1) are adjusted to the population marginal frequencies (the product of step 2). Weights were obtained separately for stores and redemptions.

4. The weights produced in step 3 were applied to the file of SNAP retailers examined or investigated during the 2012–2014 timeframe in order to estimate the total number of stores engaging in trafficking and the amount of benefits redeemed that were trafficked.

5. Adjustments were made to the estimated dollar value of trafficked benefits because even among violating stores, it is unlikely that all SNAP sales are trafficked. We made the assumption that 90 percent of redemptions in violating small stores were trafficked, and 40 percent in violating large stores were trafficked.

6. The trafficking rate (i.e., the percentage of all redemptions estimated to be trafficked) and store violation rate (i.e., the percentage of stores trafficking) were calculated.

See Appendix I for details of the sensitivity analyses that were conducted with respect to some of the methodological decisions and assumptions associated with these procedures.

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[1] The variable descriptions and specific categories within each variable are provided in Appendix D.

APPENDIX D

VARIABLES EMPLOYED IN THE RAKING MODEL

The five dimensions we employed consist of three that categorize stores (type of store, ownership type, and amount of Supplemental Nutrition Assistance Program (SNAP) redemptions) and two that categorize the ZIP Codes in which stores were located (degree of urbanization and percentage of households below the poverty level). Specific definitions are provided in the following sections.

TYPE OF STORE

Experience, backed up by years of research, has indicated that type of store is an important differentiator in trafficking. In particular, and according to these analyses, larger stores do not traffic as much as smaller stores.

In June 2007, FNS instituted a new store, or business type, classification scheme that used a set of business rules to classify retailers, instead of relying on retailer self-reports.[1] We summarized retailers according to the new store-type codes, according to the following categories:

- Supermarkets,
- Large groceries,
- Medium-sized groceries,
- Small groceries,
- Convenience stores,
- Specialty food stores, and
- Combination/other food stores.

OWNERSHIP TYPE

Ownership types as indicated on the FNS application form were collapsed into the following categories to ensure an adequate number of cases of each type:

- **Private**—Any store identifying itself as other than publicly owned. This includes private (i.e., closely held) corporations as well as partnerships, sole proprietorships, and co-ops; and
- **Public**—Any store identifying itself as a public corporation (i.e., a retailer whose stock is publicly traded).

AMOUNT OF SNAP REDEMPTIONS

Stores were categorized into deciles on the basis of SNAP redemptions. Although the original intent was statistical, rather than analytical (i.e., to ensure that large disparities in redemptions by stores did not distort results), the variable was useful as a size measure that could be used in conjunction with the store type measure.

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[1] Prior to 2007, store type was based on the combination of a self-reported store type variable and gross sales. All reports preceding the 2006–2008 study were based on the older store type category. In the last report (2006–2008), a comparative analysis of the old and new store type classifications was conducted—showing little if any impact on the estimates. For more information on the older store types, see the 2006–2008 report.

DEGREE OF URBANIZATION

The urbanization variable was based on data collected for the 2010 U.S. Census. The Census provides for each ZIP Code Tabulation Area (ZCTA) an estimate of the number of individuals in that ZCTA who could be considered living in an urban area. This was divided by the total number of individuals in that area, which was available from the same data source.

Four categories were used that reflected an analysis conducted in 1993 for the first trafficking study. Their selection reflects our attempt to distribute stores across a range of categories to achieve some balance as well as create meaningful distinctions. These categories were:

- 0–10 percent urban population,
- 11–50 percent urban population,
- 51–90 percent urban population, and
- More than 90 percent urban population.

PERCENTAGE OF HOUSEHOLDS BELOW THE POVERTY LEVEL

The percentage of households below the poverty level was based on the 2013 American Community Survey 5 year data estimates for the ZIP Code Tabulation Area (ZCTA) in which each store was located. The total number of households in poverty within a ZCTA was divided by the total number of households in that area. As with the urbanization categories, the poverty-level categories were established for the 1993 study. Again, we attempted to establish a meaningful range for describing neighborhoods by poverty level while creating some balance in store totals across categories. Four categories were used:

- 0–10 percent of the residential population below the poverty level,
- 11–20 percent of the residential population below the poverty level,
- 21–30 percent of the residential population below the poverty level, and
- More than 30 percent of the residential population below the poverty level.

APPENDIX E

ESTIMATE DEFINITION

Prior to the trafficking study encompassing the 2002–2005 period, the investigative sample contained information based on FNS conducted investigations and administrative actions involving the issuance of charge letters. In 2002–2005, two new sets of data were introduced. First, we included Watch List cases. In 2002, the implementation of a new trafficking rate formula used to produce watch list counts had two effects. First, more retailers came under special systematic scrutiny (i.e., their status had to be resolved by field office staff). This increase resulted in a broader base of retailers subject to additional review (see the retailer distribution comparisons within the sensitivity analyses in Appendix I), and we expect that this larger population is more representative of the authorized retailer population as a whole. Second, the Watch List created an interactive system among investigators and those conducting retailer reviews that may have influenced the kinds of cases that were referred for investigation.

The estimate reported in this study included all currently available data sources for FNS investigations. It also included OIG investigations, State investigations, and investigations by other agencies. Key terms were defined as follows:

- **Denominator:**
  - All cases in which Event Code = "03" (completed investigation) and Investigation Agency = "CB," "OI," "SL," or "OT" (i.e., RIB, OIG, States, or other agency); or
  - All cases in which a retailer was sent a charge letter; or
  - All administrative (EBT) cases where the store was permanently disqualified or paid compensation in lieu of permanent disqualification; or
  - Any retailer on the Watch List with a status of closed.[1]

- **Numerator:**
  - Any case in which the Event Code = "03" (completed investigation) and Investigation Code = "CB" (i.e., RIB) and the trafficking flag is "1"; or
  - Any case in which the Event Code = "03" (completed investigation) and Investigation Code = "OI," "SL," or "OT" (i.e., OIG, States, or other agency) and the result is a positive violation; or
  - Any case in which the retailer was permanently disqualified or assessed a civil money penalty in lieu of a permanent disqualification.[2]

Both the denominator and numerator come from unduplicated lists of retailers meeting one or more of these conditions. In other words, a retailer was counted only once, regardless of the number of times it was identified. In this and previous measures, a conservative approach was used that assumed that the retailer was counted in the numerator if there was any indication of permanent disqualification or trafficking at any point during the administrative or investigative process.

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[1] Resolution involves any of the following statuses: 1) No Further Action (NFA), 2) Store Disqualified, 3) Store Withdrawn, 4) No Case Action (NCA), 5) Sanction Action, and 6) Other Adverse Action. The two statuses "NFA" and "NCA" are associated with determinations that for one reason or another, the store did not violate SNAP regulations.

[2] This includes stores that had an EBT (administrative) case and were permanently disqualified as well as those that received trafficking charge letters, but may not have been permanently disqualified in the end.

APPENDIX F

STATISTICS ON INVESTIGATIONS AND ADMINISTRATIVE ACTIONS

This appendix provides statistics for retailers by the criteria for defining the denominator (a store that has been investigated and has received a charge letter, or has been put on the Watch List). In other words, it defines the sample.

Exhibit F1: Redemptions, Retailer Count, and Trafficking Statistics for Investigated Retailers during 2012–2014, by Retailer Type

Type of Store	Total Redemptions	Amount of Trafficking	Trafficking Rate	Total Stores	Trafficking Stores	Store Violation Rate
Large Stores						
Supermarkets	$3,579,659,047	$17,402,560	0.49%	923	4	0.43%
Large groceries	$1,656,585,273	$32,379,829	1.95%	1,193	20	1.68%
Subtotal	$5,236,244,320	$49,782,389	0.95%	2,116	24	1.13%
Small Stores						
Medium-sized groceries	$2,231,325,961	$213,545,040	9.57%	3,813	406	10.65%
Small groceries	$1,179,406,260	$306,775,813	26.01%	4,715	1,157	24.54%
Convenience	$2,295,681,675	$512,109,367	22.31%	11,987	2,540	21.19%
Specialty	$1,022,077,804	$60,917,044	5.96%	1,151	74	6.43%
Combination/other	$2,827,576,082	$71,823,358	2.54%	2,637	120	4.55%
Subtotal	$9,556,067,782	$1,165,170,622	12.19%	24,303	4,297	17.68%
All stores	**$14,792,312,103**	**$1,214,953,011**	**8.21%**	**26,419**	**4,321**	**16.36%**

Exhibit F2: Redemptions, Retailer Count, and Trafficking Statistics for Investigated Retailers during 2012–2014, by Ownership Type

Store Ownership Type	Total Redemptions	Amount of Trafficking	Trafficking Rate	Total Stores	Trafficking Stores	Store Violation Rate
Privately owned stores	$14,106,598,212	$1,214,953,011	8.61%	26,081	4,321	16.57%
Publicly owned stores	$685,713,891	$0	0.00%	338	0	0.00%
All stores	**$14,792,312,103**	**$1,214,953,011**	**8.21%**	**26,419**	**4,321**	**16.36%**

Exhibit F3: Redemptions, Retailer Count, and Trafficking Statistics for Investigated Retailers during 2012–2014, by Poverty Level of Retailer's Neighborhood

Percentage of Households in Poverty in ZIP Code Where Store Is Located	Total Redemptions	Amount of Trafficking	Trafficking Rate	Total Stores	Trafficking Stores	Store Violation Rate
0–10%	$1,061,822,444	$33,635,101	3.17%	2,412	227	9.41%
11–20%	$4,726,052,797	$253,306,771	5.36%	9,193	1,147	12.48%
21–30%	$5,060,959,709	$414,017,833	8.18%	8,211	1,421	17.31%
More than 30%	$3,943,477,153	$513,993,306	13.03%	6,603	1,526	23.11%
All stores	**$14,792,312,103**	**$1,214,953,011**	**8.21%**	**26,419**	**4,321**	**16.36%**

Exhibit F4: Redemptions, Retailer Count, and Trafficking Statistics for Investigated Retailers during 2012–2014, by Urbanization Level of Retailer's Neighborhood

Percentage Urbanization of ZIP Codes Where Stores Are Located	Total Redemptions	Amount of Trafficking	Trafficking Rate	Total Stores	Trafficking Stores	Store Violation Rate
0–10%	$824,005,154	$17,731,477	2.15%	1,780	104	5.84%
11–50%	$504,315,791	$14,462,302	2.87%	944	86	9.11%
51–90%	$2,016,755,929	$55,948,808	2.77%	3,163	305	9.64%
91–100%	$11,447,235,229	$1,126,810,424	9.84%	20,532	3,826	18.63%
All stores	**$14,792,312,103**	**$1,214,953,011**	**8.21%**	**26,419**	**4,321**	**16.36%**

Note: Totals may not match individual row amounts due to rounding.

APPENDIX G

STATISTICS ON COMPARISONS BETWEEN RETAILERS IN THE INVESTIGATIVE SAMPLE AND IN THE POPULATION OF RETAILERS

In order to judge how the investigative sample varies from the population, distributions by retailer type, ownership type, poverty level, and urbanization were generated. The statistics in these tables represent activity over the three-year period (as opposed to annual figures presented in other parts of the report).

The following provides an index to the tables:

I. Redemptions

II. Retailers

Exhibit G1: Distribution of Redemptions for the Entire Retailer Population and for the Investigative Sample, by Store Type (Amounts Represent Three-Year Totals)

Type of Store	Total Redemptions for the Population		Redemptions for the Investigative Sample	
	Amount	Pct.	Amount	Pct.
Large Stores				
Supermarkets	$178,492,189,360	82.58%	$3,579,659,047	24.20%
Large groceries	$3,362,617,092	1.56%	$1,656,585,273	11.20%
Subtotal	$181,854,806,452	84.14%	$5,236,244,320	35.40%
Small Stores				
Medium-sized groceries	$4,404,923,587	2.04%	$2,231,325,961	15.08%
Small groceries	$2,521,793,106	1.17%	$1,179,406,260	7.97%
Convenience	$10,468,892,961	4.84%	$2,295,681,675	15.52%
Specialty	$2,576,367,078	1.19%	$1,022,077,804	6.91%
Combination/other	$14,329,965,936	6.63%	$2,827,576,082	19.12%
Subtotal	$34,301,942,667	15.86%	$9,556,067,782	64.60%
All stores	**$216,156,749,120**	**100.00%**	**$14,792,312,103**	**100.00%**

Note: Totals may not match individual row amounts due to rounding.

Exhibit G2: Distribution of Redemptions for the Entire Retailer Population and for the Investigative Sample, by Store Ownership Type (Amounts Represent Three-Year Totals)

Store Ownership Type	Total Redemptions for the Population		Redemptions for the Investigative Sample	
	Amount	Pct.	Amount	Pct.
Privately owned stores	$117,925,940,019	54.56%	$14,106,598,212	95.36%
Publicly owned stores	$98,230,809,101	45.44%	$685,713,890	4.64%
All stores	**$216,156,749,120**	**100.00%**	**$14,792,312,103**	**100.00%**

Note: Totals may not match individual row amounts due to rounding.

Exhibit G3: Distribution of Redemptions for the Entire Retailer Population and for the Investigative Sample, by Poverty Level in Retailer's Neighborhood (Amounts Represent Three-Year Totals)

Percentage of Households in Poverty in ZIP Code Where Store Is Located	Total Redemptions for the Population		Redemptions for the Investigative Sample	
	Amount	Pct.	Amount	Pct.
0–10%	$39,214,023,893.24	18.14%	$1,061,822,444	7.18%
11–20%	$95,093,726,584.29	43.99%	$4,726,052,797	31.95%
21–30%	$55,718,755,309.04	25.78%	$5,060,959,709	34.21%
More than 30%	$26,130,243,333.19	12.09%	$3,943,477,153	26.66%
All stores	**$216,156,749,119.76**	**100.00%**	**$14,792,312,103**	**100.00%**

Note: Totals may not match individual row amounts due to rounding.

Exhibit G4: Distribution of Redemptions for the Entire Retailer Population and for the Investigative Sample, by Urbanization Level in Retailer's Neighborhood (Amounts Represent Three-Year Totals)

Percentage Urbanization of ZIP Codes Where Stores Are Located	Total Redemptions for the Population		Redemptions for the Investigative Sample	
	Amount	Pct.	Amount	Pct.
0–10%	$6,957,663,113	3.22%	$824,005,154	5.57%
11–50%	$11,702,678,359	5.41%	$504,315,791	3.41%
51–90%	$48,822,190,540	22.59%	$2,016,755,929	13.63%
91–100%	$148,674,217,108	68.78%	$11,447,235,229	77.39%
All stores	**$216,156,749,120**	**100.00%**	**$14,792,312,103**	**100.00%**

Note: Totals may not match individual row amounts due to rounding.

Exhibit G5: Distribution of Retailers for the Entire Retailer Population and for the Investigative Sample, by Store Type (Number of Stores Represent Three-Year Totals)

Type of Store	Total Retailers for the Population		Retailers for the Investigative Sample	
	Stores	Pct.	Stores	Pct.
Large Stores				
Supermarkets	40,370	13.30%	923	3.49%
Large groceries	4,361	1.44%	1,193	4.52%
Subtotal	44,731	14.74%	2,116	8.01%
Small Stores				
Medium-sized groceries	14,816	4.88%	3,813	14.43%
Small groceries	20,794	6.85%	4,715	17.85%
Convenience	133,645	44.03%	11,987	45.37%
Specialty	12,366	4.07%	1,151	4.36%
Combination/other	77,170	25.42%	2,637	9.98%
Subtotal	258,791	85.26%	24,303	91.99%
All stores	**303,522**	**100.00%**	**26,419**	**100.00%**

Note: Totals may not match individual row amounts due to rounding.

Exhibit G6: Distribution of Retailers for the Entire Retailer Population and for the Investigative Sample, by Store Ownership Type (Number of Stores Represent Three-Year Totals)

Store Ownership Type	Total Retailers for the Population		Retailers for the Investigative Sample	
	Stores	Pct.	Stores	Pct.
Privately owned stores	225,027	74.14%	26,081	98.72%
Publicly owned stores	78,495	25.86%	338	1.28%
All stores	**303,522**	**100.00%**	**26,419**	**100.00%**

Exhibit G7: Distribution of Retailers for the Entire Retailer Population and for the Investigative Sample, by Poverty Level in Retailer's Neighborhood (Number of Stores Represent Three-Year Totals)

Percentage of Households in Poverty in ZIP Code Where Store Is Located	Total Retailers for the Population		Retailers for the Investigative Sample	
	Stores	Pct.	Stores	Pct.
0–10%	66,783	22.00%	2,412	9.13%
11–20%	130,055	42.85%	9,193	34.80%
21–30%	70,302	23.16%	8,211	31.08%
More than 30%	36,382	11.99%	6,603	24.99%
All stores	**303,522**	**100.00%**	**26,419**	**100.00%**

Exhibit G8: Distribution of Retailers for the Entire Retailer Population and for the Investigative Sample, by Urbanization Level in Retailer's Neighborhood (Number of Stores Represent Three-Year Totals)

Percentage Urbanization of ZIP Codes Where Stores Are Located	Total Retailers for the Population		Retailers for the Investigative Sample	
	Stores	Pct.	Stores	Pct.
0–10%	28,835	9.50%	1,780	6.74%
11–50%	19,130	6.30%	944	3.57%
51–90%	66,250	21.83%	3,163	11.97%
91–100%	189,307	62.37%	20,532	77.72%
All stores	**303,522**	**100.00%**	**26,419**	**100.00%**

Note: Totals may not match individual row amounts due to rounding.

APPENDIX H

ESTIMATE INTERVALS

The estimates provided in the main body of the report were generated using the data raking algorithm on the complete set of cases in the investigation sample (i.e., 26,419 retailers). Because in all instances the cases constitute a sample, there is some basis for examining how the estimate could vary if the cases chosen for investigation or for administrative follow-up were different. As in previous SNAP Trafficking studies, to simulate this variation, and to establish boundaries around the estimates, we generated estimates based on iteratively sampling the investigative sample. It should be noted that because the sample is selected in a purposive manner, the interpretation of the intervals is not consistent with the interpretation if the sample were based on probability sampling. It is also not intended to allow significance testing across years. The process involved selecting a random sample of 10,000 retailers from the investigative sample and using the raking algorithm to provide 2,000 different estimates. The 2,000 values were then processed to provide mean values (for store and redemption values and rates) and fifth and ninety-fifth percentile values for each of the variables. Overall, the average of these results, as seen in the following table, was relatively close to the estimates presented in the main body of the report. Percentiles were calculated by ordering the results and then reporting the cut points for the lowest five percent and highest 95 percent of values.

Comparison of Raked-Only Value versus Simulated Iterative Value

Set of Trafficking Estimates	Estimated Redemptions Trafficked		Estimated Stores Trafficking	
	Annualized Amount (in millions)	Rate	Number	Rate
Raked-only value	$1,077	1.50%	35,891	11.80%
Simulated iterative value	$1,068	1.48%	35,736	11.77%

In addition to those produced for the national estimates, intervals were also produced on the basis of store type, ownership type, poverty level, and urbanization. The values provide rough indications of how the estimates for each level of these variables would have been affected if different stores were selected for investigation or administrative review. However, care should be taken in the interpretation and use of these estimate intervals. They are derived from smaller samples and thus, are subject to the vagaries of the sampling process.

It should also be noted that the amounts representing the fifth and ninety-fifth percentiles are not necessarily reflected in the rates. The procedure estimated the fifth and ninety-fifth percentiles for amounts and rates separately. This resulted in different values for rates than would occur if the amounts were divided by total annualized redemptions. Nevertheless, the values should closely approximate the rates as if the amounts were used.

The following provides an index to the tables:

Exhibit H1: Intervals for Annualized Redemption Dollars Trafficked and Retailers Trafficking for All Retailers

Store Type		Estimate and Intervals for Trafficked Redemptions			Estimate and Intervals for Trafficking Stores		
		Dollars Trafficked	Intervals		Retailers Trafficking	Intervals	
			5th Percentile	95th Percentile		5th Percentile	95th Percentile
All stores	Estimate	$1,067,597,310	$960,300,459	$1,179,761,646	35,736	33,621	37,747
	Rate	1.48%	1.33%	1.64%	11.77%	11.08%	12.44%

Exhibit H2: Intervals for Annualized Redemption Dollars Trafficked and Retailers Trafficking, by Store Type

Store Type		Estimate and Intervals for Trafficked Redemptions			Estimate and Intervals for Trafficking Stores		
		Dollars Trafficked	Intervals		Retailers Trafficking	Intervals	
			5th Percentile	95th Percentile		5th Percentile	95th Percentile
Supermarkets	Estimate	$53,803,188	$0	$126,088,152	29	0	64
	Rate	0.09%	0.00%	0.21%	0.07%	0.00%	0.16%
Large groceries	Estimate	$7,695,459	$3,242,864	$12,666,392	41	19	64
	Rate	0.69%	0.29%	1.13%	0.94%	0.45%	1.48%
Medium-sized groceries	Estimate	$117,695,649	$97,163,512	$140,221,506	1,693	1,355	2,066
	Rate	8.02%	6.62%	9.55%	11.43%	9.14%	13.95%
Small groceries	Estimate	$178,394,634	$163,808,332	$193,155,256	4,816	4,350	5,298
	Rate	21.22%	19.49%	22.98%	23.16%	20.92%	25.48%
Convenience	Estimate	$609,944,051	$567,587,182	$653,250,392	25,836	24,046	27,582
	Rate	17.48%	16.26%	18.72%	19.33%	17.99%	20.64%
Specialty	Estimate	$42,695,882	$25,032,692	$62,337,309	933	558	1,358
	Rate	4.97%	2.91%	7.26%	7.54%	4.51%	10.98%
Combination/ other	Estimate	$57,368,447	$25,897,630	$106,103,672	2,388	1,566	3,274
	Rate	1.20%	0.54%	2.22%	3.09%	2.03%	4.24%

Exhibit H3: Intervals for Annualized Redemption Dollars Trafficked and Retailers Trafficking, by Store Ownership Type

Store Ownership		Estimate and Intervals for Trafficked Redemptions			Estimate and Intervals for Trafficking Stores		
		Dollars Trafficked	Intervals		Retailers Trafficking	Intervals	
			5th Percentile	95th Percentile		5th Percentile	95th Percentile
Privately owned stores	Estimate	$1,067,597,310	$960,300,459	$1,179,761,646	35,736	33,621	37,747
	Rate	2.72%	2.44%	3.00%	15.88%	14.94%	16.77%
Publicly owned stores	Estimate	$0	$0	$0	0	0	0
	Rate	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Exhibit H4: Intervals for Annualized Redemption Dollars Trafficked and Retailers Trafficking, by Poverty Level of Retailer's Neighborhood

Percentage of Households in Poverty in ZIP Code Where Store Is Located		Estimate and Intervals for Trafficked Redemptions			Estimate and Intervals for Trafficking Stores		
		Dollars Trafficked	Intervals		Retailers Trafficking	Intervals	
			5th Percentile	95th Percentile		5th Percentile	95th Percentile
0–10%	Estimate	$101,829,698	$60,658,294	$157,103,135	3,957	2,996	5,023
	Rate	0.78%	0.46%	1.20%	5.92%	4.49%	7.52%
11–20%	Estimate	$294,920,082	$202,019,295	$404,012,023	14,022	12,430	15,623
	Rate	0.93%	0.64%	1.27%	10.78%	9.56%	12.01%
21–30%	Estimate	$345,110,382	$191,840,163	$493,672,949	9,960	8,816	11,076
	Rate	1.86%	1.03%	2.66%	14.17%	12.54%	15.76%
More than 30%	Estimate	$325,737,149	$246,649,798	$419,761,916	7,798	6,969	8,614
	Rate	3.74%	2.83%	4.82%	21.43%	19.16%	23.68%

Exhibit H5: Intervals for Annualized Redemption Dollars Trafficked and Retailers Trafficking, by Urbanization Level of Retailer's Neighborhood

Percentage Urbanization in ZIP Code Where Store Is Located		Estimate and Intervals for Trafficked Redemptions			Estimate and Intervals for Trafficking Stores		
		Dollars Trafficked	Intervals		Retailers Trafficking	Intervals	
			5th Percentile	95th Percentile		5th Percentile	95th Percentile
0–10%	Estimate	$19,096,027	$11,541,819	$27,482,351	1,496	998	2,097
	Rate	0.82%	0.50%	1.18%	5.19%	3.46%	7.27%
11–50%	Estimate	$32,672,828	$15,723,934	$56,539,281	1,245	754	1,761
	Rate	0.84%	0.40%	1.45%	6.51%	3.94%	9.21%
51–90%	Estimate	$86,995,617	$56,177,195	$127,160,993	5,846	4,622	7,153
	Rate	0.53%	0.35%	0.78%	8.82%	6.98%	10.80%
91–100%	Estimate	$928,832,838	$808,020,001	$1,059,844,543	27,149	25,405	28,886
	Rate	1.87%	1.63%	2.14%	14.34%	13.42%	15.26%

APPENDIX I

SENSITIVITY OF ESTIMATES TO VIOLATION DEFINITIONS

The estimates derived through the raking procedure for the population of SNAP retailers reflect the sample of suspicious cases. The sample constitutes all cases in which an undercover investigation was conducted by the FNS; retailers that received a charge letter and those that received a permanent disqualification or a civil money penalty in lieu of permanent disqualification; FNS Office of the Inspector General (OIG) and State law enforcement bureau (SLEB) cases and positive outcomes associated with these investigations; and all closed Watch List cases.

It is critical to note that there is some uncertainty about what types of cases should be defined as investigatory; therefore, the size of the denominator for the estimates could arguably be expanded or contracted. Similarly, the numerator for the estimates is dependent on how trafficking is defined. Clearly, if a retailer traffics with an undercover FNS investigator, it is a violation. It is less clear that permanent disqualification or compensation civil money penalty in lieu of permanent disqualification after the retailer is given a charge letter constitutes trafficking. A case might also be made that any violation, including the selling of ineligible items, is at least a strong indication that the retailer would be willing to traffic and should be included in the numerator of the estimates.

In this appendix, we explore the sensitivity of trafficking estimates to such variations in definitions using three additional checks that employ differing criteria for inclusion in the numerator or denominator of the estimate. Exhibit I1 provides the criteria for these checks.

The check labeled "All disqualifications" assumes that retailers that have transacted ineligible buys or otherwise violated SNAP regulations would be willing to traffic. This assumption, for example, infers that a retailer that sells beer or liquor to someone using SNAP benefits would in all likelihood traffic, if given a viable opportunity.

The check labeled "NFA (No Further Action) excepted" assumes that retailers with these designations are not being actively pursued and that there is no reason, after deliberation, to consider them suspicious and no chance to consider them as potential traffickers.

The final check assumes that even among the retailers that are given an NFA status, there is a substantial amount of trafficking occurring. The potential of denoting them as traffickers would never be realized. The assumption was that 18 percent of these retailers trafficked.

Exhibit I2 provides the outcomes of using these definitions in terms of redemptions trafficked and stores trafficking. As is indicated, the amount trafficked is higher in all cases than the base estimate provided in the report.[1] In some cases, the estimates are more than twice as high, both in terms of redemptions trafficked and retailers trafficking. These limits should be considered, in addition to the figures presented in the last section to indicate the possible extent of trafficking.

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[1] We took three samples for the last random selection measure and averaged the three results. Redemption amounts are annualized.

Exhibit I1: Criteria for Including Retailers as a Violating Case and a Suspicious Case, by Estimate Type

Estimate Type	Violating Cases (Numerator)	Suspicious Cases (Denominator)
Base estimate (present definition)	RIB investigation with a trafficking violation or a permanent disqualification or payment of civil money penalty in lieu of permanent disqualification, or a positive trafficking outcome in an OIG or a SLEB case	RIB investigation or an ALERT system-derived case with the issuance of a charge letter, or an OIG or a SLEB case, or a closed Watch List case, or a permanent disqualification or payment of civil money penalty in lieu of permanent disqualification, or a positive trafficking outcome
All disqualifications	Store disqualified, temporarily or permanently, on the Watch List	Same as base estimate
NFA excepted	Same as base estimate	Same as base estimate except cases designated as NFA on the Watch List are omitted
Random selection of 18% of NFA Watch List retailers assumed trafficking	Same as base estimate with the assumption that 18 percent of the NFA retailers trafficked	Same as base estimate

Exhibit I2: Outcomes Using the Definition Relating to Selection of Retailers into the Sample

Measure	Annualized Amount of Trafficking	Trafficking Rate	Trafficking Stores	Store Violation Rate
Current measure	$1,077,464,187	1.50%	35,891	11.82%
All disqualifications	$1,081,113,366	1.50%	37,516	12.36%
NFA excepted	$1,725,195,982	2.39%	44,379	14.62%
Random selection of 18% of NFA Watch List retailers assumed trafficking	$4,679,463,512.67	6.49%	57,289	18.88%