Final Report

Small Entity Impact Analysis: Supplemental Proposed Rule "Safe-Harbor Procedures for Employers Who Receive a No-Match Letter"

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I. Introduction

On August 15, 2007, the Department of Homeland Security (DHS), U.S. Immigration and Customs Enforcement (ICE), promulgated a final rule titled "Safe-Harbor Procedures for Employers Who Receive a No-Match Letter" (no-match rule). As noted in the Supplementary Information section of the rule, current immigration law prohibits employers from hiring or continuing to employ an alien once the employer has knowledge that the alien is unauthorized to work in the United States [section 274A(a)(2) of the Immigration and Nationality Act (INA), 8 U.S.C. 1324a(a)(2)]. Furthermore, under the INA, an employer can be said to have "constructive knowledge" that an individual is unauthorized to work if the employer has notice of certain facts and circumstances which would lead a person, with the exercise of reasonable care, to infer that the individual is unauthorized. If an employer does receive information that raises questions about an employee's work status, but does not investigate the suspicious circumstances or attempt to validate the employee's work status, the employer cannot plead ignorance and can still be held liable.

The no-match rule clarifies the definition of "knowledge" in the regulations implementing the INA's prohibition on employment of unauthorized aliens. Specifically, the rule provides that an employer that fails to take reasonable steps in response to information calling into question an employee's work authorization may, depending on the totality of the circumstances, be found by DHS to have had "constructive knowledge" that an employee is not authorized to work in the United States. The rule further clarifies that DHS views a letter from the Social Security Administration (SSA) indicating that an employee's name and Social Security Number (SSN) submitted on the employer's Form W-2 tax filing does not match SSA records as the type of information that can be evidence of an employer's constructive knowledge. The final rule also provided the means for employers to acquire a safe harbor by following certain steps in response to such a no-match letter from SSA.

Objective

The primary objective of this report is to provide DHS with information to prepare an Initial Regulatory Flexibility Analysis (IRFA). The Regulatory Flexibility Act (RFA) requires Federal agencies take small entities' particular concerns into account when developing, writing, publicizing, promulgating, and enforcing regulations. To achieve this, the RFA requires that agencies detail how they have met these concerns, by including an initial or final Regulatory Flexibility Analysis. An IRFA, which accompanies a proposed rule, includes the following five elements:

(1) A description of the reasons why action by the agency is being considered.

(2) A succinct statement of the objectives of, and legal basis for, the proposed rule.

(3) A description of and, where feasible, an estimate of the number of small entities to which the proposed rule would apply.

(4) A description of the proposed reporting, recordkeeping, and other compliance requirements of the proposed rule, including an estimate of the classes of small entities that would be subject to the requirements and the type of professional skills necessary for preparation of the report or record.

(5) An identification, to the extent practicable, of all Federal rules that may duplicate, overlap, or conflict with the proposed rule.

Econometrica, in this report, provides information to make findings under items 3 and 4 above; i.e., information on the number and types of small entities that must comply with the rule, a description of the steps that the firms must take to comply, and an estimate of the impacts on those firms.

Background

Each year, employers submit over 250 million W-2 tax forms to the Internal Revenue Service (IRS) and SSA. SSA uses these earnings reports to credit individuals with Social Security benefits. Benefits are credited to an individual's account only if there is a match between the name and Social Security Number (SSN) on the W-2 and the name and SSN in SSA's accounts. Although numerous automated processes are able to resolve many of the discrepancies that are initially encountered, about 4 percent of the annual earnings reports contain information that do not match SSA records and cannot be immediately resolved.[1]

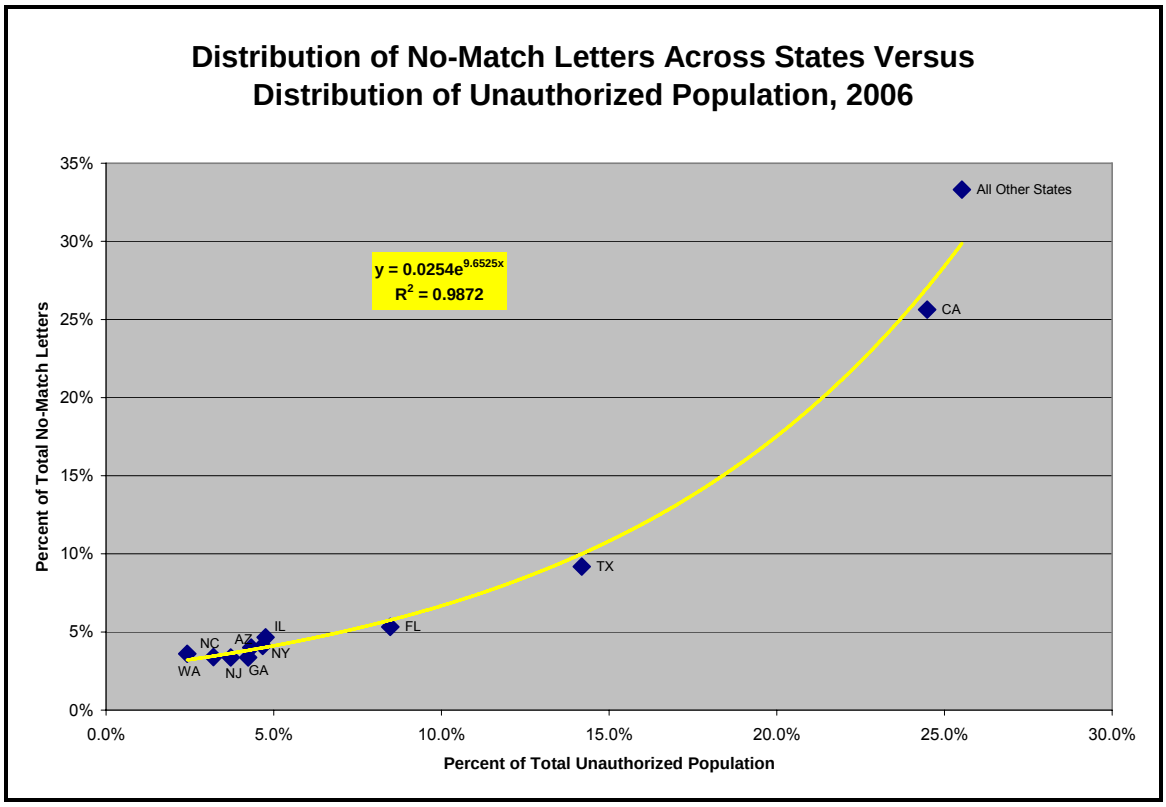
These unmatched reports are placed in SSA's Earnings Suspense File (ESF). Through various procedures, SSA is constantly analyzing the wage reports in the ESF and reinstates records (i.e., credits an individual with a benefit that previously was in the ESF) it is eventually able to validate. As part of its efforts to identify valid records that can be reinstated, SSA periodically contacts employers about individuals on their payrolls. This contact is made through letters that ask employers for their assistance in resolving name and SSN discrepancies between the employers' W-2 filings and SSA records. These "no-match" letters include a list of the SSNs (but no names) in question, and currently are sent only to employers that have at least 10 no-matches and where the no-matches constitute at least 0.5 percent of W-2s submitted by the employer.

No-matches arise for various reasons, including clerical errors and name changes. The misuse of SSNs by unauthorized aliens is also a factor, although as discussed later, the limited data available to us make it difficult to quantify the percentage of records in the ESF accounted for by unauthorized aliens. That said, the criteria that SSA uses in selecting employers that will receive no-match letters does seem to hone in on those firms who employ unauthorized aliens. This point is demonstrated in Exhibit 1, which shows a

[1] GAO, *Social Security: Better Coordination among Federal Agencies Could Reduce Unidentified Earnings Reports (GAO-05-154),* Report to Congressional Committees, February 2005.

strong correlation between the number of unauthorized aliens in each State and the number of letters that are sent to each State.[2]

Exhibit 1:



[2] The data in the graph were reported in Migration Policy Institute, *Social Security "No-Match" Letters: A Primer*, in Immigration Backgrounder, October 2007, No. 5. The unauthorized population estimates come from Michael Hoefer, Nancy Rytina, and Christopher Campbell, Office of Immigration Statistics, DHS, *Estimates of the Unauthorized Immigrant Population Residing in the United States: January 2006*, Population Estimates, August 2007. Data on the number of letters by State were obtained from SSA at http://www.ssa.gov/legislation/EDCOR%20Notices%20By%20State%20TY06%20-%20080407.pdf.

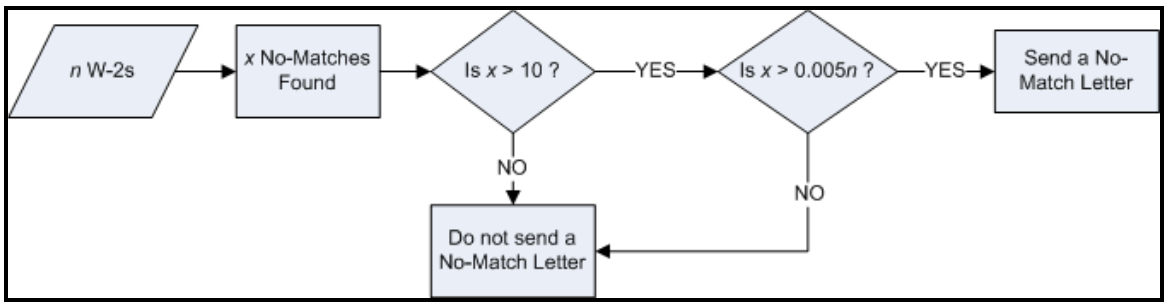
II. Description of Small Entities Affected

This section provides a brief description of the regulated community, with a particular emphasis on the small business entities that will be affected. The Small Business Administration (SBA) estimates there are over 22 million business entities—10.6 million unincorporated self-employed, 5.5 million incorporated self-employed, and 6 million employer firms.[3] Although there are over 22 million small businesses in the United States, the safe-harbor procedures will impact only some of those small businesses that are among the 6 million employers.

Section II.A presents the SBA's size standards and employment size classes that are used in the analysis. As discussed below, there is a distinction between employment size classes and the size standards that SBA uses to define small businesses. Section II.B presents the total number of entities affected by the rule, including both small and large businesses. In Section II.C, the affected entities are categorized by employment size classes, whereas Section II.D describes the regulated community using SBA size standards. Finally, Section II.E estimates how the affected businesses are distributed across different industries.

To some extent the rule applies to all employers, because any employer could unknowingly hire unauthorized aliens in the future. This analysis, however, focuses on employers to whom SSA plans to send no-match letters for tax year (TY) 2006. Two key factors determine the likelihood that a given employer will receive a no-match letter and therefore be affected by DHS's no-match rule. The first factor is the criteria that SSA uses to select the employers to whom it will send no-match letters. SSA currently sends no-match letters to those employers who submit more than 10 no-matches, where those no-matches represent more than 0.5 percent of the total number of W-2s the employer filed. This process is illustrated below for an employer with *n* W-2s and *x* no-matches. SSA has used other criteria in the past and it is possible that these criteria will change in the future. For this analysis, we will assume that SSA will continue to use the current criteria.

No-Match Flow



[3] SBA, *The Small Business Economy: A Report to the President, 2007*, p. 11.

The second factor that can influence the possibility that an employer will receive a no-match letter, and therefore be affected by the rule, is the employer's industry. While SSA's criteria for sending no-match letters is uniform for all employers, historical analyses show that employers in certain industries are significantly more likely to submit enough unmatched W-2s to meet SSA's criteria for receiving a no-match letter. Various analyses of data in the ESF seem to indicate that employers with no-match wage items are concentrated in a few industries. For example, data provided by the Government Accountability Office (GAO) on this topic show that almost 65 percent of the employers in the ESF fall under 11 industry categories out of 83 total possible industries (see Exhibit 7 below). The same data reveal that almost 45 percent of the ESF employers are located in Hotels, Agriculture Production and Services, Eating/Drinking Places, Construction – Special Trade, and Building Construction. These types of statistics are of interest for this analysis since the no-match letter recipients are drawn from the ESF database.

II.A Small Business Size Standards and Employment Size Classes

This section discusses the employment size classes and SBA's small business size standards that are used in the following sections. These two classification schemes are not the same and are used for different purposes. An SBA size standard is an official definition that determines whether or not any given firm can be classified as a small business. Among other things, a small business classification is used to establish eligibility for Federal loans and Federal contracting opportunities designated for small businesses. SBA maintains a specific size standard for each industry, and these standards can vary considerably across industries. For example, an agricultural firm with annual revenues of $1 million would be classified as a large business, whereas a construction company with $10 million in revenues would be classified as a small business. In each case, firms within the industry that fall below the designated standard are defined as small.

Employment size classes, in contrast, are categories that are used for analytical purposes. Whereas SBA's size standards divide firms into two categories— "small" and "not small"—numerous employment size classes can be used to categorize firms. For this reason, the classes are useful for evaluating distributions of firms in terms of size. In regulatory studies such as this one, size is often used to gauge the ability of different firms to absorb compliance costs, it being assumed that relatively larger firms will have an easier time absorbing the costs than smaller firms.[4] For example, a construction company that makes $10 million per year will probably have an easier time absorbing a $1,000 compliance cost than an agricultural firm that makes $1 million per year, even though the former is designated as a small business according to SBA size standards and the latter is not.

[4] This assumption is generally made when there are fixed costs that are the same for all firms regardless of size.

Shown in Exhibit 2 are SBA's general size standards, used to define small entities.[5] These standards encompass all industries affected by the rule and are used in Section II.D to address the number of small business entities that will be affected.

Exhibit 2:
SBA Size Standards

Industry Group	Size Standard
Manufacturing	500 Employees
Wholesale Trade	100 Employees
Agriculture	$750,000 in revenues
Retail Trade	$6.5 million
General and Heavy Construction (except Dredging)	$31 million
Dredging	$18.5 million
Special Trade Contractors	$13 million
Travel Agencies	$3.5 million (commission and other income)
Business and Personal Services, Except:	$6.5 million
Architectural, Engineering, Surveying, and Mapping Services	$4.5 million
Dry Cleaning and Carpet Cleaning Services	$4.5 million

Source:
http://www.sba.gov/services/contractingopportunities/sizestandardstopics/summarywhatis/index.html. Also, see 13 CFR 121.101(a); 121.201; 121.902 (size standards promulgated for SBA programs and applicable to other agency programs).

As can be seen, most of the size standards are defined in terms of revenue. We do not know the industry or revenue of those entities affected by the rule and therefore cannot directly identify the size of the entities according to the SBA size standards. As discussed below, a statistical approach was used to estimate average revenues in order to tie the analysis to the SBA size standards. See Section II.D, Section III.L, and Appendix L for more details.

We do not know the number of businesses affected by the rule that meet SBA's definition of small, therefore the report uses employment size classes to present and analyze the impacts. These classes are presented in Exhibit 3. Again, employment size classes are not meant to replace SBA's size standards for what constitutes a small business—rather, they are an intuitive measure of firm size based upon available data.

[5] The SBA size standards listed in Exhibit 2 include the most common size standards. According to http://www.sba.gov/services/contractingopportunities/sizestandardstopics/faqs/index.html, about one-fourth of industries have a size standard that is different from these common levels. They vary from $0.75 million to $32.5 million for size standards based on average annual revenues and from 100 to 1,500 employees for size standards based on number of employees.

Exhibit 3: Employment Size Classes (Number of Employees)
5-9
10 - 19
20 - 49
50 - 99
100 - 499
500 +

Several different considerations were used to define the size classes. First, the size classes that were selected make it possible to address the wide variety of industries affected by the rule, allow cross-industry comparison, and facilitate the merging of different data sources where necessary. The groups are based upon employment size classes that SBA uses to categorize its data. In particular, there is almost a one-to-one correspondence between the employment size classes used in this analysis and those used to categorize SBA's 2002 revenue data. The analysis draws extensively upon SBA's data, and it was necessary to have class definitions that would make it easy to incorporate those data. Second, a certain level of aggregation was desired, given the relatively small number of entities affected by the rule. In other words, we wanted to make sure that there were enough firms in each category to ensure representativeness for the category and to mitigate any concerns about confidentiality of SSA data.[6] Finally, employment size classes had to be used instead of revenue size classes. As noted above, we do not have any specific revenue data for the companies affected by the rule. The wage reports that employers submit to SSA do not include information on employer revenues, so the tabulations that SSA provided us do not include such information. In addition, SSA did not believe it could legally provide us with the names and addresses of the companies that will receive no-match letters, thus we could not conduct the necessary research to identify revenues for those firms. On the other hand, the ESF data can be used to tabulate the number of employees for a given employer identification number (EIN). For that reason, classes are shown in terms of employment.

This analysis does not consider firms with 1-4 employees, because it is highly unlikely that such a firm will receive a no-match letter. In order to receive a no-match letter, a company must submit at least eleven W-2s during the year that did not match SSA records. Even with a high labor turnover rate, it is very unlikely that a company with 1-4 employees would submit enough W-2s with discrepancies to warrant a no-match letter. (On the other hand, a firm with 9 employees, all unauthorized, and a 25-percent turnover rate might submit 11 W-2s that did not match SSA records.)

[6] Although SSA could not provide us with the detailed ESF data, they were able to provide us with aggregate tabulations of that data as long as those tabulations did not violate any confidentiality restrictions.

II.B Number of Affected Entities

For Tax Year 2006, SSA plans to send no-match letters to 140,835 separate entities, which represents approximately 5.8 percent of the U.S. firms that employ more than four people.[7] The 5.8-percent figure should be considered a rough estimate for the following reasons. Entities in the ESF are defined by EINs, so it is possible that some firms could be counted more than once and will actually receive multiple no-match letters.[8] Also, the estimate of the total number of firms in the U.S. was derived from SBA data on firm size,[9] which includes most but not all industries. In particular, these data did not include agriculture production. An estimate was added for the number of farms employing more than 10 hired workers to the SBA data.[10]

II.C Affected Entities by Employment Size Class

There are almost 6 million firms in the United States that hire employees, and only a small number of these businesses are recipients of no-match letters. Exhibit 4 presents the number of affected business entities by employment size class as defined in Section II.A. The distribution of affected entities across size classes (shown in the second column) was derived from tabulations provided by SSA on the number of W-2s that employers submitted. Unlike an average employment level, the annual number of W-2s captures all the employees who were on staff throughout the year and does not take into consideration employee turnover. For this reason, it was necessary to translate the SSA counts by number of W-2s submitted into counts based upon average employment levels. These adjustments were accomplished using annual hire rates from the U.S. Bureau of Labor Statistics. See Appendix A for more information on the calculations that were used.

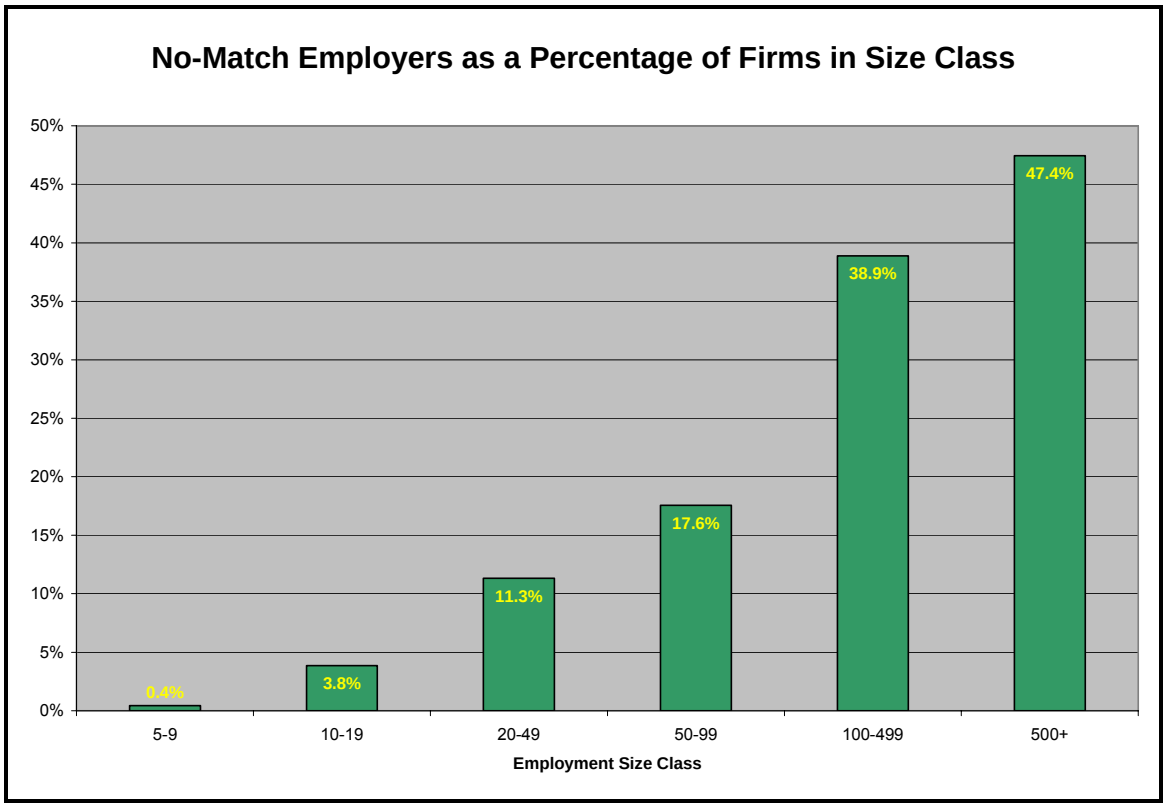
Average employment levels may fail to adequately reflect high seasonal employment levels in seasonal industries with high turnover rates. For such industries, it is difficult to define an average "annual" employment level, and this should be considered when evaluating information based on these size classes.

[7] Including farms, we estimate that there are 2,426,416 firms in the country that employ more than four people. See Appendix B and Appendix D for more details.
[8] Some firms have more than 1 EIN for tax purposes.
[9] Obtained from the U.S. Small Business Administration, Office of Advocacy, at www.sba.gov/advo/research/data_uspdf.xls. The figures are based on data provided by the U.S. Census Bureau. See Appendix B for more information on how the numbers were derived.
[10] The number of farms by employment size class was derived from the 2002 Census of Agriculture, which provides data on the number of farms and the number of hired workers for different economic classes. It should be noted that the number of farms that utilize hired worker constitute only 26 percent of the total number of farms in the U.S. See Appendix D for more information on the data used for the agriculture sector.

Exhibit 4: Number of Affected Entities by Employment Size Class		
Employment Size Classes (Number of Employees)	**Number of Employers Receiving a No-Match Letter[11]**	**Total Number of Employers in U.S.[12]**
5 - 9	4,866	1,137,420
10 – 19	24,840	645,869
20 – 49	46,102	407,007
50 – 99	23,286	132,536
100 – 499	33,653	86,538
500 +	8,088	17,047
Total	140,835	2,426,416

The numbers in the table have been translated into the percentages shown in Exhibit 5. For each size class, the graph presents the number of no-match employers as a percentage of the total employers. The chart shows that less than 1 percent of the employers in the smallest size class will receive no-match letters, whereas over 40 percent of the largest employers will receive one.

Exhibit 5:



[11] Based on an analysis of data received from SSA on November 6, 2007. See Appendix A for a description of how the data were used to compute these numbers.
[12] Refer to the above text and Appendix B for information on how these numbers were derived.

II.D Number of Small Business Entities Affected

As demonstrated above in Exhibit 2, SBA's small business size standards vary considerably across the different industries. To estimate the number of small businesses (as defined by SBA size standards) affected by the rule, the number of no-match employers in each industry would need to be known, as well as revenue for firms in most industries. Unfortunately, the SSA was not able to provide industry codes for those EINs that are going to receive no-match letters, nor could they provide firm revenue based on the data in the ESF. Therefore, the number of affected small businesses, as defined by SBA size standards, could not be determined with precision.[13]

However, it is possible to estimate the total number of affected entities (both small and large) that fall under a specific size threshold that coincides with an SBA size standard. Such a threshold could be defined in terms of employment or revenues, but should not be misconstrued as an SBA size standard. Like employment size classes, threshold analysis is simply another tool that can provide insights into how a rule impacts different size categories.

For purposes of analysis, four different size thresholds were developed. Regression analysis was used to estimate a relationship between average revenue and number of employees, which made it possible to define the thresholds in terms of either (see Section III.L for more detail). In other words, the regression equation allowed us to estimate the corresponding number of employees for a given revenue threshold, and vice versa. For example, we estimate that a revenue threshold of $6.5 million corresponds to an employment threshold of 60 employees. The ability to move between the revenue and employment thresholds was necessary, because we tabulate of the number of firms under the thresholds based on the number of employees.

The four thresholds used in the analysis are defined in the first two columns in Exhibit 6. To facilitate comparisons with the SBA size standards, each threshold was chosen to coincide with an SBA small business size standard for a major industry segment (see Exhibit 2). The Retail Trade and Business and Personal Services standards are $6.5 million or less in revenue; the Wholesale Trade standard is 100 employees or less; the Special Trade Contractors standard is $13 million or less in revenue; and the Manufacturing small business standard is less than 500 employees. With the exception of

[13] DHS requested information from SSA to assist in better identifying the number of small entities that could be expected to establish safe-harbor procedures. Specifically, DHS requested that SSA provide the names and addresses of the companies already identified by SSA in its preparation to release no-match letters in September 2007. This raw data would have permitted DHS to conduct research to determine the North American Industry Classification System industry to which the specific companies belonged, to research the annual revenue and/or the number of employees of these companies, and thus attempt to apply the appropriate small business size standards. With these analyses, DHS anticipated that it would have been able to provide a rough estimate of the number of employers expected to receive a no-match letter that met the SBA's definitions of small businesses. However, SSA declined to provide DHS with the names and addresses of the employers expected to receive a no-match letter, citing the general legal restrictions on disclosure of taxpayer return information under section 6103 of the Internal Revenue Code of 1986, 26 U.S.C. 6103.

Agriculture, these sectors are believed to encompass most of the businesses affected by the rule (see Exhibit 7 for more details). The SBA size standard for Agriculture is $750,000 in revenues.

For each threshold, the fourth column in Exhibit 6 shows the estimated number of no-match employers with fewer employees than the threshold number (second column). The third column shows the total number of employers that fall beneath the size threshold. Neither of the tabulations includes firms with 1-4 employees, because those firms are highly unlikely to be affected by the rule.

Exhibit 6: No-Match Employers
No-Match Employers Smaller than Specified Size Threshold

Size Threshold		Total Firms[15]	No-Match Employers		
Revenues[14] ($ millions)	Number of Employees		Number[15]	% of Total No-Matches	% of Total Firms under Size Threshold
6.5	60	2,216,803	80,465	57%	3.6%
11.7	100	2,322,831	99,094	70%	4.3%
13	111	2,325,427	100,103	71%	4.3%
58.6	500	2,409,369	132,747	94%	5.5%

Based upon the data in the fourth column in Exhibit 6, we estimate there are 80,465 employers who will receive a no-match letter and who employ less than 60 people (and who have corresponding revenues of less than $6.5 million). This figure accounts for 57 percent of all the employers who will receive no-match letters; it also represents less than 4 percent of the total number of employers in the United States who employ less than 60 people.

The last column in the table shows that the number of businesses affected by the rule constitutes between 3.6 percent and 5.5 percent of the total number of firms under these size thresholds.

II.E Affected Entities by Industry

Although it was not possible to tabulate the number of affected firms by industry and size class due to the previously discussed data limitations, several sources provide clues regarding how the no-match letters are likely to be distributed across different industries.

[14] The corresponding revenue and employment figures were determined using the approach outlined in Appendix L.

[15] These numbers are derived from the second and third columns in Exhibit 4 by summing the number of employers below the employment threshold. Linear interpolation was used for thresholds that fall in the middle of one of the size classes. For example, the number of no-match employers with less than 44 employees was calculated as the following: 6,725 (number of no-match employers with 11-19 employees) + (42,879 (number of no-match employers with 20-49 employees) * ((43-20+1) / (49-20+1))).

In October 2004, SSA's Office of the Inspector General (OIG) released an audit of the top 100 employers with the most wage items in the ESF for tax years 1997 through 2001.[16] The analysis found that 43 of the employers were in the service industry, 32 employers were in the restaurant industry, and 20 employers were in agriculture. Unfortunately, the usefulness of the results is somewhat limited because these 100 employers were not randomly selected and, therefore, are unlikely to be a statistically valid representation of the 140,835 firms that are going to receive a no-match letter. Also, the industry definitions are somewhat arbitrary and are difficult to use in conjunction with other data sources. For example, SSA personnel informed us that the construction sector was included under services and that the assignment of employers to industries was based on personal observation, since the ESF data did not include U.S. Standard Industrial Classification (SIC) codes or North American Industry Classification System (NAICS) codes.[17]

GAO Report

In February 2005, GAO released an extensive analysis of the wage items in the ESF, covering tax years 1985 to 2000 and 4.3 million employers.[18] Part of the analysis examined the extent to which different industries are represented in the ESF. SSA was able to provide GAO with industry identification codes[19] for 1.8 million employers out of the 4.3 million employers with wage items in the ESF over the study period. Based upon these 1.8 million employers, the percentage of employers with wage items in the ESF was tabulated for 83 different industries. The report presents the results for five of these industries, with the remaining 78 industries collapsed into an "All Others" category. Upon request, GAO was able to provide us with more detailed tabulations based upon these same 1.8 million employers.[20] These tabulations include estimates for 25 industries and an "All Others" category.[21] Together, the 25 industries account for approximately 87 percent of the 1.8 million employers with industry codes.

The distribution of these 25 industries does not necessarily reflect the distribution of industries that will receive no-match letters. Because SSA only sends letters to employers who have more than 10 no-matches, the extent to which an industry is concentrated in the smallest employment size classes will affect the probability that it receives a no-match letter. For example, according to County Business Patterns data for 2005, only 36 percent of eating and drinking establishments employ 1-4 employees,

[16] SSA OIG, *Employers with the Most Suspended Wage Items in the 5-Year Period 1997 through 2001 (A-03-03-13048),* October 2004.

[17] Both SIC codes and NAICS codes define industry sectors used to classify business entities for the purposes of collection, analysis, and publication of statistical data. NAICS has recently replaced SIC as the preferred system. See Census websites such as http://www.census.gov/epcd/www/drnaics.htm for more detail.

[18] GAO, *Social Security: Better Coordination among Federal Agencies Could Reduce Unidentified Earnings Reports (GAO-05-154),* Report to Congressional Committees, February 2005.

[19] Industry identification was based on Standard Industrial Classification (SIC) codes.

[20] Electronic file (MS Excel spreadsheet) received from GAO on December 3, 2007.

[21] Each industry included in the "All Others" category constitutes less than 1 percent of the 1.8 million employers with industry codes.

whereas 63 percent of special trade contractors employ 1-4 employees.[22] All things equal, this difference in industry distribution across size classes means that an eating and drinking establishment will be more likely than a special trade contractor to receive a no-match letter.

Differences in labor turnover rates could also change the industry distribution relative to what is seen in the ESF. The turnover rate determines the number of unique W-2s that are submitted by employers, which indirectly affects whether an employer will receive a letter, since employers must submit more than 10 different W-2s in order to be eligible to receive a letter. This issue is particularly germane for small employers who typically have 5-9 employees on staff at any given time. A sufficient turnover rate for one of these employers can mean that it will submit more than enough W-2s to place it in the pool of employers who will potentially receive a no-match letter.

To account for these issues, adjustments were made to GAO's industry percentages using BLS data on labor turnover rates and County Business Patterns data on class size. Details on the calculations used to make the adjustments are provided in Appendix E. The results are presented below in Exhibit 7. The third column in the table presents the original figures tabulated by GAO, and the fourth column shows the percentages after they have been adjusted for differences in size class and labor turnover. Note that the percentages in the last column reflect what is believed to be the distribution of industries across the pool of employers who could potentially receive a no-match letter. It does not account for possible industry differences in the percentage of total W-2s that are in the ESF. Such differences, if they exist, could affect the actual distribution of no-match letters across industry sectors.

As can be seen by comparing columns three and four in Exhibit 7, the adjustments reduced the industry percentages for most sectors in the table. The exceptions are in industries with high turnover rates, mostly retail and service establishments, and for the most part the no-match percentage increases slightly. The no-match percentage for Eating and Drinking Places increases by 10 percentage points after adjusting for turnover and size. This is consistent with the high rate of employee turnover in that industry as well as the distribution of size classes.

[22] U.S. Census Bureau, *County Business Patterns*, 2005. For special trade contractors (NAICS 238), there were 493,278 establishments in 2005, out of which 313,191 employed 1-4 people. For eating and drinking places (NAICS 722), there were 540,933 establishments, out of which 192,869 employed 1-4 people.

Exhibit 7: Estimated Distribution of No-Match Letters Across Industry Sectors			
Industry	SIC	Industry Distribution	
		ESF	No-Match
Agriculture Production-Crops	01	6.7%	4.5%
Eating and Drinking Places	58	17.2%	27.5%
Construction-Special Trade	17	10.1%	7.6%
Business Services	73	5.1%	4.3%
Health Services	80	4.0%	3.8%
Food Stores	54	3.5%	3.7%
Agriculture Services	07	3.4%	1.8%
Miscellaneous Retail	59	3.4%	2.6%
Bldg. Construction Gen. Contractor, OP Bldr*	15	3.4%	1.9%
Personal Services**	72	3.3%	1.9%
Auto Repair, Services, Parking	75	2.9%	1.6%
Auto Dealers, Gas Stations	55	2.7%	3.3%
Real Estate	65	2.7%	0.9%
Durable Goods, Wholesale	50	2.3%	2.1%
Social Services	83	2.1%	2.5%
Engineering, Architecture, Research …***	87	1.8%	1.1%
Non durable Goods, Wholesale	51	1.8%	1.6%
Hotels, Other Lodging Places	70	1.7%	2.5%
Private Households	88	1.7%	1.5%
Motor Freight Transp. and Warehouse	42	1.7%	1.4%
Amusement and Recreation Services	79	1.5%	1.5%
Home Furniture & Equipment Stores	57	1.2%	1.1%
Apparel and Other Finished Products	23	1.1%	1.3%
Apparel and Accessory Stores	56	1.1%	1.3%
Legal Services	81	1.0%	0.5%
OTHER		12.5%	15.9%

* "OP Bldr" means Operative Builder.
** Personal Services include laundry, carpet cleaning, photo studios, beauty shops, shoe repair, funeral services, tax and other miscellaneous personal services.
*** Full listing also includes Engineering, Architecture, Research, Management-Related Services.

The following two exhibits provide additional information for the top three industries listed above. Exhibit 8 illustrates the distribution of establishments by number of employees. The percentage of firms with 1-4 employees explains why most of the industry no-match rates decreased when adjusted for firm size. For example, 78.3 percent of agriculture establishments employ 1-4 people, and thus are highly unlikely to submit the 10 W-2s needed to qualify for a no-match letter. Furthermore, the percentage of firms in all industries except Eating and Drinking Establishments decreases as the size class increases. Since the percentage of no-match employers increases in each size class (See Exhibit 5), the downward-sloping trend explains why no-match rates decrease when adjusted for firm size. This result also explains the increase in the adjusted no-match rate

for Eating and Drinking Establishments, since the distribution of this industry by size class does not decrease until the number of employees exceeds 50.

Exhibit 8: Distribution of Establishments Across Employment Size Classes[23] Selected Industries: 2005

Selected Industries	Employment Size Class						
	1-4	5-9	10-19	20-49	50-99	100-499	500+
U.S. Total Non-Agriculture	54.9%	18.8%	12.5%	8.5%	2.9%	2.1%	0.2%
Special Trade Contractors	63.5%	17.2%	10.3%	6.2%	1.8%	0.9%	0.1%
Eating and Drinking Establishments	35.7%	16.9%	19.0%	20.9%	6.1%	1.4%	0.0%
Agriculture	78.3%	16.9%	2.4%	1.2%	1.2%	0.0%	0.0%

Exhibit 9 illustrates the distribution of total employment by number of employees and provides insight into the number of employees affected by the rule. Because of the structure of the size classes, the decrease in number of firms as the size class increases is offset by the increase in the number of employees of each firm. Two observations are worth noting. The first is that the distribution of total employment for the Special Trades industry and the Eating and Drinking Establishments in the largest size classes is lower than the total non-agricultural employment. This implies that, while the rule may affect a greater percentage of employees in these two industries in the smaller size classes, most employees affected by the rule in the largest size classes are in other industries. The second observation is that the total agricultural employment is concentrated in the smallest size categories, those least likely to be affected by the rule. Thus firms in the agriculture industry, especially those designated as small businesses, are likely to be too small to be affected by the rule.

Exhibit 9: Distribution of Employment Across Employment Size Classes[24] Selected Industries: 2005

Selected Industries	Employment Size Class						
	1-4	5-9	10-19	20-49	50-99	100-499	500+
U.S. Total Non-Agriculture	5.9%	8.0%	10.9%	16.5%	13.0%	25.4%	20.2%
Special Trade Contractors	11.4%	13.1%	15.9%	21.6%	14.1%	19.2%	4.8%
Eating and Drinking Establishments	3.4%	6.7%	15.8%	37.3%	24.2%	11.5%	1.0%
Agriculture	48%	22%	6%	8%	16%	0%	0%

[23] Computations for non-agricultural industries based on data from U.S. Census Bureau, County Business Patterns, 2005: see Appendix E for more detail. See Exhibit D.6 in Appendix D for details on the estimates for the agriculture sector.

[24] Computations for non-agricultural industries based on data from U.S. Census Bureau, County Business Patterns, 2005: see Appendix E for more detail. See Exhibit D.6 in Appendix D for details on the estimates for the agriculture sector.

III. Compliance Requirements[25]

This section provides an analysis of the compliance requirements. Sections III.A through III.K develop estimates of the compliance costs associated with the no-match rule. Section III.L reports average revenues per firm, which are compared with cost estimates in Section III.M.

Primary Assumptions

Estimation of the direct compliance costs rely upon the following two assumptions. First, it is assumed that none of the affected entities were previously using any procedures to address SSA no-match letters. That means the full cost of the safe-harbor procedures will be included in the computations rather than a marginal increase in the cost of the verification procedure. It is likely that this assumption results in significantly overestimating the administrative costs of following the safe-harbor procedures. For example, in an analysis of 78 employers (50 large, 28 small) who had the highest percentage of W-2 records that did not match SSA records, the IRS found that these 78 employers had processes in place for re-soliciting and attempting to correct employee information based upon the receipt of a no-match letter.[26] The cost of adopting the safe-harbor procedures is likely to be significantly lower for such employers who already have systems in place for responding to no-match letters.

Second, it will be assumed that 100 percent of the firms that receive no-match letters will choose to follow the safe-harbor procedures. In conjunction with the first assumption, this means that the change in the rate of compliance is also 100 percent. This assumption also results in over-stating the average compliance costs that will be incurred by industry.

Sources

Several sources helped us identify the types of costs likely to be incurred as a result of the rule, including: comments that were submitted on the proposed rule; court orders, declarations and other supporting materials entered in Case Number 3:07-cv-04472-CRB, United States District Court, Northern District of California; a meeting with SBA personnel; and the experience of personnel who previously worked in a Human Resources office.

[25] This analysis follows the standard "compliance" terminology for a Regulatory Flexibility Analysis. We understand, however, that the safe harbor established in this rule does not mandate behavior from employers, and so the rule does not impose "compliance" obligations on employers. While we choose to adhere to the standard terminology for this analysis, the costs calculated here are the costs that employers may incur should they decide to follow the safe-harbor procedures set forth in the rule.

[26] Mark Evers, Commissioner of Internal Revenue, *Individual Taxpayer Identification Numbers and Social Security Number Matching*, Prepared Testimony before the House Ways and Means Subcommittee on Oversight and Subcommittee on Social Security, March 2004 in SSA OIG, *Employers with the Most Suspended Wage Items in the 5-Year Period 1997 through 2001 (A-03-03-13048),* Appendix G, October 2004.

Conversations with numerous individuals helped us quantify some of the variables used in the cost analysis. We talked to a self-employed lawyer who serves small businesses, an accountant who works part-time for a small firm, a small family farmer, and a payroll firm that processes payroll and taxes for a larger number of small businesses.

Several government reports and studies (as well as congressional testimonies) were reviewed for pertinent information. Most of these were published by the SSA, the IRS or the GAO. Information obtained from the Pew Hispanic Center website and two Westat reports were also useful.

Definition of Costs Considered

The analysis includes cost estimates for the following:

- Labor for Human Resources (HR) personnel to administer the safe-harbor procedures.
- Training for HR personnel.
- Accounting services.
- Legal services.
- Lost productivity.
- Turnover of authorized employees.
- Miscellaneous (phone, postage, printing).

Human Resources labor costs are based on appropriate occupational wage rates and on estimates of the amount of time it will take to conduct record checks, write form letters and send them, meet with employees, and provide employees with other assistance to help them resolve their no-match discrepancies.

Some comments regarding the rule suggested that special HR tracking systems would also be needed to track seasonal employees no longer with the company at the time the no-match letter is received. The rationale for such a tracking system would be to mitigate an employer's risk by ensuring that the employer can identify, and appropriately examine the work authorization documents for, returning job applicants who were previously listed on a no-match letter. Employers in seasonal industries who adopt such a policy would likely keep a copy of their no-match letters and compare the SSNs on new employment eligibility forms with those SSNs listed in the letters. This routine would likely become embedded in the normal processing of new job applicants. The no-match rule does not address this scenario, and seasonal employers who hire returning workers would have had sufficient reason under the pre-existing regulations to compare past no-match letters against the identity information provided by all new and returning hires. Therefore, the cost of any such system is attributable to the INA and to the prior regulation, not to the no-match rule.

Other comments suggested that firms will need to purchase or develop special HR software in order to comply with the no-match rule. It needs to be remembered that all of the no-match letter recipients employ at least 10 people in a given tax year, and must submit annual taxes for those individuals. Given the complexity associated with such tax

submissions, it is assumed that all the firms either utilize the services of an accountant or complete their tax reports with electronic software. For this reason, most of the no-match employees will likely be in some type of electronic database at the time the no-match letter is received. We do include costs for extracting that information. Employers are also required by law to maintain a copy of each employee's I-9 form for at least 3 years after the employee has separated. Therefore, each employer should already have a system for tracking relevant employee information over time.

Termination and replacement costs for unauthorized workers also are not included in the analysis. Such costs include expenses for the administrative functions related to the termination, costs of finding an appropriate replacement (advertising, interviewing applicants, background checks, etc.), and lost productivity. The termination and replacement of unauthorized employees will impose a burden on employers, but the INA expressly prohibits employers from knowingly hiring or knowingly continuing to employ an alien who is not authorized to work in the United States. Accordingly, these costs that result from employers' knowledge of their workers' illegal status are attributable to the INA[27] and to other actions setting out DHS's definition of "knowledge," not to the no-match rule and its provision of a safe harbor. Similarly, any costs incurred by seasonal employers who face difficulties in hiring new employees in the place of returning workers previously listed on SSA no-match letters are attributable to the INA's bar to knowingly hiring workers who are not authorized to work in the United States.

As the no-match rule and safe-harbor procedures are publicized in the mainstream media, employers of potentially unauthorized workers may begin to consider their options and how they would respond to the receipt of a no-match letter, even if they do not receive a no-match letter based on their filings for the 2007 tax year. Because the no-match rule's safe-harbor procedures only come into play when an employer actually receives a no-match letter, any costs associated with such an announcement effect likely do not constitute "compliance" costs of the no-match rule, even under the expansive use of that term we make for purposes of this analysis. Furthermore, the only costs that an employer might incur in advance of receiving an actual no-match letter are certain human resources training and system development costs laid out in more detail below, and as that discussion shows, these costs are not significant. We also note that the employers most likely to take such steps in anticipation of future no-match letters are those that have a consistent track record of receiving such letters, or that are in economic sectors such as agriculture, construction, hospitality, and other services where many firms have been receiving no-match letters for years. Such "announcement effect" investment in the near term may reduce the total expense to small employers who eventually follow the safe-harbor procedures once no-match letters arrive, since the firms will be able to train their staff at their leisure—e.g. through regularly scheduled seminars—rather than through consulting or other potentially costlier arrangements to which employers might resort when faced with the safe-harbor's deadlines that begin to run once no-match letters actually arrive. Thus, not only do we conclude that any costs of this "announcement effect" will be insignificant, but we also believe that the "announcement effect" will

[27] Section 274A(a)(1), (2) of the Immigration and Nationality Act (INA), 8 U.S.C 1324(a)(2).

likely result in savings to the total costs employers face should they ultimately receive a no-match letter and decide to adopt the safe-harbor procedures in DHS's no-match rule.

III.A Employee Separations Prior to a Firm's Receipt of a No-Match Letter

A significant percentage of the costs of implementing the rule's safe-harbor procedures results from employees who are currently on staff and who are the subject of a no-match letter. As explained in more detail below, employees who are no longer with the firm will result in lower compliance costs in comparison to employees who still work for the company. For example, current employees may need to meet with HR staff and/or could need to have corrected W-2s submitted to SSA; neither of these costs would apply to an individual listed on a no-match letter who had already separated from the firm. For this reason, it was necessary to estimate the number of employees with mismatches who will have left the company when it receives the no-match letter. Companies that receive no-match letters will need to match the listed SSNs with their current employees; other than this administrative cost, separated employees are not included in any of the other variable cost calculations.

As part of its Job Openings and Labor Turnover Survey (JOLTS) program, BLS publishes monthly and annual employee separation[28] rates for non-agricultural industries. In Appendix C, these rates are combined with information on the distribution of affected employers across industries; the result is a weighted average separation rate of 57.1 percent that is specific for this analysis.

The weighted average separation rate was multiplied by the number of no-match employees in each size class to estimate the number of workers with mismatches who will have separated from their employers before the employers receive their no-match letters.[29] The separations were then subtracted from the total number of workers with mismatches to estimate the current number of workers with mismatches that remain on staff when the firms receive their letters. These estimates are provided below.

The results of these calculations are shown in Exhibit 10. The second column in the exhibit shows the total number of employees listed on the no-match letters that employers will receive. The figures in the third column (the estimated number of employee separations) are equal to 57.1 percent times the numbers in the second column (total number of no-match employees). The numbers in the fourth column are simply the numbers in the second column minus the figures in the third column.

[28] Includes both voluntary and involuntary separations.

[29] Note that the separation rates are annual rates. Therefore, the accuracy of the separation estimates depends upon when the no-match letters are sent out. These estimates could be understated if the letters are not sent out until late 2008. On the other hand, actual separations for future tax years could be lower than what is currently estimated if the majority of the letters are mailed before one year has elapsed.

Exhibit 10: Number of Employees on No-Match Letters Who Separate Prior to Firms' Receiving Letters			
Employment Size Class	Total Number of No-Match Employees[30]	Number of No-Match Employee Separations Prior to Firm's Receipt of No-Match Letter[31]	Number of Current No-Match Employees on Staff When Firm Receives No-Match Letter[32]
5-9	55,891	31,907	23,984
10-19	353,465	201,787	151,678
20-49	1,111,563	634,572	476,991
50-99	782,117	446,497	335,620
100-499	4,984,098	2,845,333	2,138,764
500+	1,876,525	1,071,275	805,250
Total	9,163,658	5,231,371	3,932,287

III.B Number of Authorized and Unauthorized Employees Affected

To compute the costs of complying with the no-match rule, an estimate must be made about the number of authorized and unauthorized workers who are on the no-match list that employers receive. Unauthorized workers are unlikely to attempt to reconcile their information with SSA records and will probably quit or be terminated at the end of the 93-day period. As a result, we assume that unauthorized workers will not give rise either to the same sort of productivity costs (e.g., taking off work to visit an SSA office) or administrative costs (e.g., sending in a corrected W-2 form) associated with authorized workers. Of course, the employer will incur termination and/or replacements costs when an unauthorized employee is terminated or voluntarily departs; as discussed above, however, those costs are attributable to the INA and not to the no-match rule (see footnote number 27 and corresponding discussion).

Numerous sources were reviewed for information that could be used to develop a point estimate of the number of unauthorized workers that will be affected by the no-match letters. These sources are reviewed in Appendix F. It was not possible to draw any definitive conclusions from these materials and we were unable to find a point estimate upon which to base the cost estimates. While some industry representatives have publicly stated that 70 percent or more of their workforce is unauthorized, we assume such figures, if accurate in certain cases, are not representative of all businesses that receive no-match letters. Given the large amount of uncertainty about the percentage of workers listed in no-match letters who are unauthorized to work, the cost estimates are developed for the following five category assumptions about the percentage of the no-match employees who are unauthorized:

[30] See Appendix A for information on data sources and derivation of the numbers.
[31] The numbers in this column are equal to the number in the second column multiplied by 57.1 percent.
[32] The numbers in this column equal the difference between the second and third columns.

Exhibit 11: Categories Representing the Percentage of No-Match Employees Considered to Be Unauthorized
10%
20%
40%
60%
80%

These percentages were used in conjunction with the number of no-match employees currently on staff at the firms who received the letters (see Exhibit 10 above) to estimate the number of authorized and unauthorized employees who will be affected by the rule (shown in Exhibits 12 and 13). The figures in Exhibit 12 are derived by multiplying the numbers in the last column in Exhibit 10 (the number of no-match employees on staff when the firms receive their letters) by the percentages at the top of each column in Exhibit 12. For example, in Exhibit 10 it is estimated there will be 23,984 no-match employees on staff at firms in the 5-9 employee size class when those firms receive their no-match letters; multiplying 23,984 by 10 percent yields 2,398: the estimated number of unauthorized employees for the 5-9 employment size class shown under the 10-percent assumption in Exhibit 12.

Exhibit 12: Estimated Number of Unauthorized No-Match Employees by Size Class[33]

Employment Size Class	Percentage of No-Match Employees Assumed to Be Unauthorized				
	10%	20%	40%	60%	80%
5-9	2,398	4,797	9,594	14,390	19,187
10-19	15,168	30,336	60,671	91,007	121,342
20-49	47,699	95,398	190,797	286,195	381,593
50-99	33,562	67,124	134,248	201,372	268,496
100-499	213,876	427,753	855,506	1,283,258	1,711,011
500+	80,525	161,050	322,100	483,150	644,200
Total	393,229	786,457	1,572,915	2,359,372	3,145,830

The figures in Exhibit 13 are derived in a similar fashion. However, since the table refers to authorized employees instead of unauthorized employees, the numbers in the last column in Exhibit 10 (the number of no-match employees on staff when the firms receive their letters) are multiplied by one minus the percentages at the top of each column in Exhibit 12. For example, in the second column first row, 21,585 is 90 percent of 23,984. Another way to calculate the figure is to subtract the corresponding estimate of unauthorized employees in Exhibit 12 from the total number of current employees in Exhibit 10. For example, 21,585 also equals 23,984 minus 2,398.

[33] This table includes only the number of no-match employees on staff when the firm receives the no-match letter. See Exhibit 10 for details.

Exhibit 13: Estimated Number of Authorized No-Match Employees by Size Class[34]					
Employment Size Class	Percentage of No-Match Employees Assumed to Be Authorized				
	90% (10% Unauthorized)	80% (20% Unauthorized)	60% (40% Unauthorized)	40% (60% Unauthorized)	20% (80% Unauthorized)
5-9	21,585	19,187	14,390	9,594	4,797
10-19	136,510	121,342	91,007	60,671	30,336
20-49	429,292	381,593	286,195	190,797	95,398
50-99	302,058	268,496	201,372	134,248	67,124
100-499	1,924,888	1,711,011	1,283,258	855,506	427,753
500+	724,725	644,200	483,150	322,100	161,050
Total	3,539,059	3,145,830	2,359,372	1,572,915	786,457

III.C Wage Rates

Hourly wage rates were needed to compute the opportunity costs of individuals who would be administering the safe-harbor procedures. Wage rates were also needed for the employees referred to in the no-match letters and who had to take time off work to correct their SSA records.

In addition to the employee, it was assumed that five occupations will be responsible for carrying out the safe-harbor process:

- Lawyer
- Accountant
- Compensation and Benefits Manager
- Compensation, Benefits, or Employment Specialist
- Human Resources Assistant

For each of these occupations, average hourly wage estimates by State were obtained from the U.S. Bureau of Labor Statistics (BLS).[35] Average wages were used instead of median wages to be consistent with the other cost and revenue estimates that are computed on an average basis. A weighted average of these State wages was then developed by using as weights the percentage of no-match letters to be sent to each State for Tax Year (TY) 2006.[36] It should be noted that the employer address on a W-2 is occasionally a different State than where the employee actually works. This can happen

[34] This table includes only the number of no-match employees on staff when the firm receives the no-match letter. See Exhibit 10 for details.

[35] U.S. Bureau of Labor Statistics, Department of Labor, Occupational Employment Statistics (OES) Survey, May 2006.

[36] The percentage of no-match letters sent to each State was derived from SSA, *EDCOR Notices by State TY 2006 – 080407*. It was initially thought that the weighted averages would be more appropriate than national averages, but on comparison the two series turned out to be extremely close. With the exception of the Human Resources Assistant, all the differences were less than 65 cents. The weighted average wage for the Human Resources Assistant was $2.32 higher than the national average. See Appendix G for more information on how the wage rates were computed.

for example when the payroll processing unit is located at a different site than the firm's other establishments.

These weighted averages reflect salary information but do not include benefits, which need to be included to reflect the true opportunity cost of the employees' time. A multiplier of 1.43 was used to put the weighted average wages on a loaded basis. The multiplier was derived from June 2007 data on total compensation per hour and average hourly wages, recently released by BLS in its *Employer Costs for Employee Compensation*[37] report. According to the report, civilian workers in June 2007 received an average hourly wage of $19.38 per hour and an additional $8.37 per hour for benefits. Benefits included retirement and savings, Social Security, Medicare, unemployment insurance, workers' compensation, paid leave (vacations, holidays, sick leave, and other leave), and other insurance benefits (life, health, and disability). Together, the combined wage and benefit figures represent a total compensation of $27.75 per hour. Dividing this total compensation by the $19.38 wage rate yields the multiplier of 1.43.

The wages are presented below in Exhibit 14. Note that the loaded hourly wages in column 3 are equal to the product of 1.43 and the corresponding weighted average hourly wages in column 2. For example: in the first row, 78.75 = 55 X 1.43.

Exhibit 14:
Estimated Occupational Wage Rates ($)

Occupation	Weighted Average Hourly Wage	Loaded Hourly Wage
Lawyer	55	78.75
Accountant	29	41.52
Compensation & Benefits Manager	40	57.28
Compensation/Benefits/Employment Specialist	26	37.23
Human Resources Assistant	17	24.34

In addition to these occupational wage rates, it was necessary to capture the value of lost time for any employee listed on a no-match letter. Since employees listed on no-match letters span the gamut of occupations, an average labor rate across all occupations was used for this purpose. Again, a weighted average wage rate was developed. For each State, a single average wage representing all occupations was obtained from the same BLS source listed below; these wages were then weighted by the percentage of no-match letters to be sent to each State for TY 2006. The sum of the weighted wages was $19.26 per hour, the weighted average wage rate used in the analysis. The corresponding loaded rate is $27.58.

[37] U.S. Bureau of Labor Statistics, *Employer Costs for Employee Compensation*, September 20, 2007. This program is based on the National Compensation Survey, which measures employment costs for private and State and local government employers.

III.D Legal Costs

For various reasons, firms may seek legal counsel if they receive a no-match letter. To estimate the corresponding costs incurred by business, information and assumptions were developed for the number of legal hours that will be purchased,[38] the average cost per hour, and the number of firms that will seek advice.

In terms of the number of legal hours that a firm is expected to buy, lawyers who are familiar with the issue will take less time, whereas other lawyers who are not familiar with the issue will spend more time. We believe that legal counsel would be retained by an employer primarily to help the employer better understand the voluntary safe-harbor procedures outlined in the rulemaking and to advise if the procedures an employer used to deal with a no-match letter meets the standard contained in the no-match rule. If an employer receives a no-match letter in multiple years, we believe that the employer would be less likely to need the advice of legal counsel once an employer has already consulted with an attorney and put into place measures to voluntary comply with the safe-harbor rulemaking. Consequently, we believe the need for legal counsel, to the extent there may be a need, to be a "start-up" cost. We estimate that counsel will spend 8 to 40 hours and providing guidance. For purpose of analysis, we assume an average of 24 hours or 3 work days.

In terms of the hourly cost that will be incurred, some firms will have lawyers on staff whereas other firms will have to hire the services of a legal firm. For purposes of this analysis, the costs of these two services (i.e., in-house versus outsourced) should be fairly similar since the opportunity cost of the in-house lawyer should approximate the rental fee of the outsourced lawyer. Shown in Exhibit 14 above, the hourly cost for legal services was estimated to be $78.75.

Not all firms will seek legal advice, and it was therefore necessary to make an assumption about the percentage of firms that will pursue this option. Lacking any tangible data on the topic, we assumed that 50 percent of the firms that receive no-match letters will seek legal counsel.[39]

Based upon these assumptions, the average legal cost per firm was estimated to be $945 ($78.75 per hour X 24 hours X 0.5).

III.E Accounting Costs

Firms will incur some accounting costs associated with submitting corrected W-2s to SSA. Employers will submit such corrections only for authorized employees who are able to resolve their no-matches. To estimate the corresponding costs incurred by business, information and assumptions were developed for the number of hours required

[38] Firms who turn to in-house lawyers are still considered to be purchasing time from those individuals.
[39] An abundance of legal white papers on the no-match issue can be found on the Internet. It is assumed that many employers will turn to such material rather than hiring legal counsel.

by an accountant. These hours were multiplied by the average cost per hour for an accountant ($41.52 as shown in Exhibit 14 above) to generate the cost estimates.

It is assumed that for 98 percent of the current authorized employees an accountant will spend one-quarter hour completing a W-2c (a form representing a corrected W-2). Since only name or SSN changes will be submitted, the amount of time required should be minimal: in other words, no changes to the payroll data will be involved. A W-2c will not need to be completed for unauthorized employees or authorized employees who are terminated at the end of the 93-day safe-harbor period. As discussed in Section III.J, it is assumed that 2 percent of the current authorized employees listed on the no-match letter will be terminated.

It is also assumed that the W-2cs along with a single W-3c (a transmittal form for corrected wage and tax statements) will be submitted in batch after all of the no-matches have been resolved. For each firm that receives a no-match letter, it is estimated that an accountant will spend one-half hour filling out the W-3c and sending the batch to SSA.

The average accounting costs per firm are presented by size class in Exhibit 15. The costs depend upon the number of authorized and unauthorized employees assumed to be on staff when the firm receives the no-match letter. Therefore, the table depicts different cost estimates for the different assumptions regarding this matter. For each given size class, note that the costs decrease as the percentage of no-match employees who are assumed to be unauthorized increases. This result is because fewer W-2 corrections are needed as the number of authorized employees decreases.

Exhibit 15:[40]
Average Accounting Costs Per Firm by Employment Size Class ($)

Employment Size Class	Percentage of Current No-Match Employees Assumed to Be Unauthorized				
	10%	20%	40%	60%	80%
5-9	66	61	51	41	31
10-19	77	70	58	46	33
20-49	115	105	84	63	42
50-99	153	138	109	79	50
100-499	603	538	409	279	150
500+	932	831	628	426	223

In order to show a sample calculation, we are going to show how the $66 in the 5-9 "Employment Size Class" row in Exhibit 15 was derived:

Completion of the W-2cs = 0.25 hour X $41.52 X 0.98 X 21,585 employees[41] = $219,571
Completion of the W-3cs = 0.5 hour X $41.52 X 4,866 employers [42] = $101,018

[40] See Appendix H for information on the derivation of these numbers.
[41] See Exhibit 13 for this number.
[42] See Exhibit 4 for this number.

Total cost of W-2cs and W-3cs = $219,571 + $101,018 = $320,589
Total cost of W-2cs and W-3cs on a per employer basis = $320,589/4,866 employers = $66

III.F HR Labor Costs to Administer Safe-Harbor

Assumptions about the Resolution of No-Matches

Two major assumptions are made about how no-matches are resolved through the safe-harbor process. The first assumption concerns the extent to which errors are detected and corrected at different stages in the process. The assumption is necessary since the administrative burden varies by stage and the corresponding costs depend upon the number of employees going through each stage. For authorized employees who are on the no-match list, there are three places in the process where an error could be detected and corrected. The first place occurs during the firm's initial review of the employee's records, which determines if the no-match is due to a clerical error. The second place in the process occurs when the employee is able to identify an error in the employer's records (e.g., a name change due to a marriage or divorce). The third and final place occurs when employees have to resolve their no-matches through interaction with the SSA and perhaps other government agencies. In the absence of any data on the subject, it is assumed that one-third of the authorized employee no-matches will be identified and corrected during each of the first two stages. The remaining one-third of authorized employees are assumed to go through the steps in the third stage, which will help resolve most of those no-matches; however, as specified in Section III.J, it is assumed that 2 percent of the authorized employees will not be able to resolve their no-matches and will be terminated at the end of the 93-day period.[43] In regard to unauthorized workers, it is assumed that they will go through the first two stages, but will not take any actions in the third stage such as contacting SSA.

The second assumption concerns the possible termination of authorized employees. Kenneth Apfel, the former Commissioner of SSA between 1997 and 2001, has expressed concern "that there will be many legally authorized workers who cannot resolve a mismatched earnings report by any arbitrary deadline."[44] However, it needs to be realized that employers incur a cost when they terminate an employee. It takes time and money (e.g., advertising expenses) to find a replacement and the new employee may have to be trained to do the job. If they are available, employers will pursue measures that are less costly than termination. Because it is in their financial interests, we assume that employers will be proactive and will choose to help their employees navigate the process of resolving their no-matches. Such activities will help expedite employees through the process and will help eliminate unnecessary terminations. As discussed in Section III.J, the cost estimates are based on the assumption that 2 percent of the authorized employees

[43] In other words, 31.33 percent (33.33% - 2%) of current authorized employees are assumed to resolve their no-matches in the third stage.
[44] Declaration of Kenneth S. Apfel in Support of Temporary Restraining Order and Preliminary Injunction, Plaintiff's Memorandum in Support of Motion for Temporary Restraining Order and Preliminary Injunction, AFL-CIO v. Chertoff, No. 07-4472-CRB, D.E. 6, ¶ 17 (N. D. Cal. Aug. 29, 2007).

could be terminated. All unauthorized employees are assumed to separate from the employer at the end of the 93-day period.

Form Letters

For each firm, it is assumed that staff will write several different form letters that the firm will use to communicate with affected employees and which employees can use to communicate with various government agencies. Examples of such letters can already be found on the Internet.[45] It is assumed that a Compensation and Benefits Manager (or equivalent) will spend one-quarter hour in this endeavor and that a Compensation/Benefits/Employment Specialist (or equivalent) will spend one-half hour. This cost amounts to $32.93 per firm and does not depend upon the number of authorized or unauthorized employees at the company.[46]

Identification of Employees Listed on the No-Match Letter

Each no-match letter includes a list of the questionable SSNs (but not the corresponding names) that were submitted by the employer on the W-2s. When an employer receives the letter, one of the first things it will need to do is identify the employees on the list and determine whether they are still working for the company. To accomplish this screening, it is assumed that each employer will generate a list of current employees that contains at a minimum SSN and employee name, and which is sorted by SSN. Some firms will utilize in-house resources to produce the list (e.g., by having a payroll clerk query a database), whereas other firms will need to procure the list from their accountant or their payroll processing company. Once the list of current employees is generated, it is assumed that an HR Assistant (or equivalent) will then spend one-quarter hour comparing the SSNs on the no-match letter with the SSNs on the list of current employees.[47] The cost of generating or procuring the report of current employees is assumed to be $175. The cost of the HR Assistant's time is $6.09 (24.34 X 0.25). The total cost for the activity is estimated to be $181.09.

Review of Employee Records

The identification of the current employees on the no-match letter will be followed by a review of each employee's file to check if any clerical errors were made on his/her W-2. It is assumed that a Compensation/Benefits/Employment Specialist (or equivalent) will spend one-quarter hour per current no-match employee to identify the no-match employees and conduct the review. These costs depend upon the number of no-match employees who will have separated from the company before it receives the no-match letter; in other words, the costs are computed for each remaining employee regardless of

[45] For example, see Morgan Lewis and Bockius LLP, *Social Security No-Match Letters*, white paper, September 2007, pp. 4-5, http://www.morganlewis.com/pubs/SocialSecurityNo-MatchLetters_WhitePaper.pdf

[46] This value is equal to the loaded wage rate of the compensation and benefits manager * 0.25 hours plus the loaded wage rate of the compensation and benefits specialist * 0.5 hours: or ($57.28 * 0.25) + ($37.23 * 0.5).

[47] Note that in a test it took us less than 5 minutes to screen 100 SSNs. On average, there will be approximately 65 employees listed on each no-match letter.

whether the employee is authorized or unauthorized. See Appendix I for more information on these costs.

Initial Letter to Employee

If no clerical errors are found during the initial record check, it is assumed that the employer will make a written request to the employee, asking him/her to verify that the company has the correct name and SSN. We assume that an HR Assistant (or equivalent) will be responsible for filling out a form letter, printing it, and mailing it to the employee. It is estimated that it will take one-tenth of an hour per letter to accomplish this task. The total number of letters is computed as the number of current unauthorized employees plus two-thirds of the current authorized employees.[48] See Appendix I for more information on these costs.

Initial Meeting with Employee

It is assumed that all of the no-match employees who receive the written request for name/SSN verification will meet with a Compensation/Benefits/Employment Specialist (or equivalent) to review the information the company has on file.[49] This meeting is expected to take 15 minutes. There is also an opportunity cost on the employee's time, which is discussed separately below.

HR Assistance Rendered to Employee

It is assumed that one-third of the remaining authorized no-match employees will not have their no-matches resolved during the initial record check or during the employees' first meeting with HR. These employees will have to interact with SSA and other government agencies in order to resolve their no-matches. For reasons stated above, the employer is expected to provide assistance in this matter. Assistance could include help in drafting letters, filling out forms, contacting government agencies to request documentation, or other miscellaneous matters. We assume that this assistance will include 1 hour of labor from a Compensation/Benefits/Employment Specialist (or equivalent), 15 minutes of which will be spent meeting with the employee for a second time, and 45 minutes of which will be spent on other related matters in which the employee is not directly involved. Regarding unauthorized employees, it is assumed that they will not seek HR assistance.

Cost Estimates

Exhibit 16 presents the HR labor costs required to administer the safe-harbor procedures. The costs depend upon the number of authorized and unauthorized employees assumed to be on staff when the firm receives the no-match letter. Therefore, the table exhibits different cost estimates for the different assumptions regarding this matter. For each

[48] It is assumed that one-third of the authorized employees were able to resolve their no-match status during the initial record review.

[49] In other words, it is assumed that individual meetings will be held with all of the remaining unauthorized employees plus two-thirds of the remaining authorized employees. It is assumed that one-third of the remaining authorized employees were able to resolve their no-match status during the initial record review.

given size class, note that the costs decrease as the percentage of no-match employees who are assumed to be unauthorized increases. This finding results primarily from the assumption that only authorized employees will seek HR assistance to help resolve their no-match discrepancies. As a result, the costs decrease as the number of authorized no-match employees decreases.

Exhibit 16:
Average HR Labor Costs Per Firm by Employment Size Class ($)

Employment Size Class	Percentage of Current No-Match Employees Assumed to Be Unauthorized				
	10%	20%	40%	60%	80%
5-9	355	351	343	335	326
10-19	390	385	374	364	354
20-49	505	496	478	461	443
50-99	622	609	585	560	536
100-499	2,032	1,978	1,870	1,762	1,654
500+	3,065	2,980	2,811	2,642	2,473

In order to show a sample calculation, we are going to show how the $355 in the 5-9 "Employment Size Class" row in Exhibit 16 was derived:

Cost of Form Letters = $32.93 X 4,866 employers[50] = $160,237
Cost of Identifying Employees on No-Match Letter = $181.09 X 4,866 employers = $881,184
Cost of Reviewing Employee Records = 0.25 hour X $37.23 X 23,984 employees[51] = $223,231
Cost of Initial Letter to Employee = 0.1 hour X $24.34 X 16,788 employees[52] = $40,862
Cost of Initial Meeting with Employee = 0.25 hour X $37.23 X 16,788 = $156,254
HR Assistance to Employee = 1 hour X $37.23 X (1/3 X 21,585 employees[53]) = $267,870

Total of HR Labor Costs from above = $160,237 + $881,184 + $223,231 + $40,862 + $156,254 + $267,870 = $1,729,638

Total Cost of HR Labor Cost on a Per Employer Basis = $1,729,638/4,866 employers = $355

III.G Cost of Employee Time

The employer incurs costs in the form of lost productivity whenever the employee has to deal with the no-match issue by taking time off work or by engaging in activities not

[50] See Exhibit 4 for this number.
[51] See Exhibit 10 for this number.
[52] The number 16,788 is derived from adding the 2,398 unauthorized employees from Exhibit 12 to two-thirds of the 21,585 authorized employees from Exhibit 13: ((2,398) X 2/3 (21,585)) = 16,788.
[53] See Exhibit 13 for this number.

directly related to his/her job. These costs are considered to be the value of the employee's time multiplied by the number of hours that are lost.

There are four occasions when these costs come into play. First, all of the remaining no-match employees except for one-third of the remaining authorized employees (whose no-matches are assumed to be resolved during the initial review) have an initial meeting with HR. One-third of the remaining authorized no-match employees are also expected to have a second follow-up meeting. It is assumed that each meeting will require 1 hour of the employee's time, which includes the time it will take the employee to get to the meeting and back to his/her work station (we assume 15 minutes of actual meeting time plus 45 minutes that include waiting and travel time).

Third, the employees who have the follow-up meeting are also expected to have to take a full day off work (i.e., 8 hours) to visit an SSA office. This 8-hour estimate is based on a combination of judgment and two DHS reports on the E-Verify program (formerly known as the Web-Based Basic Pilot). E-Verify is an Internet-based system operated by the Department of Homeland Security in partnership with the Social Security Administration. The program allows participating employers to electronically verify the employment eligibility of their newly hired employees.

Under E-Verify, when a person's information (name, date of birth, and SSN) doesn't match, that person is flagged with a "tentative non-confirmation" and must visit an SSA office. As part of an evaluation of the program, employees who received non-confirmations were interviewed about the costs that they subsequently incurred. As stated in one of the reports:

> Most of the 28 employees that went to an SSA office reported that they did not have to spend much time at the local SSA offices either waiting or speaking with a representative. Three employees reported having to wait for approximately 2 hours, and two employees reported the process took them all day. Another employee took the whole day off and lost that day's wages because he was not sure how long the process would take. [54]

An earlier Westat report also discussed the amount of personal time that employees needed to take off work to resolve work authorization issues:

> Among the employees who contacted SSA or INS to clear up their work-authorization problems (n=67), close to half reported using personal time. The amount of personal time spent resolving these problems ranged between 1 and 16 hours, with an average of 4 hours per employee. Forty-five percent needed time off from work, and more than a third missed time at work. The work time lost ranged between 1 and 16 hours, with an average of 5 hours.[55]

[54] Westat, *Interim Findings of the Web-Based Basic Pilot Evaluation*, report prepared for the Department of Homeland Security, December 2006, p. IV-17.
[55] Westat, *INS Basic Pilot Evaluation*, January 2002.

These two Westat reports contain valuable information regarding how long it would take an employee to visit the local SSA office to address the "tentative non-confirmation" received from E-verify. It appears that most of the people needing to visit their local SSA office to update their information were able to do so in less than a day. However, for the purpose of this analysis, we will assume a visit to the SSA will take a full 8 hours, as there may be a small number of employees that require more than one visit to the office.

Finally, employees may need to use the phone during regular business hours to contact SSA or other government agencies. We assume that employers will lose an hour of work from one-third of the current authorized employees due to time spent on the phone.

Exhibit 17 presents the opportunity cost associated with the employees' time. The costs depend upon the number of authorized and unauthorized employees assumed to be on staff when the firm receives the no-match letter. Therefore, the table displays different cost estimates for the different assumptions regarding this matter. For each given size class, note that the costs decrease as the percentage of no-match employees who are assumed to be unauthorized increases.[56] This finding results primarily from the assumption that only authorized employees will take a day off work to visit an SSA office to resolve their no-match discrepancies. As a result, the costs decrease as the number of authorized no-match employees decreases. See Appendix J for more information on how these numbers were calculated.

Exhibit 17:
Average Opportunity Cost of Employees' Labor Time Per Firm
by Employment Size Class ($)

Employment Size Class	Percentage of Current No-Match Employees Assumed to Be Unauthorized				
	10%	20%	40%	60%	80%
5-9	503	462	381	299	217
10-19	623	572	471	370	269
20-49	1,056	970	799	628	456
50-99	1,471	1,351	1,113	874	636
100-499	6,484	5,959	4,907	3,856	2,804
500+	10,158	9,334	7,687	6,040	4,393

In order to show a sample calculation, we are going to show how the $503 in the 5-9 "Employment Size Class" row in Exhibit 17 was derived:

Initial Meeting with HR = 1 hour X (2,398 unauthorized employees[57] + 2/3 X 21,585 authorized employees[58]) X $27.58[59] = $463,013

[56] Recall that although the termination and replacement of unauthorized employees will impose a burden on employers, the INA expressly prohibits employers from knowingly hiring or knowingly continuing to employ an alien who is not authorized to work in the United States. Accordingly, these costs are attributable to the INA, not to the regulations setting out DHS's interpretations of knowledge and providing for a safe harbor.
[57] See Exhibit 12 for this number.
[58] See Exhibit 13 for this number.

Follow-up Meeting with HR = 1 hour X 1/3 X 21,585 authorized employees X $27.58 = $198,438
Phone Calls During Business Hours = 1 hour X 1/3 X 21,585 authorized employees X $27.58 = $198,438
Trip to Local SSA Office = 8 hours X 1/3 X 21,585 authorized employees X $27.58 = $1,587,505

Total of Employee Opportunity Costs = $463,013 + $198,438 + $198,438 + $1,587,505 = $2,447,394

Total of Employee Opportunity Costs on a Per Employer Basis = $2,447,394/4,866 employers[60] = $503

III.H Miscellaneous Administrative Costs

Phone Charges

To help employees resolve their no-match discrepancies, it is assumed that employers will pick up some related phone charges for one-third of the authorized no-match employees (i.e., those authorized employees who did not have their cases resolved during the initial review or during their initial meeting with HR). The employees may need to use the phone during regular business hours to contact SSA about their case or other government agencies about how to obtain required documentation (e.g., a birth certificate). For each of the authorized employees who solicit HR assistance, we assume that the phone expenses will consist of 1 hour worth of phone service at 10 cents per minute ($6 per hour).

Postage

When it sends out its initial request for verification, it is assumed that a firm will spend 50 cents on postage for each current unauthorized no-match employee and two-thirds of the current authorized no-match employees.[61] An additional 50 cents per employee is assumed to be expended on postage for those authorized employees who seek assistance from HR (i.e., one-third of the total authorized no-match employees). This postage will be used to send correspondence to the employee, to request official documents from local and State government agencies, and to submit documentation to SSA. Finally, postage will be needed for the submission of corrected W-2s for those authorized employees who are able to resolve their no-matches.[62] Three copies of the corrected forms will need to be mailed: one to SSA, one to the State government of the employee's resident State, and

[59] Recall that we are using a fully loaded wage rate of $27.58 per hour as a proxy for the opportunity cost of time.
[60] See Exhibit 4 for this number.
[61] It is assumed that one-third of the authorized employees were able to resolve their no-match status during the initial record review.
[62] As discussed in Section III.J, it is assumed that 98% of current authorized employees will be able to resolve their no-matches.

one to the employee.[63] Again, it is assumed that the employer will spend 50 cents on each item that is mailed.

Printing and Paper

Each piece of paper that is printed for documentation purposes or other reasons is assumed to cost $1. We assume that the initial letter that the employer sends to current employees (all unauthorized employees plus two-thirds of the authorized employees whose no-matches were not resolved during the initial review of employee records), requesting verification of name or SSN, will be one page in length. It is assumed that those authorized employees who seek assistance from HR will require an additional 10 pages of printed material that are obtained over the Internet. Such material could include instructions for completing requests for official documents (e.g., a birth certificate), forms that need to be submitted to SSA, et cetera. Finally, the employer will need to print out three copies of the corrected W-2s associated with those authorized employees who are able to resolve their no-matches.

Cost Estimates

Exhibit 18 presents the total miscellaneous costs associated with the no-match rule. The costs depend upon the number of authorized and unauthorized employees assumed to be on staff when the firm receives the no-match letter. Therefore, the table depicts different cost estimates for the different assumptions regarding this matter. For each given size class, note that the costs decrease as the percentage of no-match employees who are assumed to be unauthorized increases. Many of these costs are generated by the authorized employees who seek HR assistance to resolve their no-matches. As a result, the costs decrease as the number of authorized no-match employees decreases. See Appendix K for more information on how these numbers were calculated.

Exhibit 18:
Miscellaneous Expenses Per Firm by Employment Size Class ($)

Employment Size Class	Percentage of Current No-Match Employees Assumed to Be Unauthorized				
	10%	20%	40%	60%	80%
5-9	49	45	35	26	17
10-19	61	55	44	32	21
20-49	103	93	74	54	35
50-99	144	130	103	76	49
100-499	634	574	454	335	215
500+	992	899	711	524	337

In order to show a sample calculation, we are going to show how the $49 in the 5-9 "Employment Size Class" row in Exhibit 18 was derived:

[63] Although some employers will file their corrections electronically with SSA, the cost for printing and mailing corrected W-2s is estimated for all employers.

Cost of Phone Charges = $6 X 1 hour X 1/3 X 21,585 authorized employees[64] = $43,170
Cost of Postage for Initial Request for Verification = $0.50 X (2,398 unauthorized employees[65] + 2/3 X 21,585 authorized employees) = $8,394
Cost of Postage for Authorized Employees Who Seek Assistance from HR = $0.50 X 1/3 X 21,585 authorized employees = $3,598
Cost of Postage for W-2c Forms = $0.50 X 3 copies X 98% X 21,585 authorized employees = $31,730
Total Cost of Postage = $8,394 + $3,598 + $37,730 = $43,722
Cost of Printing Initial Request for Verification Letter = $1 X 1 page X (2,398 unauthorized employees + 2/3 X 21,585 authorized employees) = $16,788
Cost of Printing for Employees Requesting HR Assistance = $1 X 10 pages X 1/3 X 21,585 authorized employees = $71,950
Cost of Printing Corrected W-2s = $1 X 1 page X 3 copies X 98% X 21,585 authorized employees = $63,460
Total Cost of Printing = $16,788 + $71,950 + $63,460 = $152,198
Total of Miscellaneous and Admin Costs = $43,170 + $43,722 + $152,198 = $239,090

Total of Miscellaneous and Admin Costs on a Per Employer Basis: $239,090/4,866 employers[66] = $49

III.I Costs of Research, Management and Internal Meetings

Upon receiving a no-match letter, it is assumed that HR personnel (or equivalent) will need to conduct some research to understand and familiarize themselves with the no-match rule. As part of this familiarization process, HR staff may also need to discuss the issues internally as well as meet with legal counsel. The amount of time dedicated to these activities is expected to be a function of firm size, because larger companies will require more HR personnel to address their relatively greater number of no-matches.

We assume that all firms, regardless of size, will require that a Compensation and Benefits Manager (or equivalent) spend at least 24 hours researching the topic and managing the company's response. As shown below in the second column in Exhibit 19, we assume that this time commitment will increase as the companies become larger. For the two largest size classes, the allotted time could reflect multiple executives who spend time on the matter.

Compensation and benefits specialists (or equivalent) are also assumed to participate in these activities, but to a lesser extent than management. It is assumed that the specialists will provide support to management, conduct research, and may attend some internal meetings. The third column in Exhibit 19 shows the assumed number of hours that the specialists will need to spend in this capacity. Note that many of the expected duties of the specialist have already been identified and valued in previous sections.

[64] See Exhibit 13 for this number.
[65] See Exhibit 12 for this number.
[66] See Exhibit 4 for this number.

For each employment size class, the estimated hours in columns two and three are multiplied by the corresponding wage rates and then summed to produce the cost estimates. The first two rows in the table are equal to 24 hours multiplied by $57.28, the loaded average hourly wage rate for a Compensation and Benefits Manager. For the 100-499 employment size class, $6,071 is equal to $4,582 (the cost of a Compensation and Benefits Manager for 80 hours) plus 40 hours multiplied by $37.23 (the loaded hourly wage for a Compensation and Benefits Specialist).

Exhibit 19:
Costs of Research, Management and Internal Meetings for HR Personnel
By Employment Size Class ($)

Employment Size Class	Labor Hours Spent on Research and Internal Meetings		Average Cost per Firm
	Compensation/Benefits Manager	Compensation/Benefits Specialist	
5-9	24	N/A	1,375
10-19	24	N/A	1,375
20-49	32	8	2,131
50-99	40	16	2,887
100-499	80	40	6,071
500+	100	80	8,706

III.J Employee Replacement (Turnover) Costs

As we have previously explained, termination and replacement costs for unauthorized workers are not included in this analysis as a cost of adopting the safe-harbor procedures in the no-match rule. The INA expressly prohibits employers from knowingly hiring or knowingly continuing to employ aliens who are not authorized to work in the United States, and so the costs that result from an employer's knowledge of certain workers' unauthorized status are attributable to the INA rather than to the no-match rule. However, to the extent the safe-harbor procedures could result in the termination of a worker authorized to work in the United States, such termination and replacement costs could be considered costs resulting from the safe-harbor procedures and not costs resulting from the INA.

Turnover costs include the direct costs of terminating an employee, such as the administrative functions related to the termination, costs of finding an appropriate replacement (advertising, interviewing applicants, background checks, etc.), and additional overtime by other employees to cover for the loss of the terminated employees' services. In addition to these direct costs, employers incur indirect costs such as lost productivity due to the job vacancy and lost productivity due to the learning curve necessary for a new employee to learn a new job.[67]

[67] There are several internet sites that provide a "cost of turnover" worksheet listing the most common types of turnover costs. Examples of these worksheets are found at http://www.uwex.edu/ces/cced/economies/turn.cfm and at http://www.dol.gov/cfbci/turnover.htm.

We expect the termination of authorized workers due to the safe-harbor procedures to happen only under very unusual circumstances. We believe that the employer has an economic incentive to assist authorized workers with correcting the no-match discrepancy (if such assistance is required) as employers would incur turnover costs if an authorized worker was terminated and replaced. Similarly, the authorized worker has an economic incentive to ensure his/her name and SSN properly match SSA's records; both to preserve his/her job, and to ensure that he or she receives full credit for the contributions made into Social Security in order to maximize the amount of Social Security benefits the individual will receive in retirement. Nevertheless, there may be some circumstances in which an authorized employee could be terminated under the safe-harbor procedures. For example, an authorized worker could simply refuse to visit his/her local Social Security office to correct the circumstances causing his/her name and SSN not to match SSA's records. Also, we cannot rule out the possibility that, despite reasonably diligent efforts by the employer and/or employee, they could not resolve the discrepancy within the 93 days as set forth in the no-match procedures. Such situations may arise if an employee was unable to procure documents verifying his/her identity from a State or local authority within a 3-month period. Although nothing in the no-match rule requires an employer to terminate an employee after 93 days, an employer that intends to strictly adhere to the safe-harbor procedures in the rule may decide to terminate the employee and incur the resulting turnover costs.

In order to estimate the cost to the employer of terminating authorized workers due to the safe-harbor procedures, we need to know both the rate at which authorized workers would be terminated and the per capita termination and replacement costs incurred by employers. Unfortunately, we do not have empirical data on which to base an authorized worker termination rate. Due to the previously discussed economic incentives for both the employer and employee to correct no-match discrepancies, we believe the rate would be very low. For the purpose of this analysis, we will assume a termination rate of 2 percent for authorized workers, but we believe this 2-percent estimate to be a conservative (i.e., high) estimate.

Concerning the costs of employee turnover, there are several studies that provide estimates of the costs of employee turnover to the employer on which we can base a rough estimate:

- A study conducted by the *Cornell Hotel & Restaurant Administration Quarterly* and published in year 2000 estimated turnover costs in Miami hotels for several occupations. The cost of turnover was estimated to be $1,333 for room service wait staff, $2,077 for a line cook, $3,383 for a gift-shop clerk, $5,965 for a front-office associate, and $7,658 for an administrative assistant (sales and catering). The authors also estimated the cost of replacing a front office associate in a New York City hotel. A front office associate in New York City was estimated to cost an average of approximately $12,250 to replace.[68] [69] This study was a

[68] Hinkin, Timothy R. and J. Bruce Tracey (June 2000) "*The Cost of Turnover: Putting a Price on the Learning Curve*." Cornell Hotel & Restaurant Administration Quarterly Vol. 41, No. 3, pp. 14-21.

comprehensive analysis of both the direct and indirect costs of turnover and included such indirect costs as lost productivity. The authors noted that "the direct, easily measurable hard costs associated with turnover account for less than half of total costs" and "although over half of turnover's costs are indirect and difficult to measure, they still exist and are felt by the organization."

- A study conducted by the University of Massachusetts Political Economy Research Institute in the year 2000 found that employers located in Santa Monica, California estimated their costs to replace an existing non-managerial worker with a new worker to be $2,090.[70] Workers were predominately from hotels, restaurants, and retail establishments. Replacement costs estimated by employers included separation, search, and training costs, but did not include lost productivity.

- A study conducted in 2004 suggests that "a minimum *direct cost* of turnover per worker of at least $2,500 is supported by the existing empirical literature on frontline turnover costs in long-term care as well as low-wage service employment generally."[71] The author also stated "the *indirect* costs of turnover may be substantial and tend to be overlooked because they are less visible and harder to measure."

- A study conducted by the Coca-Cola Research Council in the year 2000 found that the turnover costs of replacing a supermarket cashier range from $2,286 to $4,313, and the costs of replacing "other hourly personnel" (i.e., baggers and stockers) range from $3,372 to $4,291.[72] [73] This study included both direct costs and opportunity costs.

As we have previously discussed, we do not know which specific companies receive the no-match letters, and the employees listed on no-match letters span the full range of occupations in the United States.[74] Also, the authors of the studies we reviewed noted the difficulty in measuring indirect costs. Given this uncertainty, for the purpose of this economic analysis, we will use an estimate of $5,000 to calculate the turnover costs of authorized employees terminated due to the no-match procedures. A $5,000 estimate is well within the range of turnover costs cited by the literature we reviewed, and we

[69] Using the CPI Inflation Calculator from the Bureau of Labor Statistics, the factor needed to convert year 2000 dollars to year 2007 dollars is 1.22. For example, the cost to replace a gift-shop clerk of $3,383 found in the study in year 2000 is equivalent to a cost of $4,127 in 2007 dollars.

[70] Pollin Robert and Mark Brenner (2000) "*Economic Analysis of the Santa Monica Living Wage Proposal*." Amherst, MA: Political Economy Research Institute, University of Massachusetts.

[71] Seavey, Dorie (October 2004) *"The Cost of Frontline Turnover in Long-term Care."* Better Jobs Better Care Practice & Policy, Institute for the Future of Aging Services.

[72] Frank, Blake (January 2000) "*New Ideas for Retaining Store-Level Employees"* Coca-Cola Retailing Research Council.

[73] Recall that the factor needed to convert year 2000 dollars to year 2007 dollars is 1.22. Therefore, using year 2007 dollars, the turnover cost for replacing a supermarket cashier ranges from $2,789 to $5,262.

[74] While we do not know the specific occupations receiving the no match letters, we have previously presented information that shows the no-match employees are likely to be clustered in the service, retail, and agricultural sectors.

believe it is a reasonable number for purposes of our analysis. Under the assumption that 2 percent of the authorized employees will be terminated, Exhibit 20 presents the average turnover cost per firm across all firms. These figures are tabulated by multiplying the number of authorized employees in Exhibit 13 by 2 percent to determine the number of terminations, then multiplying that product by $5,000 to determine the total cost.

Exhibit 20:
Turnover Cost Per Firm by Employment Size Class ($)

Employment Size Class	Percentage of Current No-Match Employees Assumed to Be Unauthorized				
	10%	20%	40%	60%	80%
5-9	444	394	296	197	99
10-19	550	488	366	244	122
20-49	931	828	621	414	207
50-99	1,297	1,153	865	577	288
100-499	5,720	5,084	3,813	2,542	1,271
500+	8,960	7,965	5,973	3,982	1,991

In order to show a sample calculation, we are going to show how the $444 in the 5-9 "Employment Size Class" row in Exhibit 20 was derived:

Cost of Turnover Due to the Termination of Authorized Employees: 2% termination rate X 21,585 employees[75] X $5,000 turnover costs = $2,158,500

Cost of Turnover Due to the Termination of Authorized Employees on a Per Employer Basis: $2,158,500/4,866 employers[76] = $444

III.K Total Compliance Cost Estimates

In Exhibit 21, the various cost elements have been summed up to produce the total estimated compliance costs on a per firm basis associated with the rule. Each cell in the table shows the average compliance cost per firm for those firms in the designated size class (specified in the first column), assuming that a certain percentage of the no-matches in the size class are unauthorized employees (specified in the third row). The costs in the table range between $3,009 and $33,759. Because DHS does not have adequate data to estimate the percentage of unauthorized employees listed on no-match letters, for the purpose of this analysis, we estimated costs based on various ratios of authorized to unauthorized workers (i.e. 20% unauthorized - 80% authorized) .

In interpreting these costs, please note that these estimates were based on a series of assumptions which are explained in detail previously in this analysis. Consequently, the costs a specific firm incurs due to this rule may be higher or lower than the average firm costs estimated in Exhibit 21.

[75] See Exhibit 13 for this number.
[76] See Exhibit 4 for this number.

Exhibit 21: Total Costs Per Firm by Employment Size Class ($)					
Employment Size Class	Percentage of Current No-Match Employees Assumed to Be Unauthorized				
	10%	20%	40%	60%	80%
5-9	3,737	3,633	3,425	3,217	3,009
10-19	4,020	3,891	3,634	3,376	3,119
20-49	5,786	5,568	5,132	4,695	4,259
50-99	7,517	7,214	6,606	5,998	5,391
100-499	22,488	21,148	18,469	15,789	13,110
500+	33,759	31,660	27,462	23,265	19,067

Costs associated with research, management and internal meetings are the largest cost component and contribute 26 percent to 54 percent of the total costs per firm, with an average of 39 percent. Legal costs account for 16 percent of the total, falling between 3 percent and 32 percent. Together, legal and research/management/internal meetings comprise 55 percent of the total cost. The second largest cost contributor is the loss in productivity when employees have to take time off their normal duties to deal with the no-match issue; this factor accounts for 7 percent to 30 percent of the total costs, with an average of 18 percent. Costs associated with the turnover of authorized employees comprise just over 13 percent of the total costs, ranging between 3 percent and 27 percent. HR labor to administer the program constitutes between 8 percent and 13 percent of total costs; the average for this category is 10 percent. The accounting share is close to 2 percent, ranging between 0.9 percent and 2.8 percent. Miscellaneous expenses make up the remainder, contributing 0.6 percent to 2.9 percent of the total costs per firm, with an average of 1.6 percent.

In Exhibit 22, the costs per firm for the 40-percent category in Exhibit 21 have been mapped against average employment levels per firm for those size classes.[77] A logarithmic trend is evident, showing that the increase in the cost per firm dampens considerably when the employment level moves from 200 employees to 3,300 employees. The same trend occurs for the other assumptions about the percentage of no-match employees made up by unauthorized employees. The trend results from the number of no-match employees per firm, which has a very similar curve that dampens when plotted against the total number of employees per firm (see Exhibit 23). This finding suggests that the total cost impacts are strongly influenced by the variable costs generated by the number of no-matches. The strength of this relationship is demonstrated in Exhibit 24, which shows an almost perfect linear relationship between average cost per firm and the number of no-matches per firm.

[77] Employment per firm data were obtained from Exhibit B.1 in Appendix B.

Exhibit 22:

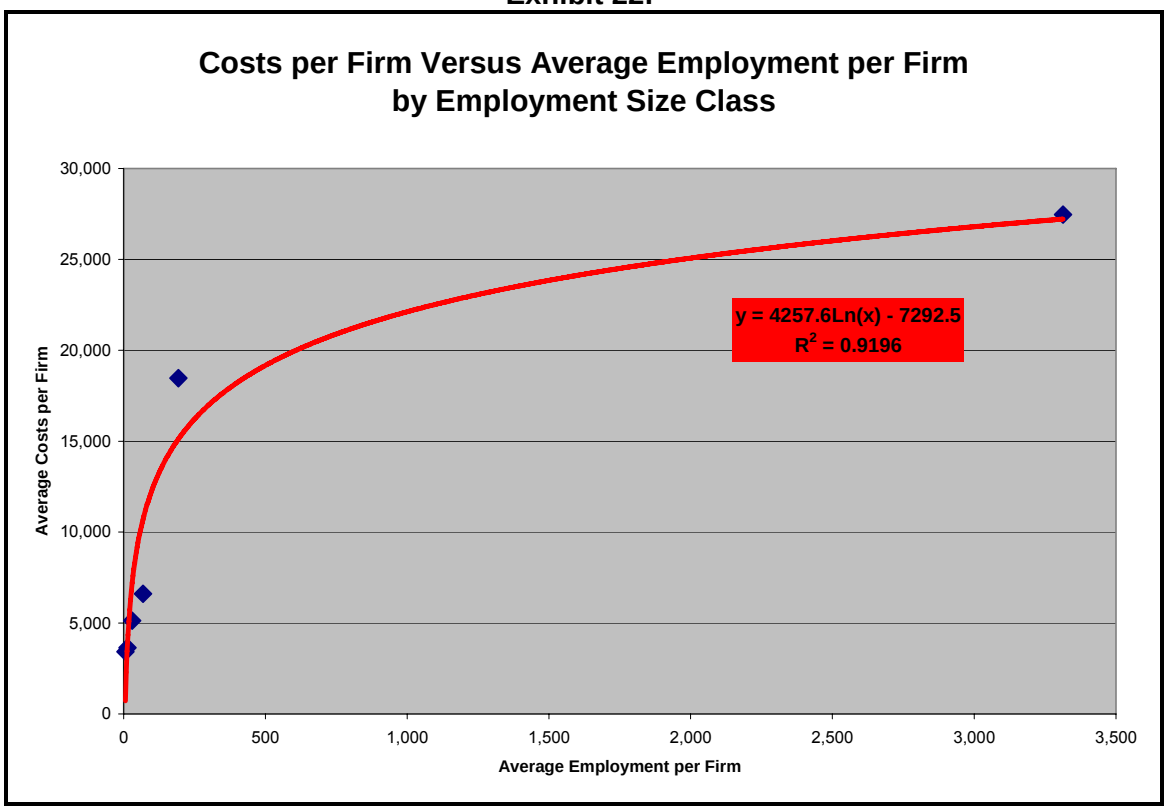


Exhibit 23:

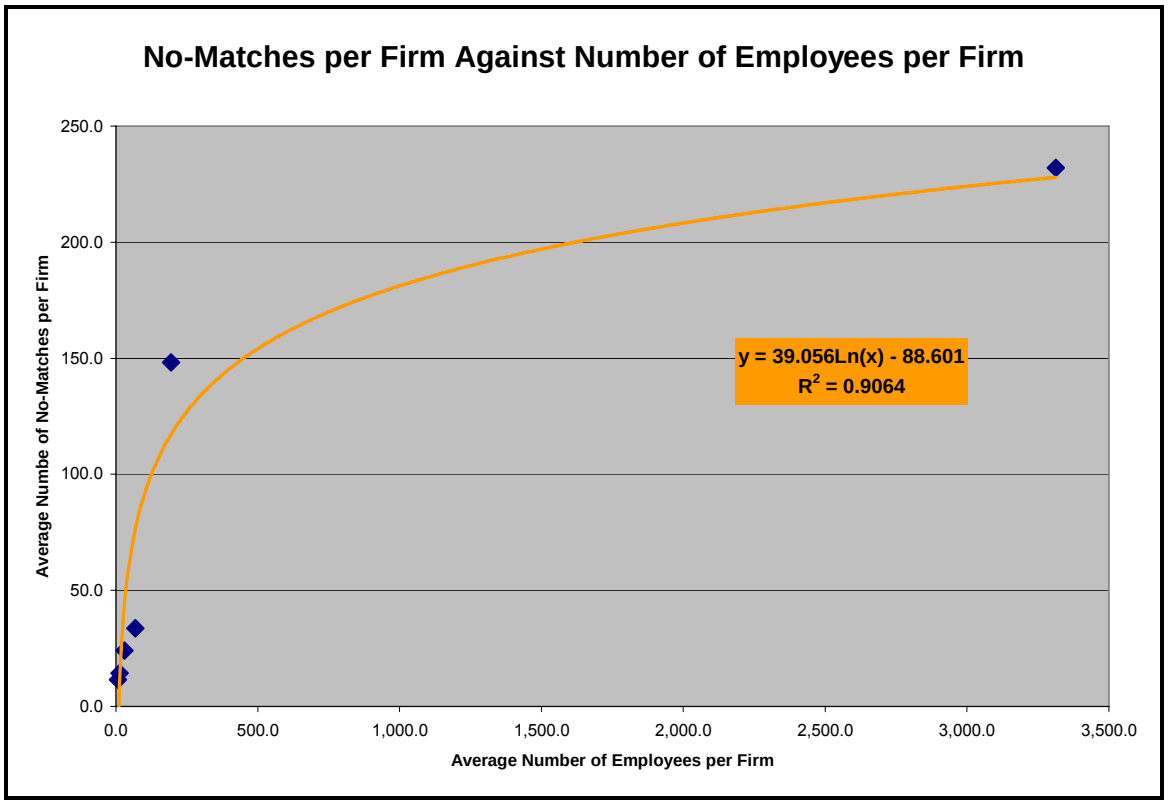
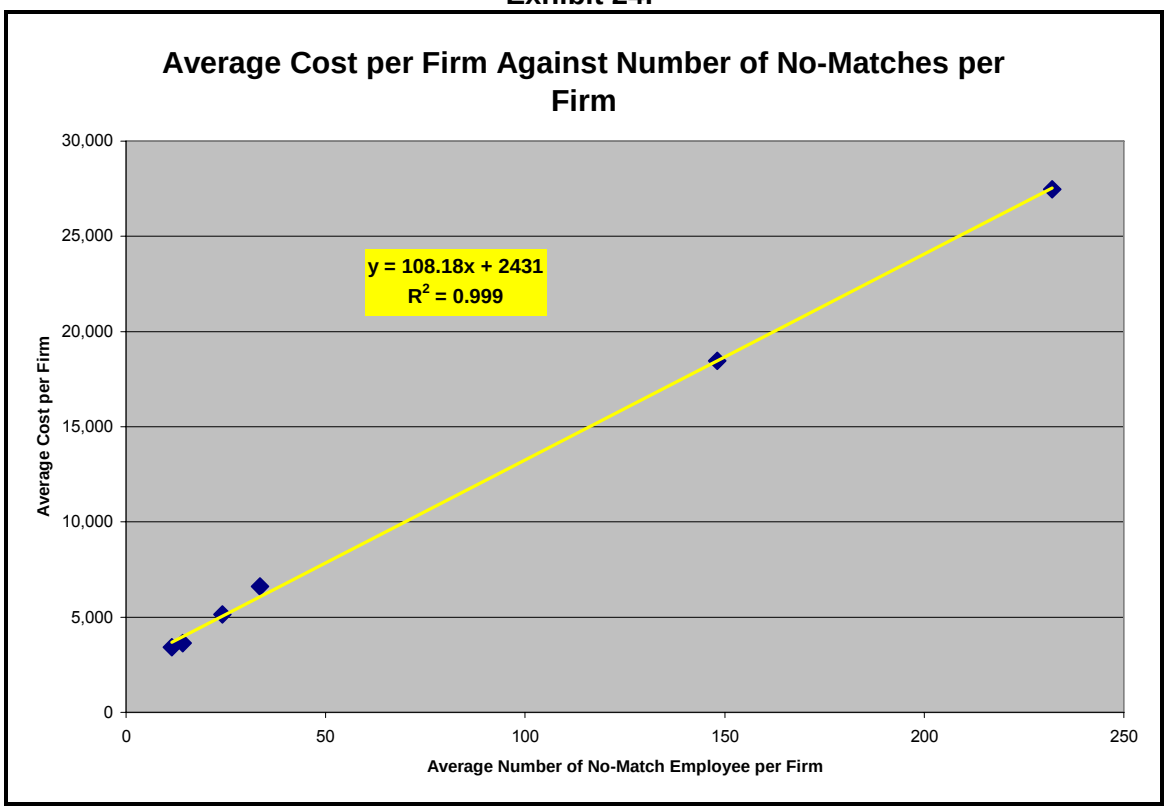


Exhibit 24:



III.L Revenues

To assess the level of cost impacts, average revenues per firm are needed for each size class. In the following section, the revenues per firm are compared with the estimated costs per firm. It is assumed that the average revenues per firm across all firms in the U.S. economy can represent the average revenues per firm for no-match employers.

The methodology used to estimate revenues per firm can be summarized as follows. Estimates of total receipts by employment size class were divided by estimates of the total number of firms by employment size class. Total receipts were estimated by adding farms receipts and total receipts for non-agricultural industries. The total number of firms was estimated in a similar fashion: the number of farms was added to the total number of firms in non-agricultural industries.

Two primary sources of data were used for the computations. For the agriculture sector, the 2002 Census of Agriculture provides data on receipts and other useful information. Regarding these data, it should be noted that both receipts and the number of farms refer only to farms that utilize hired labor. See Appendix D for source information and details on how the agricultural census data were used to estimate receipts and number of farms for the different employment size classes used in the analysis.

For the non-agricultural industries, data for year 2002 on SBA's website include employment, number of firms, and receipts for different employment size classes.[78] One of the employment size classes used to characterize these data (20-99 employees) combines two of the size classes used in this analysis (20-49 employees, and 50-99 employees). For this reason, procedures were developed to allocate the data for the 20-99 employee size class into estimates for the 20-49 and 50-99 employment size classes. Details on this procedure can be found in Appendix L.

Exhibit 25 provides the supporting data and resulting revenue estimates for each employment size class used in the analysis. Note that the revenues per firm have been inflated into 2006 dollars using an inflation factor of 1.12. This factor was obtained from BLS's CPI inflation calculator.[79]

Exhibit 25: Revenues per Firm by Employment Size Class ($)

Size Class	Non-Agricultural Firms (2002)		Farms (2002)		Total (2002)		Receipts per Firm	
	Number*	Revenues	Number	Revenues	Number	Revenues	2002	2006
1-4	2,695,606	937,533,365	434,088	12,493,836	3,129,694	950,027,201	303,553	339,979
5-9	1,010,804	888,342,543	93,972	45,451,517	1,104,776	933,794,060	845,234	946,662
10-19	613,880	1,085,595,864	13,187	16,008,771	627,067	1,101,604,635	1,756,757	1,967,568
20-49	258,819	923,780,691	6,594	22,310,762	265,413	946,091,454	3,564,601	3,992,353
50-99	249,430	1,960,915,957	6,594	50,045,824	256,023	2,010,961,781	7,854,614	8,797,167
100-499	82,334	2,547,423,855	0	0	82,334	2,547,423,855	30,940,120	34,652,935
500+	16,845	13,503,796,863	0	0	16,845	13,503,796,863	801,650,155	897,848,174

*These data are 2002 vintage and correspond to SBA's revenue data which are only available for 2002. Note that the number of firms in Exhibit 4, Exhibit B.1, and Exhibit B.3 are based on SBA size class data for 2004. Although the 2004 data on the number of firms are more recent and detailed than the 2002 data, we believed it was more appropriate to calibrate the 2002 revenue data with the number of firms for 2002.

III.M Impacts

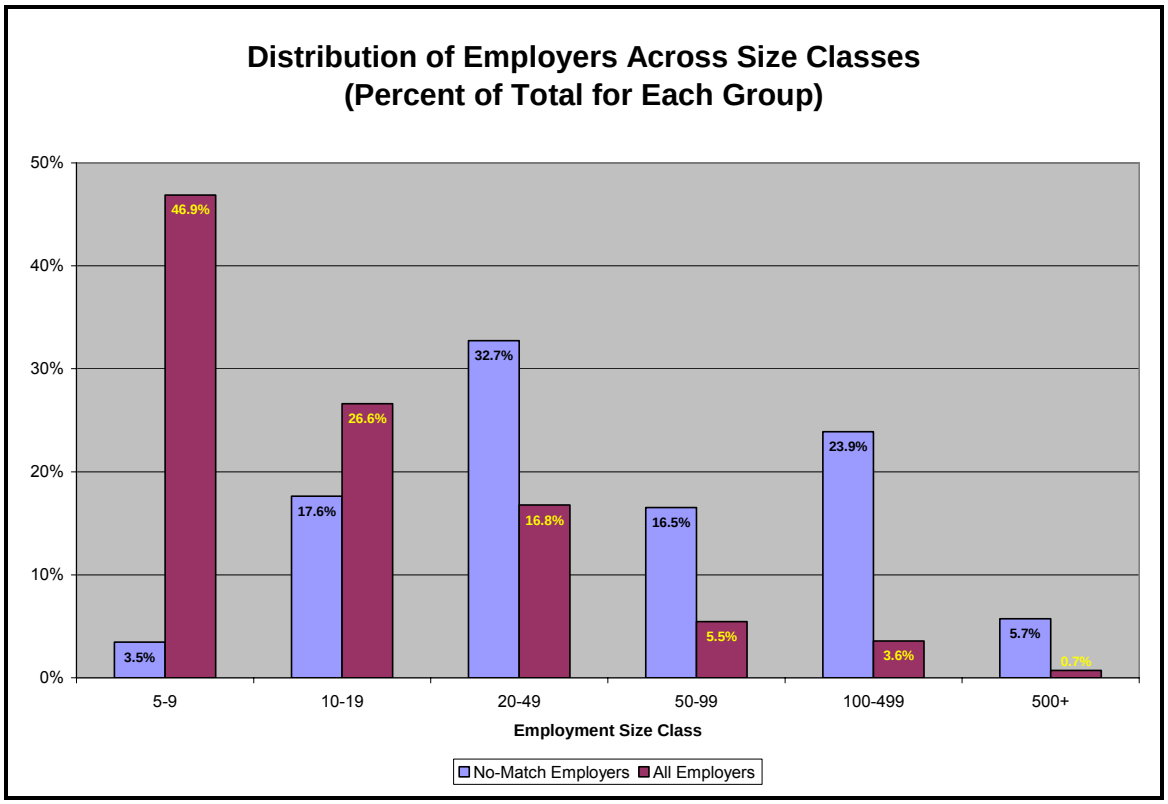
This section consolidates the previous results and presents an analysis of how the Safe-Harbor rule will affect small entities. The discussion looks both at the number of firms that are affected as well as the cost impacts.

Exhibit 26 compares the distribution of no-match employers across employment size classes with the same distribution of U.S. employers.[80] In contrast to the norm, it can be seen that there are relatively more no-match employers in the larger size classes (50 employees or greater) and relatively few employers in the smallest size class. For all

[78] www.sba.gov/advo/research/data_uspdf.xls \us02n_mi.
[79] http://data.bls.gov/cgi-bin/cpicalc.pl.
[80] The percentages in the graph were derived from the estimates presented in Exhibit 4.

U.S. companies, there is a high concentration of firms in the smallest size class (46.9%), which falls to a very small percentage for the largest size class (0.7%). This same pattern is not evident among the no-match employers, which are more highly concentrated in the larger size classes. For example, 46 percent of the no-match companies employ more than 50 people, whereas only 10 percent of all U.S. companies employ more than 50 people. In terms of the number of firms that are affected, the graph illustrates that there is not a disproportionate impact on the smaller size classes.

Exhibit 26:



In the following table, the average cost impacts per firm (shown in Exhibit 21) have been divided by average revenues per firm (Exhibit 25: column 9). The resulting figures help define the extent to which businesses of different sizes will be able to absorb the costs of the compliance requirements.

Exhibit 27:
Costs Per Firm as a Percentage of Revenue per Firm

Employment Size Class	Percentage of Current No-Match Employees Assumed to Be Unauthorized				
	10%	20%	40%	60%	80%
5-9	0.39%	0.38%	0.36%	0.34%	0.32%
10-19	0.20%	0.20%	0.18%	0.17%	0.16%
20-49	0.14%	0.14%	0.13%	0.12%	0.11%
50-99	0.09%	0.08%	0.08%	0.07%	0.06%
100-499	0.06%	0.06%	0.05%	0.05%	0.04%
500+	0.004%	0.004%	0.003%	0.003%	0.002%

Two observations are noteworthy. First, the percentage of no-match employees assumed to be unauthorized appears to have little impact on the ratios. This can be seen in the first row for firms with 5-9 employees; costs are 0.39 percent of revenues if 10 percent of the no-match employees are assumed to be unauthorized, which decreases to 0.32 percent if it is assumed that unauthorized employees comprise 80 percent of the no-match employees.

Second, the relative impacts decrease as firm size increases. For each of the five assumptions about the percentage of no-match employees who are unauthorized, the percentages for the largest size class are less than one one-hundredth of the percentages for the smallest size class. While this trend does suggest a disproportionate cost impact on the smaller size classes, the estimated impact on the smallest class is still relatively small on an average per firm basis.

Appendix A: Conversion of SSA Data into Estimates by Average Employment Level

As noted in the text, it was necessary to translate the SSA no-match counts (number of employers and number of employees) by number of W-2s submitted into counts based upon average employment levels. Unlike an average employment level, the annual number of W-2s captures all of the employees who were on staff throughout the year and does not take into consideration employee turnover. This appendix describes the data and computations used to carry out the necessary adjustments. The first section defines the methodology and equations used to convert the number of W-2s into average employment estimates. The second section presents the adjustments made to the number of firms receiving no-match letters. The third section describes the adjustments made to the number of employees listed on the no-match letters. In both cases, it should be emphasized that the adjustments do not affect the total counts of the total number of no-match employers and no-match SSNs as reported to DHS by SSA. Rather, the distribution of those counts is simply shifted into different categories.

Use of BLS Annual Hire Rates to Estimate Average Employment Levels

Employment size class data generally refer to average employment levels or levels of employment at particular points in time: for example, some sources measure employment levels at mid-March. These employment size classes typically reflect the levels of employment that are utilized on a somewhat normal basis.

SSA provided data on the number of no-match letter recipients and affected employees by the total number of W-2s that the employers submitted during the year. The counts were aggregated into the categories shown in Exhibit A.1 on the next page.

Exhibit A.1:

Number of W-2s Submitted by Employer	Number of No-Match Letter Recipient Employers	Number of Employees Listed on No-Match Letters[81]
11-19	6,725	84,732
20-49	42,879	770,529
50-99	38,057	1,088,449
100-499	41,048	2,557,994
500+	12,126	4,661,954

The number of W-2s submitted depends not only on the average employment level throughout the year, but also on the labor turnover rate. This means that a small company with less than ten employees on staff at any given time, but a high labor turnover rate, could receive a no-match letter even though SSA only sends letters to employers who submit more than ten no-matches.

To be able to conduct the analysis using typically employment size categories, it was necessary to develop a translation between average employment levels and the number of W-2s submitted. This translation is based upon the following: it was assumed that the number of W-2s submitted equals the average employment level plus the number of people who are hired throughout the year. In other words,

$$W2 = E + H,$$

where E refers to average employment level and H refers to the number of hires.

BLS publishes annual industry hire rates that can be used to estimate the number of hires throughout the year (the hire rate multiplied by total employment equals the number of hires). This equation can be stated as follows:

$$H = R * E,$$

where R refers to the Hire Rate. Together, the two formulas above imply the following relationship between employment levels and the number of W-2s:

[81] These figures were tabulated by employer, not by employer report. An employer report consists of a W-3 form and all corresponding W-2 forms that employers submit as a package to SSA at the beginning of each year. Paper filers are supposed to send their reports by the end of February and electronic filers by the end of March. On rare occasions, an employer will submit more than one report for the year. A no-match letter is generated for each employer report that meets the no-match criteria. Employers who submitted multiple reports could have submitted some reports that met the criteria for receiving a no-match letter, and other reports that did not meet the criteria even though there may have been no-matches on them (a report must include at least 11 no-matches in order to generate a no-match letter). To illustrate, consider a hypothetical employer who submits two employer reports for the year. Assume the first report includes 20 no-matches, and therefore generates a no-match letter. Assume that the second report contains only 5 no-matches, which means it does not generate a letter. This employer would receive one no-match letter with only 20 SSNs listed, even though the employer submitted a total of 25 no-matches for the year. In this case the data tabulated in Exhibit A.1 would show 25 employees. Based on conversations with SSA personnel, it appears that employers rarely submit multiple reports, and the effect upon the tabulations is expected to be minimal.

$$W2 = E * (1 + R) \text{ or}$$

$$E = W2 / (1 + R)$$

Appendix C provides information on the development of a weighted average hire rate that was used for the analysis; the estimated rate is 60.5 percent. Inserting that rate into the above formula produces an estimated employment level given the total number of W-2s that are submitted. In the following table, employment levels have been estimated for a range of possible W-2 submissions. Note that these W-2 numbers in this range together make up the smallest W-2 size class category (11-19) used to tabulate the SSA counts.

Exhibit A.2:

Total Number of W-2s Submitted by Employer	Estimated Average Employment Size
11	6.9
12	7.5
13	8.1
14	8.7
15	9.3
16	10.0
17	10.6
18	11.2
19	11.8

Accordingly, it can be seen that some of the employers in this W-2 size class will fall into the 5-9 average employment level size class, whereas others need to be grouped in the 10-19 average employment level size class. For this reason, it was necessary to develop procedures that could be used to allocate the employer and employee counts in each W-2 size class to corresponding average employment size classes. The remainder of the appendix describes these procedures.

Adjustments to the Distribution of Firm Counts

A single regression was estimated and then used to develop specific size distributions for each W-2 size class listed above in Exhibit A.2. To illustrate, the estimated size distribution for the 11-19 W-2 size class consists of nine percentages that reflect how the total number of employers in that W-2 size class are distributed to the class' constituent W-2 levels (i.e.: 11, 12, 13, 14, 15, 16, 17, 18, 19).[82] The distributions were then used to allocate the number of respective employers in each W-2 class (e.g., 11-19) across specific numbers of W-2s (e.g.: 11, 12, 13, 14, 15, 16, 17, 18, 19), for which average employment levels were estimated using the above formula and weighted average hire rate. As described in more detail below, the resulting employer counts were then re-aggregated using the average employment size classes.

[82] The percentages for each W-2 size class sum to 100 percent.

Use of Regression Analysis to Develop Size Distributions for Each W-2 Size Class

A regression analysis was used to develop a size distribution for each W-2 size class. As discussed later, these distributions were necessary in order to convert the employee counts based on W-2s into employee counts based on the average number of employees.

The regression analysis estimates an equation that relates the percentage of firms by size class (the dependent variable) to the average number of employees per firm by size class (the independent variable). The data used to estimate the regression are based on SBA data on firm counts and number of employees by size class for 2004. These data are presented in Exhibit B.1 in Appendix B. The third column in Exhibit B.1 was used for the dependent variable and the data in the fifth column were used for the independent variable.

To determine the type of equation to estimate, we constructed a two-dimensional scatterplot of the data with the percentage of firms on the Y axis and the number of employees per firm on the X axis. The scatterplot confirmed a parabolic relationship between the two variables, which we had observed previously using other data sources. As a result, the following specification was used to relate the percentage of total firms by size class to the average number of employees per firm by size class:

$$\text{PercentageofTotalNumberofFirms} = \alpha * \text{AverageNumberofEmployeesPerFirm}^{\beta},$$

where α and β are coefficients estimated by the regression and β is an exponent. Note that this equation can be transformed into a linear equation and estimated using Ordinary Least Squares (OLS) if both sides of the equation are converted into logarithms. The results of the estimation are presented below:

R2:	0.8829
α:	0.4235
β	-0.8927

The coefficients were then used to develop initial estimates of the percentage of firms for each discreet W-2 level. In other words, we executed the following computation for all possible W-2 submissions in the analysis:

$$\text{InitialPercentageEstimate} = 0.4235 * \text{NumberofW-2sSubmitted}^{-0.8927}$$

These estimated percentages were then calibrated for each size class so that the constituent percentages would sum to 100 percent. Multiplying the percentages for each W-2 size class by the respective number of employers in the class estimates the number of employers for each discreet W-2 level. It is assumed that the distribution of firms across employment size classes is similar (in term of shape and relative differences) to the distribution of firms across W-2 classes.

For illustration purposes, these calculations are reproduced in the following table for the 11-19 W-2 size class. Derived from the regression coefficients, the 2nd column reports

the estimated percentage of firms accounted for by employers who submitted the number of W-2s in the first column. For example, the first row shows the regression prediction that firms with 11 employees comprise 5.0 percent of all employer firms. This figure was computed as follows: $5.0\% = 0.4235 * 11^{-0.8927}$. This 5.0% figure was then calibrated by dividing it by 34.9%, the sum of the predictions for the nine W-2 levels listed in column 2 of Exhibit A.4. For example, the 14.3% in the first row of column 3 was derived by dividing the first row in column 2 by the sum of column 2 (5.0% / 34.9% = 14.3%). The first row in column 4 was then determined by multiplying the resulting 14.3% by 6,725 (the total number of no-match recipients who submitted 11-19 W-2s: see Exhibit A.1 above), which yields 960: an estimate of the number of firms that submitted 11 W-2s.

Exhibit A.3

Number of W-2s Submitted by Employer	Percent of Firms (Regression Prediction)	Calibrated Percent of Firms for Size Class	Estimated Number of Firms	Estimated Average Employment Size
11	5.0%	14.3%	960	6.9
12	4.6%	13.2%	889	7.5
13	4.3%	12.3%	827	8.1
14	4.0%	11.5%	774	8.7
15	3.8%	10.8%	728	9.3
16	3.6%	10.2%	687	9.9
17	3.4%	9.7%	651	10.6
18	3.2%	9.2%	619	11.2
19	3.1%	8.8%	590	11.8

The estimates of the number of firms were re-aggregated into average employment size classes using the estimated employment levels in the fifth column. Again, the average employment levels were estimated by dividing the numbers in the first column of Exhibit A.3 by 1.605 (1 + 60.5% (the weighted average hire rate)).

To compute the number of employers in the 5-9 average employment size class used in the main tables of this analysis, the first six rows of Exhibit A.3 (i.e., rows in which the average employment level is less than 10) of the fourth column were summed. The numbers in the last three rows were then added to the 10-19 average employee size class along with the calculated numbers from the 20-49 W-2 size class. Even though the other size classes are not listed in Exhibit A.3, this calculation was completed for each of the employer size groupings.

Adjustments to the Distribution of Employee Counts

Adjustments to the distribution of no-match employees were accomplished in a similar fashion and are based upon the analysis above.

First, the estimated number of firms for each W-2 level (column four in Exhibit A.3) was multiplied by the corresponding number of W-2 submissions; this produced a preliminary

estimate of the total number of W-2s submitted for all firms for each W-2 level. These figures were then used to construct a distribution that was used to allocate the actual number of employee counts associated with each W-2 class.

An example is presented in the following table to help the reader follow the calculations. The first two columns are taken from Exhibit A.3. The figures in the third column are the products of the first two columns. For example, in the first row 10,563 is equal to 11 * 960. The fourth column converts the numbers in the third column into percentages: 10.8% is equal to 10,563 divided by 98,143 (the sum of the numbers in the third column representing the total for the 11-19 W-2 size class). Finally, the figures in the fifth column are derived by multiplying the figures in the fourth column by 84,732 (the total number of employees listed on no-match letters sent to employers who submitted 11-19 W-2s: see Exhibit A.1 above).

Exhibit A.4

Number of W-2s Submitted by Employer	Estimated Number of Firms	Total W-2s (First Estimate)	Percent of W-2s for W-2 Size Class	Number of No-Match Employees	Estimated Average Employment Size
11	960	10,563	10.8%	9,120	6.9
12	889	10,662	10.9%	9,205	7.5
13	827	10,754	11.0%	9,285	8.1
14	774	10,840	11.0%	9,359	8.7
15	728	10,921	11.1%	9,428	9.3
16	687	10,997	11.2%	9,494	9.9
17	651	11,068	11.3%	9,556	10.6
18	619	11,136	11.3%	9,615	11.2
19	590	11,201	11.4%	9,671	11.8

Note: Estimates may not sum to totals due to rounding.

The estimates of the number of no-match employees were re-aggregated into average employment size classes using the estimated employment levels in the sixth column. Again, the average employment levels were estimated by dividing the numbers in the first column by 1.605 (1 + 60.5% (the weighted average hire rate)). To compute the number of no-match employees in the 5-9 average employment size class, the first six rows (i.e., rows in which the average employment level is less than 10) of the fifth column were summed. The numbers in the last three rows were than added to the 10-19 average employee size class along with the calculated numbers from the 20-49 W-2 size class. Again, please note that even though the other size classes are not listed above in Exhibit A.4, this calculation was completed for each of employee size groupings.

Raw Data Received from SSA

Exhibit A.5 shows the data on no-matches as those data were received from SSA.

Exhibit A.5

Size Class Category (Total W-2s)	Total Number Employers	Employers with 0-10 no match ssn's	Employers with 11-19 no match ssn's	Employers with 20-29 no match ssn's	Employers with 30-39 no match ssn's	Employers with 40-49 no match ssn's	Employers with 50-99 no match ssn's	Employers with 100-149 no match ssn's	Employers with 150-249 no match ssn's	Employers with 250-499 no match ssn's	Employers with >499 no match ssn's
< 20	6,725	0	6,725	0	0	0	0	0	0	0	0
20-49	42,879	0	29,123	10,978	2,557	221	0	0	0	0	0
50-99	38,057	0	13,276	9,733	6,716	4,321	4,011	0	0	0	0
100-499	41,048	3	8,727	6,229	4,534	3,618	10,595	3,989	2,494	859	0
500+	12,126	0	1,957	1,164	803	584	1,647	961	1,158	1,741	2,111

Size Class Category (Total W-2s)	Total Number No Match ssn's
< 20	84,732
20-49	770,529
50-99	1,088,449
100-499	2,557,994
500+	4,661,954

Appendix B: Total Number of Firms by Size Class in U.S. Economy

Data on the number of non-agriculture employer firms by employment size class were obtained from SBA.[83] The latest year for which this information is available is 2004. Shown below, the data have been divided into 23 different employment size classes. The smallest size class (0 employees) was not used in this analysis because the figure includes non-employers as well as start-up firms and firm dissolutions that did not exist in mid-March when the firm's employment level was determined; when they did exist, such firms could have been any size.

Exhibit B.1: Non-Agriculture Employer Firms for 2004

Employment Size of Firm	Number of Firms	Percent of Firms	Number of Employees	Employees per Firm
1-4	2,777,680	54.64%	5,844,637	2.1
5-9	1,043,448	20.53%	6,852,769	6.6
10-14	416,466	8.19%	4,872,276	11.7
15-19	216,216	4.25%	3,627,405	16.8
20-24	133,814	2.63%	2,920,239	21.8
25-29	88,635	1.74%	2,379,155	26.8
30-34	64,173	1.26%	2,044,502	31.9
35-39	47,443	0.93%	1,749,561	36.9
40-44	36,787	0.72%	1,540,881	41.9
45-49	29,561	0.58%	1,386,351	46.9
50-74	85,089	1.67%	5,121,765	60.2
75-99	40,853	0.80%	3,500,160	85.7
100-149	38,404	0.76%	4,641,621	120.9
150-199	18,289	0.36%	3,141,387	171.8
200-299	17,259	0.34%	4,174,222	241.9
300-399	7,974	0.16%	2,746,414	344.4
400-499	4,612	0.09%	2,054,107	445.4
500-749	5,695	0.11%	3,449,491	605.7
750-999	2,709	0.05%	2,331,851	860.8
1,000-1,499	2,828	0.06%	3,444,427	1,218.0
1,500-2,499	2,281	0.04%	4,396,430	1,927.4
2,500+	3,534	0.07%	42,855,273	12,126.6
Sub-Total	5,083,750	100%	115,074,924	22.6
TOTAL	5,885,784	NA	115,074,924	19.6

[83] Obtained from the U.S. Small Business Administration, Office of Advocacy, at www.sba.gov/advo/research/data_uspdf.xls. The figures are based on data provided by the U.S. Census Bureau.

To be able to compare these data with the number of no-match employers provided by SSA, it was necessary to aggregate the above data into the size classes used in this analysis. Again, the employment size classes used in this analysis are as follows:

Exhibit B.2: Employment Size Classes
Number of Employees
5-9
10-19
20-49
50-99
100-499
500+

The aggregation was straightforward. For example, the number of firms in the 20-49 employment size class was computed by adding the numbers in the 5th through 10th rows of the second column in Exhibit B.1. The results of these aggregation procedures are shown in Exhibit B.3. Note that estimates for the number of farms have been added; detail on how these figures are derived is provided in Appendix D.

Exhibit B.3: Number of Firms by Employment Size Class			
Employment Size Class	Number of Non-Agriculture Employer Firms	Number of Farms	Total Number of Firms
5-9	1,043,448	93,972	1,137,420
10-19	632,682	13,187	645,869
20-49	400,413	6,594	407,007
50-99	125,942	6,594	132,536
100-499	86,538	0	86,538
500+	17,047	0	17,047
TOTALS	2,306,070	120,346	2,426,416

Appendix C: Estimation of Weighted Average Turnover Rates

This appendix describes the calculations used to construct weighted average labor turnover rates. The first section describes the development of a weighted average hire rate (number of employees hired during the year divided by total employment), whereas the second section presents the construction of a weighted average separation rate (number of voluntary and involuntary employee separations divided by total employment).

Weighted Average Hire Rates

A weighted average hire rate was used to translate the size categories based on the number of W-2s submitted by an employer into size categories based on average employment size. Information on these translations is presented in Appendix A. Hire rates were also used to estimate the number of affected entities by industry; information on these calculations can be found in Appendix E.

As part of its Job Openings and Labor Turnover Survey (JOLTS) program BLS, publishes monthly and annual hire rates for non-agricultural industries. Shown below, the 2006 average annual hire rates for private industry was estimated to be 48 percent. This rate was considered to be too low for the current analysis, given that many of the most heavily impacted industries appear to have hire rates that exceed the national average. For example, as shown in Exhibit 7, it is estimated that almost 44 percent of the no-match recipients will fall into one of the following four industries: eating and drinking places (27.5%), special trade contractors (7.6%), agriculture crop production (4.5%), and Business Services (4.3%); at the same time, each of these industries has a hire rate that is considerably larger than the national average. For this reason, a weighted average hire rate was constructed using as weights the distribution of no-match recipients by industry.

Exhibit C.1: Average Annual Hire Rates for 2006[84]	
Industry	**Annual Hire Rate**
Total Private	48.0%
Mining and Natural Resources	37.6%
Construction	58.7%
Durable Goods Manufacturing	28.3%
Nondurable Goods Manufacturing	33.3%
Wholesale Trade	27.6%
Retail Trade	58.2%
Transportation and Utilities	41.9%
Information	31.9%
Finance and Insurance	26.0%
Real Estate	41.4%
Professional and Business Services	64.5%
Education Services	28.8%
Health and Social Services	34.0%
Entertainment	78.3%
Accommodation and Food Services	78.7%
Other Services	38.8%
Agriculture[85]	90.0%

The industry detail provided by BLS for the hire rates is in some cases at a more aggregate level than the industry codes associated with the distribution of no-match recipients. In these cases, professional judgment was used to match a hire rate with a given industry.

The following table, Exhibit C.2, presents the data and computations used to create the weighted average hire rates. The first two columns show the industries used in the computations and the corresponding percent of no-match letters going to each industry. The fourth column presents the hire rates assigned to each of these industries. Note that the third column contains the BLS industries for which the hire rates were originally computed. In the final column, the second and fourth columns have been multiplied to produce weighted hire rates. For example: in the third row for special trade construction, 4.4% equals 7.6% * 58.7%.

The sum of the weighted hire rates is listed in the last column and final row in the table; this 60.5% figure represents the weighted average hire rate used in the analysis.

[84] U.S. Bureau of Labor Statistics, Job Openings and Labor Turnover program, http://data.bls.gov/PDQ/outside.jsp?survey=jt

[85] BLS does not provide labor turnover information for the agriculture industry. This estimate was made taking into account the highly seasonal nature of the sector.

Exhibit C.2: Development of Weighted Average Hire Rate				
No-Match Recipients by Industry		Industry Hire Rate Used	Hire Rate	Weighted Hire Rate
Industry	Percent [86]			
Agriculture Production-Crops	4.5%	Agriculture*	90.0%	4.0%
Eating and Drinking Places	27.5%	Accommodation and Food Services	78.7%	21.6%
Construction-Special Trade	7.6%	Construction	58.7%	4.4%
Business Services	4.3%	Professional and Business Services	64.5%	2.8%
Health Services	3.8%	Health and Social Services	34.0%	1.3%
Food Stores	3.7%	Retail Trade	58.2%	2.2%
Agriculture Services	1.8%	Mining and Natural Resources	37.6%	0.7%
Miscellaneous Retail	2.6%	Retail Trade	58.2%	1.5%
Building Construction	1.9%	Construction	58.7%	1.1%
Personal Services	1.9%	Other Services	38.8%	0.8%
Auto Repair, Services, Parking	1.6%	Other Services	38.8%	0.6%
Auto Dealers, Gas Stations	3.3%	Retail Trade	58.2%	1.9%
Real Estate	0.9%	Real Estate	41.4%	0.4%
Durable Goods, Wholesale	2.1%	Wholesale Trade	27.6%	0.6%
Social Services	2.5%	Health and Social Services	34.0%	0.9%
Engineering, Accounting, Research, Mgmt, and related	1.1%	Professional and Business Services	64.5%	0.7%
Non durable Goods, Wholesale	1.6%	Wholesale Trade	27.6%	0.4%
Hotels, Lodging Places	2.5%	Accommodation and Food Services	78.7%	2.0%
Private Households	1.5%	Professional and Business Services	64.5%	1.0%
Motor Freight Transp. and Warehousing	1.4%	Transportation and Utilities	41.9%	0.6%
Amusement and Recreation Services	1.5%	Entertainment	78.3%	1.2%
Home Furniture & Equipment Stores	1.1%	Retail Trade	58.2%	0.7%
Apparel and Other Finished Products	1.3%	Nondurable Goods Manufacturing	33.3%	0.4%
Apparel and Accessory Stores	1.3%	Retail Trade	58.2%	0.8%
Legal Services	0.5%	Professional and Business Services	64.5%	0.3%
Other	15.9%	Total Private	48.0%	7.6%
TOTAL	100%			60.5%

*As noted above, BLS does not publish a hire rate for the agriculture industry. This estimate is based on the highly seasonal nature of the sector.

[86] See Appendix E for sources and information on how these percentages were derived.

Weighted Average Separation Rates

A similar procedure was used to develop a weighted average separation rate. This rate was used to estimate the number of no-match employees who will have separated from their employers by the time the no-match letters are received.

As part of its Job Openings and Labor Turnover Survey (JOLTS) program, BLS also publishes monthly and annual employee separation rates for non-agricultural industries. The latest average annual rates for September 2005 through August 2006 are reproduced below.

Exhibit C.3:
BLS Annual Employee Separation Rates by Industry: September 2005 – August 2006[87]

Industry	Annual Employee Separation Rates
Mining and Natural Resources	32.1%
Construction	61.6%
Durable Goods Manufacturing	29.4%
Nondurable Goods Manufacturing	35.4%
Wholesale Trade	28.6%
Retail Trade	54.7%
Transportation and Utilities	39.2%
Information	30.9%
Finance and Insurance	27.9%
Real Estate	38.2%
Professional and Business Services	53.8%
Education Services	24.4%
Health Services	29.7%
Entertainment	71.6%
Accommodation and Food Services	76.1%
Other Services	37.7%
US Average (non agricultural)	40.4%
Agriculture[88]	90.0%

The industry detail provided by BLS for the separation rates is in some cases at a more aggregate level than the industry codes associated with the distribution of no-match recipients. In these cases, professional judgment was used to match a separation rate with a given industry.

[87] U.S. Bureau of Labor Statistics, Job Openings and Labor Turnover program. The BLS data were obtained from the NOBSCOT Corporation website at http://www.nobscot.com/survey/index.cfm.
[88] BLS does not publish separation or other labor turnover rates for the agriculture sector. This estimate is based on the highly seasonal nature of the sector.

The following table presents the data and computations used to create the weighted average separation rates. The first two columns show the industries used in the computations and the corresponding percent of no-match letters going to each industry. The fourth column presents the separation rates assigned to each of these industries. Note that the third column contains the BLS industries for which the hire rates were originally computed. In the final column, the second and fourth columns have been multiplied to produce weighted separation rates. For example: in the third row for special trade construction, 4.7% equals 7.6% * 61.6%.

The sum of the weighted hire rates is listed in the last column and final row in the table; this 57.1% figure represents the weighted average separation rate used in the analysis.

Exhibit C.4: Development of Weighted Average Separation Rate				
No-Match Recipients by Industry		Industry Hire Rate Used	Separa-tion Rate	Weighted Rate
Industry	Percent [89]			
Agriculture Production-Crops	4.5%	Agriculture*	90.0%	4.0%
Eating and Drinking Places	27.5%	Accommodation and Food Services	76.1%	20.9%
Construction-Special Trade	7.6%	Construction	61.6%	4.7%
Business Services	4.3%	Professional and Business Services	53.8%	2.3%
Health Services	3.8%	Health and Social Services	29.7%	1.1%
Food Stores	3.7%	Retail Trade	54.7%	2.0%
Agriculture Services	1.8%	Mining and Natural Resources	32.1%	0.6%
Miscellaneous Retail	2.6%	Retail Trade	54.7%	1.4%
Building Construction	1.9%	Construction	61.6%	1.2%
Personal Services	1.9%	Other Services	37.7%	0.7%
Auto Repair, Services, Parking	1.6%	Other Services	37.7%	0.6%
Auto Dealers, Gas Stations	3.3%	Retail Trade	54.7%	1.8%
Real Estate	0.9%	Real Estate	38.2%	0.3%
Durable Goods, Wholesale	2.1%	Wholesale Trade	28.6%	0.6%
Social Services	2.5%	Health and Social Services	29.7%	0.7%
Engineering, Accounting, Research, Mgmt, and related	1.1%	Professional and Business Services	53.8%	0.6%
Non durable Goods, Wholesale	1.6%	Wholesale Trade	28.6%	0.4%
Hotels, Lodging Places	2.5%	Accommodation and Food Services	76.1%	1.9%
Private Households	1.5%	Professional and Business Services	53.8%	0.8%
Motor Freight Transp. and Warehousing	1.4%	Transportation and Utilities	39.2%	0.6%
Amusement and Recreation Services	1.5%	Entertainment	71.6%	1.1%
Home Furniture & Equipment Stores	1.1%	Retail Trade	54.7%	0.6%
Apparel and Other Finished Products	1.3%	Nondurable Goods Manufacturing	35.4%	0.4%
Apparel and Accessory Stores	1.3%	Retail Trade	54.7%	0.7%
Legal Services	0.5%	Professional and Business Services	53.8%	0.3%
Other	15.9%	Total Private	40.4%	6.4%
TOTAL	100%			57.1%

*As noted above, BLS does not publish a hire rate for the agriculture industry. This estimate is based on the highly seasonal nature of the sector.

[89] See Appendix E for sources and information on how these percentages were derived.

Appendix D: Development of Estimates for the Agriculture Sector

Most of the data used in the small entity impact analysis are drawn from SBA and U.S. Census Bureau sources. These sources do not include information for the agriculture sector. Given that agriculture may be one of the industries heavily impacted by the no-match rule (see Exhibit 7), it was necessary to locate and incorporate into the analysis data on the agriculture sector. For this purpose, the 2002 Census of Agriculture[90] served as the main source of data. Various issues of the *Farm Labor* report were also utilized.[91]

Exhibit D.1 shows the data from the Census of Agriculture that were used in the analysis, which reflect only farms that utilize hired workers. According to the 2002 Census, there are more than 2 million farms in the United States, of which only 26 percent (554,434 / 2,128,982) utilize hired labor. Many farmers rely upon contract labor instead of hired labor, and do not submit W-2s for those workers.

Exhibit D.1: Agriculture Data from 2002 Census of Agriculture, Table 56

	Farms with Hired Workers			All Farms	
Market Value of Agriculture Products Sold	Farms (Number)	Workers (Number)	Workers per Farm†	Average Receipts* per Farm ($)	Number of Farms (% of Total)
Less than $1,000	61,605	157,085	2.5	1,521	27%
$1,000 to $2,499	29,703	69,258	2.3	1,813	12%
$2,500 to $4,999	31,427	83,228	2.6	3,863	10%
$5,000 to $9,999	40,606	114,707	2.8	7,541	11%
$10,000 to $24,999	63,800	204,951	3.2	16,892	12%
$25,000 to $49999	52,843	181,358	3.4	37,743	7%
$50,000 to $99,999	60,643	238,282	3.9	75,936	7%
$100,000 to $249,999	93,461	402,992	4.3	168,912	8%
$250,000 to $499,999	59,700	361,452	6.1	364,738	4%
$500,000 to $999,999	34,272	310,740	9.1	709,535	2%
$1,000,000 or more	26,374	912,417	34.6	3,346,639	1%
TOTAL	554,434	3,036,470	5	97,320	100%

*Includes market value of agriculture products sold and government payments.
†The figures in this column were computed using the data in columns two and three.

To utilize these data, it was necessary to transform many of the specific elements so that they would be compatible with data from other sources used in the analysis. This appendix describes the various interpolations, computations, and statistical analyses that were used to make the necessary adjustments. The main objective was to tabulate by

[90] U.S. Department of Agriculture, National Agricultural Statistics Service, 2002 Census of Agriculture, Vol. 1. http://www.nass.usda.gov/census/census02/volume1/us/st99_1_056_056.pdf
[91] U.S. Department of Agriculture, National Agricultural Statistics Service, *Farm Labor*, Quarterly Publication, various issues: Aug 05, Nov 05, Feb 06, May 06, Nov 06, May 07, Aug 07.

employment size class the number of farms with hired workers, the number of hired workers, and revenues.

The average number of workers per farm in Exhibit D.1, column 4, was used to compute the number of farms and number of workers for the first two employment size classes (1-4 employees, and 5-9 employees in Exhibit D.6). For example, the number of farms for the 1-4 employee size class was calculated by summing the first seven rows of data in the second column.

Only one row of data was available for the sizes classes with more than 10 employees: the row shows an average of 34.6 workers per farm. It was assumed that the data in this row cover the following three employment size classes: 10-19 employees, 20-49 employees, and 50-99 employees. As described below, procedures were developed and used to allocate the figures in this row (26,374 farms and 912,417 workers) to these three employment size classes. Allocation to all five additional size classes (which would have included 100-499 employees and 500+ employees) was not pursued for two reasons. First, the number of farms in the last row represents less than 5 percent of the total number of farms with hired workers; since the percentage of farms decreases with farm size, it is believed that anything allocated to the two largest employment size classes would have been negligible. Along these lines, the average of 34.6 workers per farm was considered to be too low to warrant any allocations to classes with more than 100 employees.

The allocation of the 26,374 farms to the three employment size classes was accomplished using the following assumptions. Fifty percent of these farms were assigned to the 10-19 employee size class; 25 percent was assigned both to the 20-49 employee size class and to the 50-99 employee size class. The selection of the percentages was based on several factors. First, the percentage of firms generally falls as firm size increases. However, the 50-99 employee size class is larger than the 20-49 employee size class; these two observations provide some justification for assigning equal percentages to the 20-49 and 50-99 employee size classes. In addition, the allocation based on the percentages produced average worker per farm ratios that fell within the designated size classes.

The allocation of the 912,417 employees to the three employment size classes was accomplished using data from the *Farm Labor* report.[92] These data, presented in Exhibit D.2, show the percentage of hired workers employed on farms of different employee size classes. The data are based on surveys conducted in the continental United States during the months and years shown. The survey includes both field and livestock workers but excludes agricultural service workers.

[92] U.S. Department of Agriculture, National Agricultural Statistics Service, *Farm Labor*, Quarterly Publication, various issues: Aug 05, Nov 05, Feb 06, May 06, Nov 06, May 07, Aug 07.

Workers per Farm	Exhibit D.2: Percent of Hired Workers										
	Jan 2005	April 2005	July 2005	Oct 2005	Jan 2006	April 2006	Jul 2006	Oct 2006	April 2007	July 2007	Avg.
1	13	11	9	11	13	10	9	10	10	9	11
2	9	10	9	9	9	10	9	9	8	8	9
3-6	18	16	18	16	17	17	18	16	18	18	17
7-10	9	8	8	9	9	9	7	11	10	10	9
11-20	13	12	10	12	10	12	12	11	10	9	11
21-50	12	13	14	14	12	14	14	15	13	16	14
51+	26	30	32	29	30	28	31	28	31	30	30
Total	100	100	100	100	100	100	100	100	100	100	100

The averages for the three largest size classes were calibrated to sum to 100 percent and then used to allocate the 912,417 workers to the three corresponding size classes. This process is shown below in Exhibit D.3.

Exhibit D.3:				
Workers per Farm*	Percent of Total Hired Workers	Calibrated Percentages	Employment Size Class**	Number of Workers
11-20	11%	20.4%	10-19	186,516
21-50	14%	25.2%	20-49	230,205
51+	30%	54.3%	50-99	495,696
Total	55%	100%		912,417

*Categories reported in the *Farm Labor* report.
**Size classes used in this analysis.

For the 10-19 employee size class, 11% was divided by 55%, producing the calibrated percentage of 20.4%, which was then multiplied by 912,417. The result is 186,516 workers. Although there is not a direct correspondence between the employment sizes in the *Farm Labor* report and those used in this analysis, they were considered to be close enough to be used without any further adjustments.

Estimates of revenues per farm by employee size class were developed using regression analysis. The analysis consisted of relating average receipts per farm (column 5 in Exhibit D.1 above) to average workers per farm (column 4 in Exhibit D.1). As can be seen in the following two graphs, a change in the relationship between these two variables occurs around four workers per farm. The first graph exhibits a polynomial trend for farms that hire 1-4 workers; in the second graph, on the other hand, a linear relationship is depicted for farms that hire more than 4 workers. If there had not been a change in trend, we would have employed a single regression based on all the data points even though some of those points lie outside our range of analysis (i.e., farms with less than 5 employees). There are only four categories in Exhibit D.1 that show more than 4 employees; to discard all the other categories means excluding over 60 percent of the possible data points that could be used to decipher the overall relationship between the

two variables. Nonetheless, given the change in the trend, we believed it was appropriate to exclude those points and use the relationship evident in the second graph (Exhibit D.5)

Exhibit D.4:

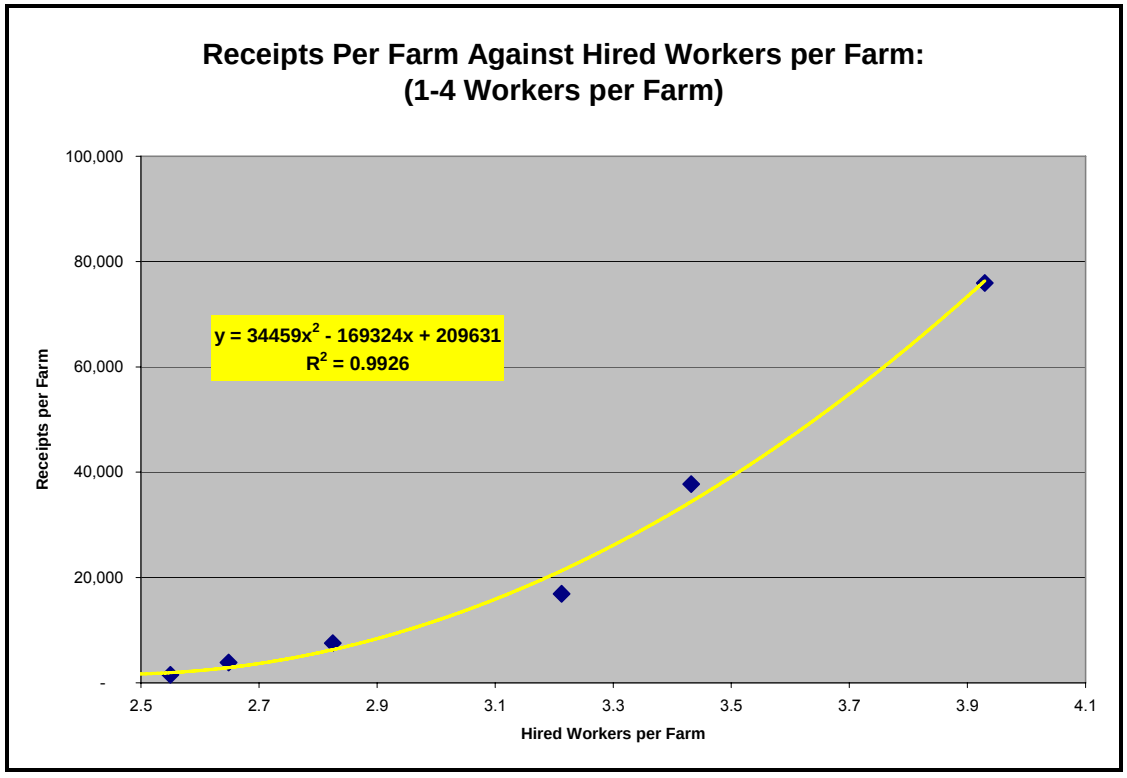
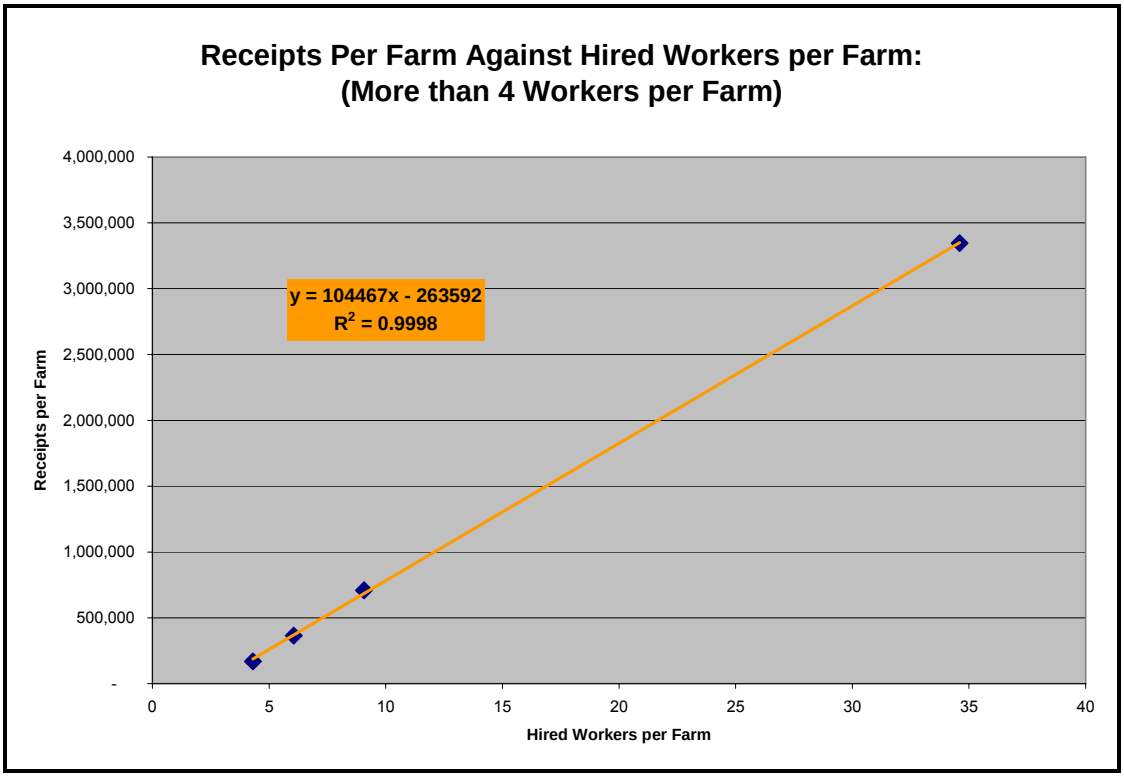


Exhibit D.5:



The relationship in Exhibit D.5 can be defined as the following equation for farms that utilize more than four hired workers:

ReceiptsperFarm = -263,592 + (104,467 * NumberofHiredWorkersperFarm).

The intercept and slope coefficients in this linear relationship were estimated in a regression analysis using Ordinary Least Squares (OLS). The data used to estimate the regression are in the 8th through 11th rows of data in Exhibit D.1, columns 4 and 5. The specified equation has a very strong fit with the data, demonstrated by an R^2 of 0.9998.

Estimates of average receipts by employee size class were generated by applying workers-per-farm estimates to the regression equations and coefficients. These calculations are shown in Exhibit D.6, which also incorporates the number of farms and number of workers that were estimated above. In the second row of data, 672,192 (the total number of workers for the size class) is divided by 93,972 (the total number of farms with hired workers for the size class) to estimate the average number of hired workers per farm for the 5-9 employee size class; the result is 7.2. This average is then used as the independent variable (i.e., "x") in the linear regression above to estimate the average receipts per farm for the 5-9 employee size class. The result is 483,671, which is equal to (104,467 * 7.2) minus 263,592. Finally, total receipts for the category (45,451,516,663) are computed as the product of the average receipts per farm (483,671) and the number of farms (434,088).

Exhibit D.6:						
Employee Size Class	Farms with Hired Workers		Number of Workers	Workers per Farm	Average Receipts per Farm ($)	Total Receipts ($)
	Number	Percent				
1-4	434,088	78%	1,451,861	3.3	28,782	12,493,835,510
5-9	93,972	17%	672,192	7.2	483,671	45,451,516,663
10-19	13,187	2%	186,516	14.1	1,213,981	16,008,771,138
20-49	6,594	1%	230,205	34.9	3,383,751	22,310,762,480
50-99	6,594	1%	495,696	75.2	7,590,176	50,045,824,467
Totals	554,434	100%	3,036,470	5.5	308,542	146,310,710,257

Appendix E: Number of Affected Entities by Industry

The calculations presented in this appendix were used to estimate impacts by industry. The entire process can be summarized as follows. A tabulation of employers with wage items in the ESF was obtained from GAO; shown below in Exhibit E.1, the tabulation provided the number of employers for 25 industries, which accounted for 87.5 percent of the 1.8 million employers in the sample. For each one of these industries, additional data sources were used to estimate the percentage of employers eligible to receive a no-match letter (i.e., could have more than 10 unique W-2s in the ESF). Multiplying GAO's number of employers by these percentages produced estimates of the number of employers in the sample who could potentially receive a no-match letter. These numbers were then converted into the percent of eligible employers accounted for by each industry.

Exhibit E.1: Employers with Wage Items in ESF by Industry		
Industry	**SIC Code**	**Number of Employers**
Agriculture Production-Crops	01	123,805
Eating and Drinking Places	58	315,854
Construction-Special Trade	17	186,171
Business Services	73	94,414
Health Services	80	73,535
Food Stores	54	64,747
Agriculture Services	07	63,368
Miscellaneous Retail	59	63,194
Bldg. Construction Gen. Contractor, OP Bldr*	15	62,278
Personal Services**	72	60,814
Auto Repair, Services, Parking	75	54,130
Auto Dealers, Gas Stations	55	49,837
Real Estate	65	49,189
Durable Goods, Wholesale	50	42,357
Social Services	83	38,483
Engineering, Architecture, Research …***	87	32,575
Non durable Goods, Wholesale	51	32,452
Hotels, Other Lodging Places	70	32,166
Private Households	88	31,070
Motor Freight Transp. and Warehouse	42	30,674
Amusement and Recreation Services	79	28,102
Home Furniture & Equipment Stores	57	21,463
Apparel and Other Finished Products	23	20,240
Apparel and Accessory Stores	56	20,115
Legal Services	81	18,792
Other	NA	229,050
TOTAL	NA	1,838,875

Source: Electronic file (MS Excel spreadsheet) received from GAO on December 3, 2007.
* "OP Bldr" means Operative Builder.
** Personal Services include laundry, carpet cleaning, photo studios, beauty shops, shoe repair, funeral services, tax and other miscellaneous personal services.
*** Full listing also includes Engineering, Architecture, Research, Management-Related Services.

Use of BLS Annual Hire Rates to Estimate Revised Employment Thresholds

Employment size class data generally refer to levels of employment at particular points in time—for example, some sources measure employment levels at mid-March. While these types of data are needed to estimate impacts by industry, they do not correspond to the employment data in the ESF, from which the no-match letters are derived. The employment levels in the ESF reflect the total number of W-2s that employers submit during the year. Employers must submit more than 10 W-2s that do not match SSA records in order to receive a no-match letter.

The number of W-2s submitted depends not only on the average employment level throughout the year, but also on the labor turnover rate. This means that small companies with less than 10 employees on staff at any given time could receive a no-match letter if the company has a high turnover rate.

To be able to use the employment size class data, it was necessary to develop a translation between average employment level and the number of W-2s submitted. This translation is based on the following: it was assumed that the number of W-2s submitted equals the average employment level plus the number of people who are hired throughout the year. BLS publishes annual industry hire rates that can be used to estimate the number of hires throughout the year (the hire rate multiplied by total employment equals the number of hires). The following formulas, therefore, can be used to summarize the relationship between employment levels and the number of W-2s.

$$W2 = E + H$$

$$H = R * E$$

$$W2 = E * (1 + R),$$

Where E refers to employment, H refers to the number of hires, and R means the hire rate.

Setting the number of W-2s equal to 11 and solving for E results in an employment size threshold. This threshold represents the minimum average annual employment level needed in order for a company to be large enough to receive a no-match letter. Given its labor turnover rate, a company as large as this threshold could receive a no-match letter if 100 percent of its W-2s do not match SSA records.

The following table provides the annual hires and estimated employment thresholds used in the analysis. These thresholds are used in the following sections to help adjust the number of employers in Exhibit E.1

Exhibit E.2: Annual Hire Rates and Employment Thresholds		
Industry	**Annual Hire Rate[93]**	**Employment Threshold**
Total Private	48.0%	7
Mining and Natural Resources	37.6%	8
Construction	58.7%	7
Durable Goods Manufacturing	28.3%	9
Nondurable Goods Manufacturing	33.3%	8
Wholesale Trade	27.6%	9
Retail Trade	58.2%	7
Transportation and Utilities	41.9%	8
Information	31.9%	8
Finance and Insurance	26.0%	9
Real Estate	41.4%	8
Professional and Business Services	64.5%	7
Education Services	28.8%	9
Health and Social Services	34.0%	8
Entertainment	78.3%	6
Accommodation and Food Services	78.7%	6
Other Services	38.8%	8
Agriculture*	90.0%	6

* BLS does not provide labor turnover information for the agriculture industry. This estimate is based on professional judgment.

Use of County Business Patterns and Regression Analysis to Estimate the Number of Companies Larger than the Employment Threshold

An industry with a large percentage of very small companies (e.g., only 1-4 employees) probably will not receive the same number of no-match letters as an industry of the same size but which has fewer small companies. This section provides detail on the calculations that were used to account for differences in size class as well as estimates the number of companies larger than their industry's employment threshold (as defined above).

County Business Patterns (CBP), published by the U.S. Census Bureau, is the most comprehensive source of industry data on employment size class. Data include the number of establishments and the number of employees for nine different employment size classes. These data were used to estimate the percentage of each industry's establishments that are larger than the employment threshold.

As shown in Exhibit E.2 above, all the employment thresholds range between 6 and 9 employees. These values fall within the CBP employment size class of 5-9 employees.

[93] U.S. Bureau of Labor Statistics, Job Openings and Labor Turnover Survey (JOLTS) program, http://data.bls.gov/PDQ1outside.jsp?survey=jt.

The following procedures allocate the number of CBP establishments in the 5-9 employee size class to the five constituent employment levels: 5, 6, 7, 8, and 9 employees. The number of establishments greater than or equal to the employment threshold were then summed and divided by the total number of establishments in the industry. The resulting figures represent the percentage of each industry's firms that potentially could receive a no-match letter.

Applying these industry percentages to the number of corresponding firms in the GAO sample produces industry estimates of the number of firms in that sample that are large enough to receive a no-match letter. These results are then placed on a percentage basis by dividing them by the total number of firms in the sample that are large enough to receive a no-match letter.

Disaggregation of CBP Establishments in the 5-9 Employee Size Class

For each industry, regression analysis was used to allocate the number of CBP establishments in the 5-9 employee size class to specific employment levels. The regressions consisted of relating the percentage of establishments to the average number of employees per establishment, where each observation was defined by the employment size class. All estimations were based on the following functional specification:

$$Y = A * X^b,$$

where Y refers to the percentage of the total number of establishments, X refers to the average number of employees per establishment, and A and b are the estimated regression coefficients that define each specific curve. The data for the regressions are presented in Exhibit E.3. Exhibits E.4 and E.5 contain the raw CBP data that were used to construct the regression variables in Exhibit E.3

Exhibit E.6 provides the results of the regression analyses. With two exceptions, all of the regressions are based on six observations covering size classes 1-4 employees through 100-249 employees. Much of the data for the larger size classes was missing, and was not really needed because the regressions are being used primarily as an interpolation procedure for the 5-9 employee size class. NAICS 453 is based on 5 observations, and NAICS 315 is based on 6 observations, but for size classes 5-9 employees through 250-499 employees.

Coefficients for the regressions were used to produce predicted values (percent of total establishments) for each specific employment level in the 5-9 employment size class (i.e., 5, 6, 7, 8, and 9). The predicted values were then calibrated so that they would sum to 100 percent. A table with these percentages is provided in Exhibit E.7.

The calibrated percentages in Exhibit E.7 were then used to allocate the total number of establishments in the 5-9 employment size class to specific employment levels (e.g., 5 employees, 6 employees, etc.). This distribution is shown in Exhibit E.8. The last two columns in Exhibit E.8 contain two redefined size categories based on the employment thresholds presented in Exhibit E.2. The first size category contains the number of

establishments in the 5-9 employment size class that fall below the employment threshold. The second category presents those establishments in the 5-9 employment size class that are larger than or equal to the size threshold.

The percentage of each industry's establishments larger than or equal to the employment size threshold was then estimated using the data in the final column in Exhibit E.8 and the data in Exhibit E.3. For each industry, the last seven columns in Exhibit E.3 were summed and then added to the last column in Exhibit E.8; the resulting figure was then divided by the total number of establishments in the industry (column 3 in Exhibit E.3). The resulting percentages are presented in Exhibit E.9.

Applying these percentages to the number of employers in the ESF (shown in Exhibit E.1) produced an estimate of the number of firms eligible to receive a no-match letter. These calculations are shown in Exhibit E.9.

Exhibit E.3:

REGRESSION DATA																			
INDUSTRY		DEPENDENT VARIABLE: NUMBER OF ESTABLISHMENTS AS A PERCENTAGE OF TOTAL INDUSTRY ESTABLISHMENTS									INDEPENDENT VARIABLE: EMPLOYMENT PER ESTABLISHMENT								
NAICS	Description	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1000+	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1000+
115	Ag Services	70.7%	13.9%	7.5%	4.9%	1.8%	1.0%	0.2%	0.1%	0.0%	1.4	6.5	13.3	30.5	68.0	147.0	339.0	594.4	1,940.3
236	Construction of Buildings	71.1%	15.2%	7.8%	4.2%	1.1%	0.5%	0.1%	0.0%	0.0%	1.5	6.5	13.3	29.6	67.7	147.7	330.1	667.8	1,726.5
238	Special Trade Contractors	63.5%	17.2%	10.3%	6.2%	1.8%	0.8%	0.2%	0.0%	0.0%	1.5	6.6	13.4	29.9	67.7	147.2	336.8	671.9	1,461.3
315	Apparel MFG	45.7%	17.1%	14.7%	13.2%	4.9%	3.2%	0.8%	0.3%	0.0%	0.0	6.7	13.7	30.8	69.6	153.8	344.0	619.5	0.0
423	Wholesale: Durable Goods	47.7%	21.0%	15.8%	10.7%	3.1%	1.3%	0.3%	0.1%	0.0%	1.9	6.7	13.6	30.0	67.8	145.5	333.2	651.6	1,978.1
424	Wholesale: Nondurable Goods	51.0%	18.7%	13.7%	10.0%	3.5%	2.2%	0.6%	0.2%	0.1%	1.8	6.6	13.5	30.4	68.9	151.1	343.6	659.4	2,050.6
(A)	Gas Stations and Auto Dealers	40.2%	28.8%	17.2%	8.1%	4.0%	1.7%	0.1%	0.0%	0.0%	2.0	6.8	12.9	31.2	69.1	139.7	0.0	0.0	N / A
442	Furniture and Home Furnishings	51.8%	23.2%	15.0%	8.0%	1.5%	0.3%	0.1%	0.0%	0.0%	1.9	6.7	13.3	29.2	65.6	142.6	0.0	0.0	0.0
445	Food and Beverage Stores	52.6%	17.1%	10.3%	8.2%	6.5%	5.0%	0.4%	0.0%	0.0%	1.7	6.6	13.4	31.6	72.1	145.2	304.5	0.0	0.0
448	Clothing and Accessories Stores	40.6%	29.8%	18.2%	8.2%	2.7%	0.4%	0.1%	0.0%	0.0%	2.0	6.7	13.1	30.1	64.3	136.1	344.1	614.5	2,421.0
453	Misc Retailers	59.7%	22.1%	11.2%	6.3%	0.6%	0.1%	0.0%	0.0%	0.0%	1.8	6.6	13.3	28.5	63.5	0.0	0.0	0.0	0.0
(B)	Truck Tran and Warehousing	61.0%	13.8%	10.6%	9.0%	3.1%	1.7%	0.5%	0.3%	0.1%	1.5	6.6	13.7	30.5	68.5	149.9	341.7	685.5	1,856.2
531	Real Estate	78.5%	12.7%	5.2%	2.5%	0.7%	0.3%	0.1%	0.0%	0.0%	1.5	6.4	13.2	29.5	68.6	149.1	337.9	688.9	1,461.9
(C)	Arch, Engineering, Mgmt	68.9%	14.0%	8.8%	5.2%	1.7%	0.9%	0.3%	0.1%	0.1%	1.4	6.6	13.4	29.8	68.4	164.6	373.9	837.9	3,006.1
5411	Legal Services	72.4%	15.3%	7.1%	3.6%	1.0%	0.5%	0.1%	0.0%	0.0%	1.7	6.5	13.3	29.6	68.2	151.0	341.3	0.0	0.0
56172	Janitorial Services	58.1%	16.7%	11.8%	8.0%	2.7%	1.8%	0.5%	0.2%	0.2%	1.5	6.6	13.5	30.0	68.8	152.8	346.1	671.5	2,028.3
(D)	Health Services	47.7%	24.5%	13.9%	7.4%	2.9%	2.4%	0.6%	0.3%	0.3%	1.9	6.6	13.3	30.0	70.3	151.2	341.7	708.8	2,195.2
624	Social Assistance	42.0%	19.4%	19.2%	13.8%	3.4%	1.8%	0.3%	0.1%	0.0%	1.8	6.8	13.8	29.4	67.8	148.9	331.6	658.8	1,631.0
71	Arts, Entertainment, Recreation	59.4%	14.4%	10.6%	9.3%	3.8%	1.9%	0.4%	0.1%	0.1%	1.3	6.6	13.6	31.1	68.2	147.1	337.2	681.0	2,022.6
721	Accommodation	42.3%	14.2%	19.3%	15.2%	4.1%	3.2%	1.0%	0.5%	0.3%	1.5	6.8	14.1	29.5	69.8	154.7	344.2	686.9	2,149.9
722	Food and Drinking Places	35.7%	16.9%	19.0%	20.9%	6.1%	1.3%	0.1%	0.0%	0.0%	1.6	6.8	14.1	30.3	67.0	129.8	324.5	670.5	1,868.4
(E)	Business Services	61.1%	15.7%	10.6%	6.6%	2.8%	2.1%	0.7%	0.2%	0.1%	1.5	6.6	13.4	30.4	70.0	148.5	331.2	664.4	2,657.0
(F)	Auto Repair, Services, & Parking	63.6%	22.1%	9.6%	3.7%	0.6%	0.2%	0.0%	0.0%	0.0%	1.9	6.5	13.1	29.1	65.7	143.3	81.9	553.5	0.0
(G)	Personal Services	63.0%	21.1%	10.9%	3.9%	0.7%	0.3%	0.0%	0.0%	0.0%	1.7	6.6	13.2	28.3	68.4	120.5	249.6	0.0	0.0
	OTHER	45.6%	21.1%	14.5%	10.4%	4.0%	2.8%	0.9%	0.3%	0.2%	1.9	6.6	13.5	30.6	69.1	155.2	354.2	696.2	2,247.3

(A) Equal to the following NAICS Codes: 4411 + 447
(B) Equal to the following NAICS Codes: 484 + 493
(C) Equal to the following NAICS Codes: 541 + 551111 - 5411 - 54143 - 5415 - 5418 - 5419
(D) Equal to the following NAICS Codes: 621 + 622 + 623
(E) Equal to the following NAICS Codes: 5182 + 532 + 54143 + 5415 + 5418 + 5419 + 561
(F) Equal to the following NAICS Codes: 8111 + 81293 + 5321
(G) Equal to the following NAICS Codes: 81143 + 8121 + 8122 + 8123 + 8129 - 81293

Exhibit E.4:

NUMBER OF ESTABLISHMENTS BY EMPLOYMENT SIZE CLASS: 2005											
INDUSTRY		EMPLOYMENT SIZE CLASS									
NAICS	Description	Total	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1000+
	Total Non-Agriculture	7,499,702	4,119,363	1,411,199	937,617	636,625	219,324	125,027	31,834	11,845	6,868
115	Ag Services	10,639	7,523	1,477	794	521	189	104	21	7	3
236	Construction of Buildings	243,567	173,145	36,918	19,058	10,159	2,644	1,275	261	71	36
238	Special Trade Contractors	493,278	313,191	84,995	50,658	30,800	8,840	3,760	780	211	43
315	Apparel MFG	11,165	5,100	1,906	1,644	1,479	550	361	91	31	3
423	Wholesale: Durable Goods	245,898	117,387	51,529	38,939	26,409	7,580	3,099	664	211	80
424	Wholesale: Nondurable Goods	132,897	67,841	24,820	18,229	13,281	4,717	2,913	766	253	77
(A)	Gas Stations and Auto Dealers	169,631	68,133	48,815	29,178	13,753	6,709	2,846	187	10	0
4411	Automobile Dealers	52,442	23,704	6,124	5,033	8,818	5,884	2,688	183	8	0
442	Furniture and Home Furnishings	66,396	34,406	15,424	9,992	5,334	972	213	42	11	2
445	Food and Beverage Stores	153,355	80,601	26,197	15,830	12,560	9,905	7,676	564	18	4
447	Gasoline Stations	117,189	44,429	42,691	24,145	4,935	825	158	4	2	0
448	Clothing and Accessories Stores	150,580	61,167	44,895	27,353	12,368	4,087	567	113	27	3
453	Misc Retailers	127,957	76,388	28,325	14,342	8,016	740	127	11	7	1
484	Truck Transportation	117,224	75,227	15,671	11,647	9,432	3,108	1,507	393	170	69
493	Warehousing	13,483	4,470	2,310	2,177	2,316	998	720	281	177	34
(B)	Truck Tran and Warehousing	130,707	79,697	17,981	13,824	11,748	4,106	2,227	674	347	103
5182	Data Processing	14,563	8,312	1,830	1,556	1,464	640	471	204	51	35
531	Real Estate	302,453	237,412	38,434	15,651	7,445	2,126	1,049	241	79	16
532	Rental and Leasing Services	65,860	28,774	19,110	13,010	3,696	824	326	64	40	16
5321	Auto Rentals	13,100	7,286	2,643	1,553	1,067	331	135	41	32	12
(C)	Arch, Engineering, Mgmt	403,041	277,758	56,605	35,379	21,038	6,764	3,730	1,087	406	274
541	Prof, Scientif, Tech Services	826,101	574,941	118,258	70,797	40,301	12,237	6,633	1,888	673	373
5411	Legal Services	188,474	136,400	28,834	13,363	6,824	1,851	893	228	63	18
54143	Graphic Design	16,516	13,261	2,019	819	331	63	19	3	1	0
5415	Computer Systems Design	107,735	79,223	11,382	7,348	5,690	2,248	1,288	371	126	59
5418	Advertising	38,640	25,251	6,062	3,573	2,437	728	405	125	49	10
5419	Photography	73,035	43,863	13,513	10,432	4,119	653	325	86	32	12
551111	Management Services	1,340	815	157	117	138	70	27	12	4	0
561	Admin and Support Services	350,208	208,808	50,592	33,953	26,518	13,743	10,977	3,515	1,320	782
56172	Janitorial Services	53,223	30,929	8,893	6,259	4,249	1,458	945	285	123	82
(D)	Health Services	598,762	285,509	146,585	83,285	44,599	17,600	14,372	3,344	1,628	1,840
621	Ambulatory Services	519,578	268,478	132,445	69,701	34,280	8,902	4,271	999	357	145
622	Hospitals	7,081	515	120	84	210	520	1,542	1,286	1,129	1,675
623	Nursing and Residential Care	72,103	16,516	14,020	13,500	10,109	8,178	8,559	1,059	142	20
624	Social Assistance	147,838	62,136	28,648	28,458	20,329	5,023	2,618	476	109	41
71	Arts, Entertainment, Recreation	121,777	72,280	17,555	12,852	11,365	4,606	2,284	537	176	122
721	Accommodation	62,502	26,429	8,859	12,070	9,475	2,534	2,017	628	309	181
722	Food and Drinking Places	540,933	192,869	91,463	102,571	113,191	33,151	7,191	383	100	14
(E)	Business Services	666,557	407,492	104,508	70,691	44,255	18,899	13,811	4,368	1,619	914
(F)	Auto Repair, Services, and Parking	191,400	121,753	42,384	18,414	7,154	1,230	325	82	41	17
8111	Auto Repair	166,031	107,125	37,170	15,472	5,379	726	131	22	3	3
81143	Footware Repair	1,207	1,089	86	23	9	0	0	0	0	0
(G)	Personal Services	198,813	125,225	41,859	21,681	7,804	1,465	688	70	19	2
8121	Personal Care	107,776	67,581	23,604	12,122	3,870	486	97	13	3	0
8122	Funeral Services	21,645	11,638	5,899	3,047	941	104	15	1	0	0
8123	Laundry Services	43,001	26,115	8,443	4,851	2,291	732	517	41	10	1
8129	Other Personal Services	37,453	26,144	6,398	3,027	1,401	316	118	34	12	3
81293	Parking Lots and Gargages	12,269	7,342	2,571	1,389	708	173	59	19	6	2
	OTHER	1,651,190	753,252	348,909	240,178	172,360	65,862	46,947	15,099	5,692	2,891

(A) Equal to the following NAICS Codes: 4411 + 447
(B) Equal to the following NAICS Codes: 484 + 493
(C) Equal to the following NAICS Codes: 541 + 551111 - 5411 - 54143 - 5415 - 5418 - 5419
(D) Equal to the following NAICS Codes: 621 + 622 + 623
(E) Equal to the following NAICS Codes: 5182 + 532 + 54143 + 5415 + 5418 + 5419 + 561
(F) Equal to the following NAICS Codes: 8111 + 81293 + 5321
(G) Equal to the following NAICS Codes: 81143 + 8121 + 8122 + 8123 + 8129 - 81293

Exhibit E.5:

NUMBER OF EMPLOYEES BY EMPLOYMENT SIZE CLASS: 2005											
INDUSTRY		EMPLOYMENT SIZE CLASS									
NAICS	Description	Total	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1000+
	Total Non-Agriculture	116,317,003	6,880,381	9,351,264	12,642,173	19,229,836	15,072,272	18,716,560	10,874,791	8,052,708	15,497,018
115	Ag Services	92,001	10,721	9,547	10,589	15,897	12,854	15,293	7,118	4,161	5,821
236	Construction of Buildings	1,613,063	256,253	239,725	253,463	300,681	178,951	188,271	86,152	47,412	62,155
238	Special Trade Contractors	4,260,042	484,332	558,053	678,347	919,846	598,719	553,440	262,695	141,773	62,837
315	Apparel MFG	243,416	0	12,707	22,570	45,509	38,273	55,516	31,302	19,204	0
423	Wholesale: Durable Goods	3,365,466	220,107	343,865	528,111	791,490	514,097	450,808	221,247	137,497	158,244
424	Wholesale: Nondurable Goods	2,289,266	121,331	164,719	246,579	403,663	324,816	440,240	263,189	166,833	157,896
(A)	Gas Stations and Auto Dealers	2,198,534	137,390	330,407	376,641	428,548	463,885	397,657	0	0	0
4411	Automobile Dealers	1,289,716	40,300	39,909	70,215	292,470	408,376	376,900	0	0	0
442	Furniture and Home Furnishings	575,629	66,005	102,976	132,421	155,749	63,768	30,373	0	0	0
445	Food and Beverage Stores	2,937,918	138,833	172,962	211,859	397,371	713,842	1,114,510	171,756	0	0
447	Gasoline Stations	908,818	97,090	290,498	306,426	136,078	55,509	20,757	0	0	0
448	Clothing and Accessories Stores	1,555,928	119,968	301,053	359,219	372,858	262,925	77,164	38,887	16,591	7,263
453	Misc Retailers	819,903	138,696	187,346	191,043	228,058	46,993	0	0	0	0
484	Truck Transportation	1,478,299	106,898	103,533	158,827	286,111	211,990	224,007	130,501	118,694	137,738
493	Warehousing	578,040	9,064	15,527	30,201	71,822	69,217	109,795	99,790	119,171	53,453
(B)	Truck Tran and Warehousing	2,056,339	115,962	119,060	189,028	357,933	281,207	333,802	230,291	237,865	191,191
5182	Data Processing	379,412	12,685	13,948(H)	21,345	45,590	44,040	72,677	70,081	34,619	0
531	Real Estate	1,480,040	345,446	247,502	205,900	219,751	145,797	156,407	81,423	54,423	23,391
532	Rental and Leasing Services	634,901	54,429	126,947	167,875	107,294	55,572	45,504	0	27,939	0
5321	Auto Rentals	181,651	13,319	17,379	20,747	32,277	22,844	19,847	0	22,693	0
(C)	Arch, Engineering, Mgmt	4,330,636	399,587	371,340	475,002	627,736	462,411	614,106	406,457	340,170	823,685
541	Prof, Scientif, Tech Services	7,689,366	853,658	775,415	948,171	1,198,215	838,636	998,792	652,102	455,837	968,540
5411	Legal Services	1,199,470	231,467	186,301	177,187	202,041	126,242	134,879	77,824	0	0
54143	Graphic Design	60,188	18,739	13,147	10,732	9,369	4,220	0	0	0	0
5415	Computer Systems Design	1,131,837	100,380	74,619	99,573	173,857	156,036	193,640	127,726	84,839	121,167
5418	Advertising	413,509	39,938	39,909	48,012	74,064	50,068	60,323	44,338	33,169	23,688
5419	Photography	577,783	64,912	91,107	139,288	115,656	44,472	0	0	0	0
551111	Management Services	24,057	1,365	1,008	1,623	4,508	4,813	4,156	4,243	2,341	0
561	Admin and Support Services	8,946,939	303,673	332,733	460,238	820,400	968,319	1,678,223	1,204,513	895,163	2,283,677
56172	Janitorial Services	910,575	47,556	58,859	84,523	127,403	100,305	144,378	98,637	82,590	166,324
(D)	Health Services	13,703,745	544,781	971,805	1,103,774	1,337,682	1,237,246	2,172,825	1,142,631	1,153,919	4,039,082
621	Ambulatory Services	5,422,574	512,986	874,692	920,757	1,011,168	604,835	637,030	337,790	245,097	278,219
622	Hospitals	5,321,600	623	796	1,190	7,462	40,005	259,213	465,100	816,798	3,730,413
623	Nursing and Residential Care	2,959,571	31,172	96,317	181,827	319,052	592,406	1,276,582	339,741	92,024	30,450
624	Social Assistance	2,321,402	109,213	194,501	392,295	598,496	340,694	389,694	157,835	71,804	66,870
71	Arts, Entertainment, Recreation	1,936,484	94,163	116,266	174,986	353,197	314,088	336,084	181,097	119,848	246,756
721	Accommodation	1,854,499	38,686	60,022	170,182	279,322	176,758	311,969	216,182	212,247	389,131
722	Food and Drinking Places	9,171,410	311,115	617,481	1,445,481	3,425,081	2,221,082	933,674	124,288	67,051	26,157
(E)	Business Services	12,144,569	594,756	692,410	947,063	1,346,230	1,322,727	2,050,367	1,446,658	1,075,729	2,428,532
(F)	Auto Repair, Services, and Parking	1,167,723	233,868	274,897	240,447	208,364	80,844	46,574	6,717	22,693	0
8111	Auto Repair	880,394	205,986	240,537	201,025	155,085	46,519	18,233	0	0	0
81143	Footware Repair	2,853	1,731	540	347	235	0	0	0	0	0
(G)	Personal Services	1,234,618	215,923	275,894	285,513	221,202	100,208	82,920	17,474	0	0
8121	Personal Care	589,013	113,426	156,393	159,257	108,201	31,896	0	0	0	0
8122	Funeral Services	137,603	23,673	39,013	39,690	25,985	6,814	0	0	0	0
8123	Laundry Services	381,712	49,383	55,258	64,883	66,713	51,820	73,560	12,869	0	0
8129	Other Personal Services	229,115	42,273	41,671	40,011	41,070	21,159	17,854	11,322	0	0
81293	Parking Lots and Gargages	105,678	14,563	16,981	18,675	21,002	11,481	8,494	6,717	0	0
	OTHER	39,365,862	1,434,223	2,319,502	3,246,484	5,269,739	4,551,021	7,288,273	5,348,326	3,962,890	6,496,828

(A) Equal to the following NAICS Codes: 4411 + 447
(B) Equal to the following NAICS Codes: 484 + 493
(C) Equal to the following NAICS Codes: 541 + 551111 - 5411 - 54143 - 5415 - 5418 - 5419
(D) Equal to the following NAICS Codes: 621 + 622 + 623
(E) Equal to the following NAICS Codes: 5182 + 532 + 54143 + 5415 + 5418 + 5419 + 561
(F) Equal to the following NAICS Codes: 8111 + 81293 + 5321
(G) Equal to the following NAICS Codes: 81143 + 8121 + 8122 + 8123 + 8129 - 81293
(H) This figure was missing from the data and was estimated. An average of the employment to establishment ratios for the 1-4 and 10-19 size classes was multiplied by the number of establishments.

Exhibit E.6:

REGRESSION RESULTS				
INDUSTRY		Coefficients		
NAICS	Description	Intercept	Slope	R^2
115	Ag Services	-0.1290	-0.9070	0.9915
236	Construction of Buildings	0.1562	-1.0698	0.9918
238	Special Trade Contractors	0.0965	-0.9557	0.9823
315	Apparel MFG	0.0548	-0.7495	0.8939
423	Wholesale: Durable Goods	0.0380	-0.8154	0.9417
424	Wholesale: Nondurable Goods	-0.2276	-0.7007	0.9772
(A)	Gas Stations and Auto Dealers	-0.0239	-0.7649	0.9552
442	Furniture and Home Furnishings	0.6604	-1.1591	0.9177
445	Food and Beverage Stores	-0.6582	-0.5057	0.9316
448	Clothing and Accessories Stores	0.5354	-1.0613	0.8670
453	Misc Retailers	0.6012	-1.2042	0.8925
(B)	Truck Tran and Warehousing	-0.3061	-0.7317	0.9656
531	Real Estate	0.1600	-1.1790	0.9975
(C)	Arch, Engineering, Mgmt	-0.0961	-0.9060	0.9911
5411	Legal Services	0.2745	-1.1239	0.9957
56172	Janitorial Services	-0.2219	-0.7562	0.9846
(D)	Health Services	-0.1538	-0.7335	0.9835
624	Social Assistance	-0.1720	-0.7073	0.8972
71	Arts, Entertainment, Recreation	-0.4008	-0.6847	0.9662
721	Accommodation	-0.5697	-0.5432	0.8634
722	Food and Drinking Places	-0.3569	-0.6285	0.7101
(E)	Business Services	-0.3156	-0.7330	0.9903
(F)	Auto Repair, Services, and Parking	0.9158	-1.3914	0.9695
(G)	Personal Services	0.6360	-1.2589	0.9702
	OTHER	-0.3083	-0.6422	0.9805

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(G) Equal to the following NAICS Codes: 81143 + 8121 + 8122 + 8123 + 8129 - 81293

Exhibit E.7:

PREDICTED PERCENTAGE OF TOTAL ESTABLISHMENTS FOR FIRMS WITH A SPECIFIC NUMBER OF EMPLOYEES IN THE 5-9 EMPLOYMENT SIZE CLASS											
INDUSTRY		PREDICTED PERCENTAGES BASED UPON REGRESSION COEFFICIENTS					PERCENTAGES CALIBRATED TO SUM TO 100%				
NAICS	Description	5	6	7	8	9	5	6	7	8	9
115	Ag Services	20.4%	17.3%	15.0%	13.3%	12.0%	26.1%	22.2%	19.3%	17.1%	15.3%
236	Construction of Buildings	20.9%	17.2%	14.6%	12.6%	11.1%	27.3%	22.5%	19.1%	16.5%	14.6%
238	Special Trade Contractors	23.7%	19.9%	17.2%	15.1%	13.5%	26.5%	22.3%	19.2%	16.9%	15.1%
315	Apparel MFG	31.6%	27.6%	24.6%	22.2%	20.4%	25.0%	21.8%	19.4%	17.6%	16.1%
423	Wholesale: Durable Goods	28.0%	24.1%	21.3%	19.1%	17.3%	25.5%	22.0%	19.4%	17.4%	15.8%
424	Wholesale: Nondurable Goods	25.8%	22.7%	20.4%	18.5%	17.1%	24.7%	21.7%	19.5%	17.8%	16.3%
(A)	Gas Stations and Auto Dealers	28.5%	24.8%	22.0%	19.9%	18.2%	25.1%	21.9%	19.4%	17.5%	16.0%
442	Furniture and Home Furnishings	30.0%	24.3%	20.3%	17.4%	15.2%	28.0%	22.7%	19.0%	16.2%	14.2%
445	Food and Beverage Stores	22.9%	20.9%	19.4%	18.1%	17.0%	23.3%	21.3%	19.7%	18.4%	17.3%
448	Clothing and Accessories Stores	31.0%	25.5%	21.7%	18.8%	16.6%	27.3%	22.5%	19.1%	16.6%	14.6%
453	Misc Retailers	26.3%	21.1%	17.5%	14.9%	12.9%	28.3%	22.7%	18.9%	16.1%	14.0%
(B)	Truck Tran and Warehousing	22.7%	19.8%	17.7%	16.1%	14.8%	24.9%	21.8%	19.5%	17.7%	16.2%
531	Real Estate	17.6%	14.2%	11.8%	10.1%	8.8%	28.1%	22.7%	18.9%	16.2%	14.1%
(C)	Arch, Engineering, Mgmt	21.1%	17.9%	15.6%	13.8%	12.4%	26.1%	22.2%	19.3%	17.1%	15.3%
5411	Legal Services	21.6%	17.6%	14.8%	12.7%	11.1%	27.7%	22.6%	19.0%	16.4%	14.3%
56172	Janitorial Services	23.7%	20.7%	18.4%	16.6%	15.2%	25.1%	21.8%	19.4%	17.6%	16.1%
(D)	Health Services	26.3%	23.0%	20.6%	18.7%	17.1%	24.9%	21.8%	19.5%	17.6%	16.2%
624	Social Assistance	27.0%	23.7%	21.3%	19.3%	17.8%	24.7%	21.7%	19.5%	17.7%	16.3%
71	Arts, Entertainment, Recreation	22.3%	19.6%	17.7%	16.1%	14.9%	24.6%	21.7%	19.5%	17.8%	16.4%
721	Accommodation	23.6%	21.4%	19.7%	18.3%	17.1%	23.6%	21.4%	19.6%	18.3%	17.1%
722	Food and Drinking Places	25.5%	22.7%	20.6%	18.9%	17.6%	24.2%	21.6%	19.6%	18.0%	16.7%
(E)	Business Services	22.4%	19.6%	17.5%	15.9%	14.6%	24.9%	21.8%	19.5%	17.6%	16.2%
(F)	Auto Repair, Services, & Parking	26.6%	20.7%	16.7%	13.8%	11.7%	29.7%	23.1%	18.6%	15.5%	13.1%
(G)	Personal Services	24.9%	19.8%	16.3%	13.8%	11.9%	28.7%	22.8%	18.8%	15.9%	13.7%
	OTHER	26.1%	23.2%	21.1%	19.3%	17.9%	24.3%	21.6%	19.6%	17.9%	16.6%

(A) Equal to the following NAICS Codes: 4411 + 447
(B) Equal to the following NAICS Codes: 484 + 493
(C) Equal to the following NAICS Codes: 541 + 551111 - 5411 - 54143 - 5415 - 5418 - 5419
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(E) Equal to the following NAICS Codes: 5182 + 532 + 54143 + 5415 + 5418 + 5419 + 561
(F) Equal to the following NAICS Codes: 8111 + 81293 + 5321
(G) Equal to the following NAICS Codes: 81143 + 8121 + 8122 + 8123 + 8129 - 81293

Exhibit E.8:

DISTRIBUTION OF THE NUMBER OF ESTABLISHMENTS IN THE 5 to 9 EMPLOYMENT SIZE CLASS										
INDUSTRY		Number of Establishments in 5 to 9 Employment Size Class by Number of Employees						Threshold to Receive No-Match Letter	Number of Establishments for Revised Size Classes	
NAICS	Description	Total	5	6	7	8	9		5 to (Threshold - 1)	Threshold to 9
115	Ag Services	1,477	386	327	285	252	227	8	998	479
236	Construction of Buildings	36,918	10,091	8,303	7,040	6,103	5,381	7	18,394	18,524
238	Special Trade Contractors	84,995	22,524	18,922	16,331	14,374	12,844	7	41,447	43,548
315	Apparel MFG	1,906	477	416	371	335	307	8	1,264	642
423	Wholesale: Durable Goods	51,529	13,136	11,321	9,984	8,954	8,134	9	43,395	8,134
424	Wholesale: Nondurable Goods	24,820	6,126	5,391	4,839	4,407	4,058	9	20,762	4,058
(A)	Gas Stations and Auto Dealers	48,815	12,269	10,672	9,485	8,564	7,826	7	22,940	25,875
442	Furniture and Home Furnishings	15,424	4,317	3,495	2,923	2,504	2,184	7	7,812	7,612
445	Food and Beverage Stores	26,197	6,111	5,573	5,155	4,818	4,540	7	11,684	14,513
448	Clothing and Accessories Stores	44,895	12,243	10,089	8,567	7,435	6,561	7	22,333	22,562
453	Misc Retailers	28,325	8,023	6,442	5,351	4,556	3,953	7	14,465	13,860
(B)	Truck Tran and Warehousing	17,981	4,477	3,918	3,500	3,174	2,912	7	8,395	9,586
531	Real Estate	38,434	10,815	8,723	7,273	6,214	5,408	8	26,812	11,622
(C)	Arch, Engineering, Mgmt	56,605	14,797	12,544	10,909	9,666	8,688	7	27,342	29,263
5411	Legal Services	28,834	7,996	6,515	5,478	4,715	4,130	7	14,511	14,323
56172	Janitorial Services	8,893	2,230	1,942	1,729	1,563	1,430	7	4,172	4,721
(D)	Health Services	146,585	36,515	31,945	28,530	25,868	23,727	8	96,990	49,595
624	Social Assistance	28,648	7,084	6,227	5,583	5,080	4,674	8	18,894	9,754
71	Arts, Entertainment, Recreation	17,555	4,313	3,807	3,425	3,126	2,884	6	4,313	13,242
721	Accommodation	8,859	2,089	1,892	1,740	1,619	1,518	6	2,089	6,770
722	Food and Drinking Places	91,463	22,111	19,717	17,897	16,456	15,282	6	22,111	69,352
(E)	Business Services	104,508	26,030	22,774	20,341	18,444	16,919	7	48,804	55,704
(F)	Auto Repair, Services, & Parking	42,384	12,601	9,778	7,890	6,552	5,562	8	30,270	12,114
(G)	Personal Services	41,859	12,028	9,561	7,875	6,656	5,739	8	29,464	12,395
	OTHER	348,909	84,682	75,325	68,226	62,619	58,057	7	160,008	188,901

(A) Equal to the following NAICS Codes: 4411 + 447
(B) Equal to the following NAICS Codes: 484 + 493
(C) Equal to the following NAICS Codes: 541 + 551111 - 5411 - 54143 - 5415 - 5418 - 5419
(D) Equal to the following NAICS Codes: 621 + 622 + 623
(E) Equal to the following NAICS Codes: 5182 + 532 + 54143 + 5415 + 5418 + 5419 + 561
(F) Equal to the following NAICS Codes: 8111 + 81293 + 5321
(G) Equal to the following NAICS Codes: 81143 + 8121 + 8122 + 8123 + 8129 - 81293

Exhibit E.9:

Industries in GAO Study		Number of Employers in ESF from GAO Study	Percent of Industry Establishments >= Employment Size Threshold Needed to Receive No-Match Letter			No-Matches	
Industry	SIC Code		NAICS	NAICS Description	Percent	Number	Percent
Agriculture Production-Crops	01	123,805	N/A	N/A	25.1%	31,036	4.5%
Eating and Drinking Places	58	315,854	722	Food and Drinking Places	60.3%	190,326	27.5%
Construction-Special Trade	17	186,171	238	Special Trade Contractors	28.1%	52,325	7.6%
Business Services	73	94,414	(E)	Business Services	31.5%	29,782	4.3%
Health Services	80	73,535	(D)	Health Services	36.1%	26,560	3.8%
Food Stores	54	64,747	445	Food and Beverage Stores	39.8%	25,784	3.7%
Agriculture Services	07	63,368	115	Ag Services	19.9%	12,614	1.8%
Miscellaneous Retail	59	63,194	453	Misc Retailers	29.0%	18,324	2.6%
Bldg. Construction Gen. Contractor, OP Bldr*	15	62,278	236	Construction of Buildings	21.4%	13,303	1.9%
Personal Services**	72	60,814	(G)	Personal Services	22.2%	13,497	1.9%
Auto Repair, Services, Parking	75	54,130	(F)	Auto Repair, Services, and Parking	20.6%	11,136	1.6%
Auto Dealers, Gas Stations	55	49,837	(A)	Gas Stations and Auto Dealers	46.3%	23,080	3.3%
Real Estate	65	49,189	531	Real Estate	12.6%	6,217	0.9%
Durable Goods, Wholesale	50	42,357	423	Wholesale: Durable Goods	34.6%	14,662	2.1%
Social Services	83	38,483	624	Social Assistance	45.2%	17,391	2.5%
Engineering, Architecture, Research ...***	87	32,575	(C)	Arch, Engineering, Mgmt	24.3%	7,916	1.1%
Non durable Goods, Wholesale	51	32,452	424	Wholesale: Nondurable Goods	33.3%	10,816	1.6%
Hotels, Other Lodging Places	70	32,166	721	Accommodation	54.4%	17,489	2.5%
Private Households	88	31,070	56172	Janitorial Services	34.0%	10,579	1.5%
Motor Freight Transp. and Warehouse	42	30,674	(B)	Truck Tran and Warehousing	32.6%	10,001	1.4%
Amusement and Recreation Services	79	28,102	71	Arts, Entertainment, Recreation	37.1%	10,427	1.5%
Home Furniture & Equipment Stores	57	21,463	442	Furniture and Home Furnishings	36.4%	7,816	1.1%
Apparell and Other Finished Products	23	20,240	315	Apparel MFG	43.0%	8,704	1.3%
Apparell and Accessory Stores	56	20,115	448	Clothing and Accessories Stores	44.5%	8,961	1.3%
Legal Services	81	18,792	5411	Legal Services	19.9%	3,745	0.5%
Other	N/A	229,050	N/A	N/A	31.3%	110,305	15.9%
TOTAL		1,838,875			N/A	692,796	100%

* "OP Bldr" means "Operative Builders"

** Personal Services include laundry, carpet cleaning, photo studios, beauty shops, shoe repair, funeral service, tax and other miscellaneous personal services

*** Full listing is: Engineering, Architecture, Research, Management Related Services

(A) Equal to the following NAICS Codes: 4411 + 447

(B) Equal to the following NAICS Codes: 484 + 493

(C) Equal to the following NAICS Codes: 541 + 551111 - 5411 - 54143 - 5415 - 5418 - 5419

(D) Equal to the following NAICS Codes: 621 + 622 + 623

(E) Equal to the following NAICS Codes: 5182 + 532 + 54143 + 5415 + 5418 + 5419 + 561

(F) Equal to the following NAICS Codes: 8111 + 81293 + 5321

(G) Equal to the following NAICS Codes: 81143 + 8121 + 8122 + 8123 + 8129 - 81293

Raw Data Received from GAO

Exhibit E.10 shows the data on the distribution of industries in the ESF as those data were received from GAO.

Exhibit E.10:

Employers Reporting Earnings in the ESF, by Type of Industry			GAO
Major Code (First 2 Digits): Schedule by SIC Code with			12/21/04
at least 1.00 Percent of the Employers with items in the ESF			Sheet 2
Industry	Number of Employers	Percent of all Employers	SIC Code
Eating and Drinking Places	315,854	17.18%	58
Construction-Special Trade	186,171	10.12%	17
Agriculture Production-Crops	123,805	6.73%	01
Business Services	94,414	5.13%	73
Health Services	73,535	4.00%	80
Food Stores	64,747	3.52%	54
Agriculture Services	63,368	3.45%	07
Miscellaneous Retail	63,194	3.44%	59
Bldg. Construction Gen. Contractor, OP Bldr*	62,278	3.39%	15
Personal Services**	60,814	3.31%	72
Auto Repair, Services, Parking	54,130	2.94%	75
Auto Dealers, Gas Stations	49,837	2.71%	55
Real Estate	49,189	2.67%	65
Durable Goods, Wholesale	42,357	2.30%	50
Social Services	38,483	2.09%	83
Engineering, Architecture, Research ...***	32,575	1.77%	87
Non durable Goods, Wholesale	32,452	1.76%	51
Hotels, Other Lodging Places	32,166	1.75%	70
Private Households	31,070	1.69%	88
Motor Freight Transp. and Warehouse	30,674	1.67%	42
Amusement and Recreation Services	28,102	1.53%	79
Home Furniture & Equipment Stores	21,463	1.17%	57
Apparell and Other Finished Products	20,240	1.10%	23
Apparell and Accessory Stores	20,115	1.09%	56
Legal Services	18,792	1.02%	81
Total for industries with at least one percent of ESF items (25 industries)	1,609,825	87.54%	
Total for industries with less than one percent of ESF items (58 industries)	229,050	12.46%	
Total for all industries (83 in total)	1,838,875	100.00%	
* "OP Bldr" means "Operative Builders"			
** Personal Services include laundry, carpet cleaning, photo studios, beauty shops, shoe repair, funeral service, tax and other miscellaneous personal services			
*** Full listing is: Engineering, Architecture, Research, Management Related Services			

Appendix F: Review of Studies Regarding Labor Force Participation of Unauthorized Workers

April 2005 SSA OIG Report

The Social Security Administration's (SSA) Office of the Inspector General (OIG) conducted an analysis of the tax years 1999-2001 wage items in the Earnings Suspense File (EFS) for 300 employers that were evenly divided between the agriculture, restaurants, and service industries.[94] Those employers represent the 100 firms in each industry that contributed the most records to the ESF over the 3-year period. The data included more than 2.7 million ESF wage items, and the reason for each item's inclusion in the ESF was noted.

Exhibit F.1 presents the distribution of the reporting irregularities in this sample of ESF records. The first seven categories of reporting regularities in the exhibit account for approximately 25 percent of the wage items that involve an invalid SSN.[95] Although these invalid SSNs cannot all be assigned to unauthorized workers, unauthorized workers probably comprise a large percentage of the invalid SSNs that were used.[96] Valid SSNs with name mismatches may include some unauthorized workers as well. Based on this information, it can be assumed that unauthorized workers account for at least 20 percent of the ESF wage items in this sample.

Exhibit F.1: Distribution of Reporting Irregularities in EFS Sample

Reporting Irregularity	Number	Percent
SSN with all zeros	30,269	1.1%
SSN with all nines	1,227	0.0%
SSN with area number 666	781	0.0%
SSN with area number 773-999	15,554	0.6%
Unassigned SSNs	631,883	22.9%
Valid SSNs assigned to young children	9,469	0.3%
Valid SSNS assigned to deceased individuals	5,352	0.2%
Valid SSNs with name mismatches	2,066,230	74.8%
TOTAL	2,760,765	100.0%

[94] SSA OIG, *Social Security Number Misuse in the Service, Restaurant, and Agriculture Industries (A-08-05-25023)*, Audit Report, April 2005. Note that what constitutes the service sector was not clearly defined in the report, and that the service industry in another SSA OIG report included other sectors such as construction.

[95] In an earlier study, SSA OIG found that 26 percent of the posting to the ESF could be attributed to invalid SSNs. See SSA OIG, *Employers with the Most Suspended Wage Items in the 5-Year Period 1997 through 2001 (A-03-03-13048)*, October 2004, page 6.

[96] "SSA senior staff acknowledged the intentional misuse of SSNs by noncitizens not authorized to work is a major contributor to the ESF's growth." in SSA OIG, *Congressional Response Report: Status of the Social Security Administration's Earnings Suspense File (A-03-03-23038),* November 2002, page 3.

Exhibit F.2 compares the number of wage items posted to ESF with the total number of W-2s submitted by these companies. The exhibit depicts a wide range among the industries and considerable variation within each industry. On average, 14 percent of the total W-2 submissions were posted to the ESF, whereas the median employer percentage was 32 percent. Agriculture contributed the largest percentage of its W-2s to the ESF (48%), followed by Services (13%) and Restaurants (11%). At least one employer had up to 93 percent of its W-2s posted to the ESF, whereas at least one other employer only had 1 percent of its W-2s that did not match SSA records.

Exhibit F.2:

Industry	Number of W-2s Submitted	Number of ESF Items	Percent of W-2s Posted to the ESF	Median Employer Percentage	Range of Employer Percentages	
					Low	High
Service	8,920,746	1,132,070	13	30	1	93
Restaurant	9,061,420	1,026,620	11	15	2	70
Agriculture	1,264,716	602,075	48	68	3	85
Total	19,246,882	2,760,765	14	32	1	93

In conjunction with other data, the figures in column 4 can be used to derive the percentage of ESF postings that can be attributed to unauthorized workers. In Exhibit F.2, the number of ESF postings in column 3 is a product of the total number of W-2s submitted (column 2) and the percent of W-2s posted to the ESF (column 4), or

$$ESF = ESFPercent * W2,$$

where "ESF" is the number of postings to the ESF, "W2" is the total number of W-2s submitted, and ESFPercent is the number of ESF items divided by the total W-2 submissions.

Exhibit F.4 below presents estimates from the Pew Hispanic Center on the percentage of industry labor forces comprised by unauthorized workers. These labor-force percentages can be used in the following equation to estimate the number of unauthorized workers:

$$U = UnauthorizedLFPercent * E,$$

where "U" is the number of unauthorized workers in the industry, "E" is the total industry labor force, and UnauthorizedLFPercent is the number of unauthorized workers divided by the total labor force.

If we assume that all unauthorized workers are employed by firms that submit W-2s for their work, unauthorized workers would comprise the following percentage of ESF postings:

$$U / ESF = (UnauthorizedLFPercent / ESFPercent) * (E / W2).$$

In Appendix A, we saw that the number of W2s submitted by an employer is a function of the size of the labor force and the number of new hires. As previously shown, this relationship can be stated as

$$W2 = E * (1 + R),$$

where "R" is the hire rate. Substituting the right side of this expression into the previous equation produces the following:

$$U / ESF = (UnauthorizedLFPercent / ESFPercent) / (1 + R)$$

Exhibit F.3 uses the relevant percentages from Exhibits F.2, F.4, and C.1 to estimate the ratio presented in the above equation, the results of which are shown in column 5. Because some unauthorized workers do not have W-2s submitted for their employment, these estimates should be considered upper bounds. Also, we do not have any information on rates for other industries, but suspect they would be lower than those displayed in Exhibit F.3.

Exhibit F.3:

Industry	ESFPercent	UnauthorizedLFPercent	Hire Rate	U / ESF
Service	13%	11%	45.1%[97]	58%
Restaurant	11%	12%	78.7%	61%
Agriculture	48%	53%	90%	58%

February 2005 GAO Report

In February 2005, GAO released an analysis of 84.6 millions ESF wage items, covering tax years 1985 to 2000.[98] The report addresses different types of information that are somewhat related to the number of unauthorized workers in the ESF. One analysis looked at 295 SSNs, of which each had at least 1,000 wage items posted to the ESF over the period. Since 1937, SSA has reinstated 13.1 million ESF wage items associated with these 295 SSNs.[99] These reinstatements were given to 11.7 million different persons, of whom 10.5 million (90 percent) were born in the United States and 10 percent were born in other countries. Since 1985 the percentage of reinstatement recipients who were foreign-born has leveled off at approximately 18 percent.[100] Further analysis of the data indicates that approximately 52 percent of the reinstatements to foreign-born individuals

[97] This figure is an average of the hire rates for the different service industries presented in Exhibit C.1.
[98] GAO, *Social Security: Better Coordination among Federal Agencies Could Reduce Unidentified Earnings Reports (GAO-05-154),* Report to Congressional Committees, February 2005.
[99] Social Security benefits that cannot be properly credited to an individual are placed in the Earnings Suspense File (ESF). When SSA is able to validate the identity of an earnings holder in the ESF, the associated benefits are "reinstated"; i.e., credited to the individual's Social Security account.
[100] In the report, GAO presents data for 1986-2003. A trend analysis of the data shows a very flat trend for the period 1989-2003. We did not use the data points for 1986-1988, because there appears to be a change in the trend between 1988 and 1989.

will have had earnings in the ESF before they receive a SSN.[101] This implies that roughly 9 percent (52% * 18%) of the reinstatement recipients will have had unauthorized earnings at some time in the past.

Although seemingly relevant, it is difficult to use this information to gauge the extent of unauthorized workers in the ESF (which might shed some light on the number of unauthorized workers affected by the no-match letters). For example, foreign-born reinstatement recipients include both U.S. citizens and authorized non-citizens in addition to unauthorized workers. Furthermore, the percentage of recipients who were unauthorized at some point in the past (9 percent) only reflects non-citizens who eventually obtained a SSN; it does not address unauthorized workers in the ESF who never obtained a SSN or a work permit.

The reinstatement data are also difficult to utilize. While there were 13.1 million reinstatements associated with these 295 SSNs over the past 70 years, 9.6 million records still remain in the ESF because the employees could not be identified. Expressing these numbers in percentages shows that SSA was able to reinstate 58 percent of the ESF postings for these 295 SSNs, while 42 percent of those postings remain unsolved. Although we do not know the extent to which the unsolved posting are associated with different individuals, the 13.1 million reinstatements were assigned to individuals on nearly a one-for-one basis.[102] If we assume that the remaining 9.6 million records in the ESF are similarly dispersed to individuals and are all associated with unauthorized workers, 42 percent is an estimate of the percentage of workers associated with the 295 SSNs who could be unauthorized. This figure could be higher or lower depending on a number of other factors that are unknown. For example, 42 percent is an average based on the total reinstatements over a 70 year period. However, if the ratio of authorized to unauthorized workers in the ESF has been trending upward or downward over time, the 42-percent figure will underestimate or overestimate the actual percentage for the most recent years. This study provided no data on a year-by-year trend in reinstatements, and we cannot predict the ratio of authorized to unauthorized workers in a given tax year on the basis of historical reinstatement totals over a 70-year period.

Pew Hispanic Center Report

The Pew Center has reported several estimates of the proportion of the labor force that is comprised of unauthorized workers. For example, Pew estimated there are 7.2 million unauthorized migrant workers in the United States, accounting for 4.9 percent of the total civilian labor force.[103] In the same report, the Pew Center provides similar estimates for different industries, which are reproduced in Exhibit F.4.

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[101] Annual data are presented in Table 10 for the period 1986-2003. Trend analysis of the data shows a very flat trend for the period 1989-2003. Again, we did not use the data points for 1986-1988, because there appears to be a change in the trend between 1988 and 1989.

[102] 13.1 million records divided by 11.7 million recipients = 1.12.

[103] Pew Hispanic Center, Jeffery S. Passel, *The Size and Characteristics of the Unauthorized Migrant Population in the U.S.: Estimates Based on the March 2005 Current Population Survey*, Research Report, March 7, 2006. In the report, the term "unauthorized migrant" refers to a person "who resides in the U.S.

Exhibit F.4: Proportion of Each Industry's Labor Force Which Is Unauthorized	
Industry	**Percent**
Private Households	21%
Food Manufacturing	14%
Agriculture[104]	13%
Furniture Manufacturing	13%
Construction	12%
Textiles Manufacturing	12%
Food Services	12%
Admin. & Support Services	11%
Accommodations	10%
Other Manufacturing	6%

To some extent, the figures in Exhibit F.4 represent lower bounds for the average industry percentages of ESF postings that can be attributed to unauthorized workers. In other words, the number of unauthorized workers divided by an industry's total labor force has to be less than the number of unauthorized workers divided by the number of workers with ESF postings. However, the numbers in Exhibit F.4 do not take into account the percentage of unauthorized workers who are employed on legitimate payrolls versus those who work in the underground economy. To the extent that the above percentages reflect all unauthorized workers, the percentages will be higher than average industry percentages based only on employers with legitimate payrolls.

Center for Urban Economic Development, University of Illinois at Chicago Report, November 2003[105]

The purpose of this report was to determine how no-match letters impact labor markets and immigration enforcement efforts. In the summer of 2003, the authors surveyed a non-random sample of workers (921) listed on no-match letters; these letters were sent to 342 employers in 18 States. Other sources of information were also reviewed, including an SSA OIG audit released in November 2002. According to the audit that was reviewed, less than 2 percent of the corrections to SSA records stem from employers' corrections of their W-2s. The authors therefore conclude that "the no-match letter

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but who is not a U.S. citizen, has not been admitted for permanent residence, and is not in a set of specific authorized temporary statuses permitting longer-term residence and work."

[104] In a separate Pew Center paper, it is estimated that approximately 48 percent of the agriculture labor force is unauthorized. This number includes both crop workers and livestock workers and is based on a 58-percent rate for crop workers. See Pew Hispanic Center, B. Lindsay Lowell and Roberto Suro, *How Many Undocumented: the Numbers Behind the U.S. – Mexican Migration Talks*, March 21, 2002. According to USDA's National Agriculture Workers Survey, 53 percent of the hired crop labor force lacked work authorization in 2001-2002, down from 55 percent in 1999-2000. USDA, National Agriculture Workers Survey, December 12, 2007.

[105] Chirag Mehta, Nik Theodore and Marielena Hincapie, Center for Urban Economic Development, University of Illinois at Chicago, *Social Security Administration's No-Match Letter Program: Implications for Immigration Enforcement and Workers' Rights*, November 2003.

program will not produce a substantial number of corrections to wage items in the ESF and argue that the no-match letter program is ineffective as a tool for reducing the ESF."

At the time of the study, employers did not have the same incentives to follow up on no-match letters as they would have under the no-match rule. If employers become more attentive to their no-match letters, which we assume will be the case, it is likely that W-2 corrections will become a larger share of the ESF reinstatements. For this reason, it is believed that employers will be able to resolve a greater percentage of their no-matches than the 2 percent indicated in SSA's OIG audit in 2002.

While the authors of the Center for Urban Economic Development report do not argue that the low rate of reinstatements from the no-match program demonstrates that a correspondingly high ratio of no-matched employees are unauthorized aliens, they nevertheless assert that "most workers with unmatched SSNs are undocumented immigrants," and seek to support this inference by noting parallel growth in illegal immigration and in the ESF, as well as correlations between the State-by-State distribution of no-match letters and States' illegal immigrant populations.

Appendix G: Computation of Weighted Average Wage Rates

As noted in the report, the cost analysis depends upon hourly wage rates for the following occupations:

- Lawyer
- Accountant
- Compensation and Benefits Manager
- Compensation, Benefits, and Employment Specialist
- Human Resources Assistant

For each of these occupations, average hourly wage estimates by State were obtained from the U.S. Bureau of Labor Statistics (BLS).[106] A weighted average of these State wages was then developed by using as weights the percentage of no-match letters to be sent to each State for TY 2006.[107]

In addition, it was necessary to capture the value of lost time for any employee listed on a no-match letter. Since employees listed on no-match letters span the gamut of occupations, an average labor rate across all occupations was used for this purpose. For each State, a single average wage representing all occupations was obtained from the same BLS source listed below; these wages were then weighted by the percentage of no-match letters to be sent to each State for TY 2006. The sum of the weighted wages produced the weighted average wage rate used in the analysis.

Exhibit G.1 presents the data and computations used to create the weighted average wage rates that were used. The third column in the table, the percentage of no-match letters sent to each State, contains the weights for the occupations that are listed. These percentages are multiplied by the corresponding average hourly State wage to produce a weighted wage. For example: for California, the weighted wage for a lawyer is calculated as 25.6% * 63.78; the weighted wage for an accountant in California is calculated as 25.6% * 30.96. The sums of the weighted wages are listed in the final row in the table; these figures are the weighted average wage rates used in the analysis.

[106] U.S. Bureau of Labor Statistics, Department of Labor, Occupational Employment Statistics (OES) Survey, May 2006.
[107] SSA, *EDCOR Notices by State TY 2006 – 080407*.

Exhibit G.1:

State	EDCOR Notices (2006)		Lawyer (23-1011)		Accountant (13-2011)		Comp/Ben Specialist (13-1072)		Comp/Ben Manager (11-3041)		HR Assistant (43-4161)		All Occupations	
	Number	Percent	Average Hourly State Wage	Weighted Wage	Average Hourly State Wage	Weighted Wage	Average Hourly State Wage	Weighted Wage	Average Hourly State Wage	Weighted Wage	Average Hourly State Wage	Weighted Wage	Average Hourly State Wage	Weighted Wage
AK	28	0.0%	45.67	0.0092	26.84	0.0054	24.96	0.0050	33.72	0.0068	18.43	0.0037	21.12	0.0043
AL	1,159	0.8%	50.97	0.4268	25.58	0.2142	21.30	0.1784	34.40	0.2881	14.63	0.1225	16.08	0.1347
AR	600	0.4%	38.71	0.1678	22.91	0.0993	19.89	0.0862	32.23	0.1397	14.21	0.0616	14.84	0.0643
AZ	5,542	4.0%	50.91	2.0386	25.67	1.0279	22.99	0.9206	29.12	1.1661	16.73	0.6699	17.43	0.6980
CA	35,474	25.6%	63.78	16.3477	30.96	7.9355	28.56	7.3203	41.97	10.7575	18.98	4.8648	21.24	5.4441
CO	3,418	2.5%	49.94	1.2333	29.53	0.7293	27.34	0.6752	39.88	0.9849	17.56	0.4337	19.93	0.4922
CT	1,272	0.9%	54.88	0.5044	32.98	0.3031	29.58	0.2719	41.49	0.3813	19.14	0.1759	22.10	0.2031
DC	372	0.3%	66.75	0.1794	33.04	0.0888	32.15	0.0864	38.12	0.1025	20.18	0.0542	29.57	0.0795
DE	275	0.2%	60.65	0.1205	27.75	0.0551	27.45	0.0545	51.35	0.1020	17.60	0.0350	20.04	0.0398
FL	7,378	5.3%	51.12	2.7251	27.43	1.4623	23.27	1.2405	42.30	2.2550	14.81	0.7895	17.22	0.9180
GA	4,669	3.4%	56.16	1.8946	28.57	0.9638	23.40	0.7894	38.03	1.2830	15.69	0.5293	17.86	0.6025
HI	127	0.1%	45.36	0.0416	24.15	0.0222	22.29	0.0205	32.24	0.0296	16.82	0.0154	18.57	0.0170
IA	503	0.4%	44.86	0.1630	26.19	0.0952	20.72	0.0753	35.31	0.1283	15.61	0.0567	15.99	0.0581
ID	1,014	0.7%	46.36	0.3397	22.84	0.1673	23.99	0.1758	28.95	0.2121	15.68	0.1149	16.73	0.1226
IL	6,455	4.7%	60.87	2.8390	31.16	1.4533	26.96	1.2574	35.25	1.6441	17.43	0.8129	19.67	0.9174
IN	1,767	1.3%	41.73	0.5328	27.08	0.3457	23.20	0.2962	31.82	0.4063	15.43	0.1970	16.92	0.2160
KS	1,138	0.8%	38.79	0.3190	25.45	0.2093	23.91	0.1966	34.18	0.2810	15.72	0.1293	16.81	0.1382
KY	913	0.7%	43.98	0.2901	24.18	0.1595	21.47	0.1416	32.72	0.2158	15.51	0.1023	16.10	0.1062
LA	759	0.5%	45.00	0.2468	24.16	0.1325	19.15	0.1050	29.16	0.1599	14.88	0.0816	15.82	0.0868
MA	2,260	1.6%	58.65	0.9577	29.84	0.4873	28.85	0.4711	49.72	0.8119	18.30	0.2988	22.76	0.3717
MD	2,456	1.8%	52.60	0.9334	31.48	0.5586	27.34	0.4852	38.27	0.6791	18.40	0.3265	21.17	0.3757
ME	72	0.1%	42.97	0.0224	24.69	0.0128	22.00	0.0114	32.74	0.0170	14.02	0.0073	16.90	0.0088
MI	1,735	1.3%	52.37	0.6565	28.68	0.3595	27.45	0.3441	37.89	0.4750	17.99	0.2255	19.82	0.2485
MN	1,379	1.0%	54.10	0.5390	27.66	0.2756	24.36	0.2427	53.32	0.5313	16.73	0.1667	19.96	0.1989
MO	1,021	0.7%	50.55	0.3729	27.49	0.2028	22.59	0.1666	39.22	0.2893	16.08	0.1186	17.15	0.1265
MS	516	0.4%	39.43	0.1470	26.57	0.0991	19.70	0.0734	27.80	0.1036	14.90	0.0556	14.64	0.0546
MT	47	0.0%	28.31	0.0096	23.98	0.0081	20.18	0.0069	28.69	0.0097	14.59	0.0050	15.04	0.0051
NC	4,705	3.4%	51.13	1.7382	27.21	0.9250	24.13	0.8203	38.11	1.2956	15.04	0.5113	17.08	0.5806
ND	39	0.0%	38.92	0.0110	20.73	0.0058	23.61	0.0067	34.41	0.0097	14.70	0.0041	15.60	0.0044
NE	1,144	0.8%	45.28	0.3743	27.41	0.2266	24.39	0.2016	37.32	0.3085	15.11	0.1249	16.49	0.1363
NH	160	0.1%	46.34	0.0536	25.37	0.0293	22.44	0.0259	33.13	0.0383	16.07	0.0186	18.87	0.0218
NJ	4,676	3.4%	56.24	1.9001	33.74	1.1399	28.92	0.9771	53.38	1.8035	17.89	0.6044	21.85	0.7382
NM	1,013	0.7%	38.99	0.2854	25.76	0.1885	23.20	0.1698	29.06	0.2127	15.76	0.1154	16.34	0.1196
NV	2,544	1.8%	54.64	1.0044	25.88	0.4757	24.91	0.4579	30.78	0.5658	14.96	0.2750	17.31	0.3182
NY	5,688	4.1%	60.05	2.4679	34.64	1.4236	28.14	1.1565	47.90	1.9686	17.41	0.7155	22.03	0.9054
OH	1,313	0.9%	47.53	0.4509	28.17	0.2672	25.77	0.2445	42.54	0.4036	16.38	0.1554	17.96	0.1704
OK	1,565	1.1%	46.19	0.5223	23.67	0.2677	20.50	0.2318	30.82	0.3485	14.43	0.1632	15.66	0.1771
OR	3,041	2.2%	44.46	0.9769	27.51	0.6045	22.51	0.4946	39.44	0.8666	16.69	0.3667	18.54	0.4074
PA	1,478	1.1%	49.59	0.5296	29.21	0.3119	25.15	0.2686	35.77	0.3820	16.82	0.1796	18.07	0.1930
RI	352	0.3%	44.43	0.1130	30.65	0.0780	25.14	0.0639	35.15	0.0894	15.90	0.0404	19.51	0.0496
SC	1,775	1.3%	47.68	0.6115	25.08	0.3217	20.55	0.2636	33.10	0.4245	15.36	0.1970	16.06	0.2060
SD	96	0.1%	34.84	0.0242	23.07	0.0160	20.52	0.0142	37.40	0.0259	12.83	0.0089	14.65	0.0102
TN	1,920	1.4%	49.81	0.6910	24.90	0.3454	21.90	0.3038	30.55	0.4238	15.81	0.2193	16.46	0.2283
TX	12,713	9.2%	55.28	5.0778	28.13	2.5839	25.26	2.3203	42.98	3.9480	15.69	1.4412	17.50	1.6075
UT	2,134	1.5%	51.35	0.7918	26.76	0.4126	29.09	0.4485	37.71	0.5814	15.06	0.2322	17.09	0.2635
VA	2,846	2.1%	55.33	1.1378	31.01	0.6377	25.70	0.5285	42.76	0.8793	17.49	0.3597	19.93	0.4098
VT	35	0.0%	41.15	0.0104	27.85	0.0070	22.72	0.0057	39.28	0.0099	15.73	0.0040	17.48	0.0044
WA	5,002	3.6%	41.75	1.5089	28.54	1.0315	26.68	0.9643	42.80	1.5469	16.97	0.6133	20.63	0.7456
WI	1,554	1.1%	47.16	0.5295	28.07	0.3152	23.87	0.2680	36.50	0.4098	16.22	0.1821	17.66	0.1983
WV	57	0.0%	43.46	0.0179	23.71	0.0098	18.98	0.0078	32.94	0.0136	14.87	0.0061	15.11	0.0062
WY	202	0.1%	38.05	0.0555	23.54	0.0344	20.93	0.0305	32.36	0.0472	15.98	0.0233	16.48	0.0241
Total/Avg	138,401	100.0%		55		29		26		40		17		19

Appendix H: Calculation of Accounting Costs

The accounting costs are calculated by multiplying the average wage rate for an accountant by the estimated number of hours it will take an accountant to perform required functions under the rule. As shown in Exhibit 14, $41.52 is the loaded average hourly wage rate assumed for an accountant. The amount of time spent by an accountant is calculated as the total number of hours spent on two separate accounting activities: completing the W-2c form and completing the W-3c form. The variables used to compute the number of hours for each of these activities is specified below.

Completion of W-2c Form

The number of hours spent completing W-2c forms is a product of the number of authorized no-match employees (who are assumed to have their no-matches resolved) and an estimate of the amount of time it will take to complete a form for one individual.

Length of Time: 0.25 Hours

Number of Employees: Total Number of Authorized Employees (Exhibit 13)

The number of authorized no-match employees in Exhibit 13 is presented both by size class and the percentage of no-match employees assumed to be unauthorized.

Completion of W-3c Form

The total amount of time involved in completing W-3c forms is not a function of the number of no-match employees. Rather, it is assumed that each firm that receives a no-match letter will complete and submit one W-3c form, which will require a half hour of an accountant's time. The calculations are presented in the following table. The numbers in the third column are equal to the corresponding figures in the second column * 0.5 hours. The fourth column simply multiplies the third column by $41.52, the accountant wage rate.

Exhibit H.1: Estimated Cost for Completing W-3c Forms

Employment Size Class	Number of No-Match Employers	Number of Hours Spent Completing W-3c Forms	Total Cost to Complete W-3c Forms
5-9	4,866	2,433	101,024
10-19	24,840	12,420	515,741
20-49	46,102	23,051	957,187
50-99	23,286	11,643	483,469
100-499	33,653	16,827	698,719
500+	8,088	4,044	167,931

Appendix I: Calculation of Human Resources Labor Costs

Human Resources (HR) labor costs involve the following activities: writing form letters, checking and reviewing payroll records and employee files, contacting employees about their no-match status, meeting with employees about their no-match status, and providing other assistance to help no-match employees resolve their status. For each of these activities, the cost estimates rely upon assumptions about the allocation of duties among different types of HR personnel. The types of HR personnel distinguished in the analysis are compensation and benefits managers, compensation/benefits/employment specialists, and HR assistants. For each activity and occupation, costs estimates are a function of the wage rate (shown in Exhibit 14) and the amount of time spent conducting the activity. In most cases, the amount of time spent on the activity depends on the number of no-match employees affected.

Form Letters

The total amount of time writing form letters is not a function of the number of no-match employees. Rather, it is assumed that each firm that receives a no-match letter will write several different form letters to use when communicating with affected employees and various government agencies. Writing the form letters will require 45 minutes split among the Compensation and Benefits Manager (15 minutes) and the Compensation/Benefits/Employment Specialist (30 minutes). The cost per employer of writing form letters is $32.93 (15 minutes at $57.28 per hour for the Manager, plus 30 minutes at $37.23 per hour for the Specialist). The calculations are presented in Exhibit I.1. The numbers in the third column are equal to the corresponding figures in the second column multiplied by 0.75 hours, to determine the total amount of time. The fourth column multiplies the second column by $32.93, the cost per employer to write the form letters.

Exhibit I.1: Estimated Cost for Writing Form Letters

Employment Size Class	Number of No-Match Employers	Number of Hours Spent Writing Form Letters	Total Cost to Write Form Letters
5-9	4,866	3,650	$160,237
10-19	24,840	18,630	$817,981
20-49	46,102	34,577	$1,518,139
50-99	23,286	17,465	$766,808
100-499	33,653	25,240	$1,108,193
500+	8,088	6,066	$266,338

Identification of Employees Listed on the No-Match Letter

Each employer that receives a no-match letter must determine whether employees identified on the list are still working for the company. The employer will generate a list of all current employees (including name and SSN) at a cost of $175. Comparing the list

to the no-match letter will take 15 minutes of an HR Assistant's time. The labor cost per employer of identifying employees listed on the no-match letter is $6.09 (15 minutes at $24.34 per hour for the HR Assistant). The total cost per employer is $181.09. The calculations are presented in Exhibit I.2. The numbers in the third column are equal to the corresponding figures in the second column multiplied by 0.25 hours. The fourth column multiplies the second column by $181.09, the cost per employer to identify employees listed on the no-match letter.

Exhibit I.2: Estimated Cost for Identifying Employees Listed on the No-Match Letter

Employment Size Class	Number of No-Match Employers	Number of Hours Spent Identifying Employees	Total Cost to Identify Employees
5-9	4,866	1,217	$881,184
10-19	24,840	6,210	$4,498,276
20-49	46,102	11,526	$8,348,611
50-99	23,286	5,822	$4,216,862
100-499	33,653	8,413	$6,094,222
500+	8,088	2,022	$1,464,656

Review of Employee Records

Type of HR Personnel: Compensation/Benefits/Employment Specialist

Length of Time: 0.25 Hours

Number of Employees: Number of Current No-Match Employees (Exhibit 10)

Initial Letter to Employee

Type of HR Personnel: HR Assistant

Length of Time: 0.1 Hour

Number of Participating Employees: Number of Unauthorized Employees (Exhibit 12)
+ Number of Authorized Employees (Exhibit 13)
– (⅓ X Number of Authorized Employees)[108]

The number of unauthorized and authorized no-match employees in Exhibits 12 and 13, respectively, is presented both by size class and the percentage of no-match employees assumed to be unauthorized.

[108] Those employees whose no-matches were resolved during the initial review of their records.

Initial Meeting with Employee

Type of HR Personnel:	Compensation/Benefits/Employment Specialist
Length of Time:	0.25 Hour
Number of Participating Employees:	Number of Unauthorized Employees (Exhibit 12) + Number of Authorized Employees (Exhibit 13) – (⅓ X Number of Authorized Employees)

HR Assistance Rendered to Employee

Type of HR Personnel:	Compensation/Benefits/Employment Specialist
Length of Time:	1 Hour
Number of Participating Employees:	⅓ X Number of Authorized Employees (Exhibit 13)

Appendix J: Calculation of Employee Productivity Costs

The costs are calculated by multiplying the average employee wage rate by the estimated number of employer hours that will be lost. As discussed in section III.C, $27.58 is the loaded average hourly wage rate used to reflect the opportunity cost of no-match employees' time. The total number of lost hours is calculated as a sum of lost hours for three separate activities: the initial meeting employees have with an HR representative, a second follow-up meeting, and time taken off work to visit an SSA office. The number of lost hours for each of these components is a product of the number of no-match employees who participate in the activity and each activity's length of time. These variables are specified below for each activity. Note that the number of authorized and unauthorized no-match employees in Exhibits 12 and 13 is presented both by size class and the percentage of no-match employees assumed to be unauthorized.

Initial Meeting with HR

Length of Time:	1 Hour
Number of Participating Employees:	Number of Unauthorized Employees (Exhibit 12) + Number of Authorized Employees (Exhibit 13) – 1/3 * Number of Authorized Employees[109]

Second Meeting with HR

Length of Time:	1 Hour
Number of Participating Employees:	1/3 * Number of Authorized Employees (Exhibit 13)

Day Off Work

Length of Time:	8 Hours
Number of Participating Employees:	1/3 * Number of Authorized Employees (Exhibit 13)

[109] Those employees whose no-matches were resolved during the initial review of their records.

Appendix K: Calculation of Miscellaneous Costs

Miscellaneous costs include expenditures on phone, postage, and printing. For each of the resources, the cost is a function of a unit cost estimate and the total number of units that are used. The total number of units that are used is equal to the number of employees that either utilize the resource or to which the resource applies multiplied by the number of units per employee. Note that the number of authorized and unauthorized no-match employees in Exhibits 12 and 13 is presented both by size class and the percentage of no-match employees assumed to be unauthorized. The variables used to estimate the costs of the resources are presented below.

Phone

Number of Employees:	1/3 * Number of Authorized Employees (Exhibit 13)
Number of Units per Employee:	1 Hour
Cost per Unit:	$6.00 per Hour

Postage

Postage costs are based on (1) the number of letters initially used to contact employees about their no-match status and (2) other letters sent by HR while helping employees resolve their status (e.g., a request for a birth certificate). The number of employees affected by these two endeavors is not the same.

Initial Letter	Number of Employees:	Number of Unauthorized Workers (Exhibit 12) + Number of Authorized Workers (Exhibit 13) - 1/3 * Number of Authorized Employees[110]
	Number of Units per Employee:	1 Stamp
	Cost per Unit:	$0.50 per Stamp
Second Letter	Number of Employees:	1/3 * Number of Authorized Employees[111]

[110] Those employees whose no-matches were resolved during the initial review of their records.
[111] Those employees who seek HR assistance.

	Number of Units per Employee:	1 Stamp
	Cost per Unit:	$0.50 per Stamp

Printing

Printing costs are based on (1) the number of letters initially used to contact employees about their no-match status and (2) forms, letters, or other information printed by HR while helping employees resolve their status. The number of employees affected by these two endeavors is not the same.

Initial Letter	Number of Employees:	Number of Unauthorized Workers (Exhibit 12) + Number of Authorized Workers (Exhibit 13) - 1/3 * Number of Authorized Employees[112]
	Number of Units per Employee:	1 Page
	Cost per Unit:	$1.00 per Page
Second Letter	Number of Employees:	1/3 * Number of Authorized Employees[113]
	Number of Units per Employee:	9 Pages
	Cost per Unit:	$1.00 per Page

[112] Those employees whose no-matches were resolved during the initial review of their records.
[113] Those employees who seek HR assistance.

Appendix L: Estimation of Revenues per Firm

As noted in the text, the data on receipts for non-agricultural industries include a size class (20-99 employees) that combines two of the size classes used in this analysis (20-49 employees and 50-99 employees). This appendix describes the procedures used to allocate the following data for the 20-99 employee size class into estimates for the 20-49 and 50-99 employment size classes:

Exhibit L.1: 2002 SBA Data for the 20-99 Employment Size Class	
Number of Firms	508,249
Total Receipts (000)	2,884,696,648

The methodology that was used can be summarized as follows. First, a procedure was used to construct a distribution of firm sizes for firms with 20-99 employees. For example, the algorithm estimated the percentage of total firms in the 20-99 size class comprised of firms with 37 employees (percentages for all the other specific employment levels between 22 and 99 were estimated as well). This percentage was then multiplied by the number of firms with 20-99 employees (508,249) to estimate the number of firms with only 37 employees.

Next, a simple regression was estimated in which receipts per firm were related to employment per firm. The slope coefficient of the regression was multiplied by each specific employment level between 22 and 99 to produce a vector of receipts per firm for each level of employment. The receipt-per-firm estimates were then multiplied by the corresponding number of firms at each employment level (estimated in the first step above) to estimate the total receipts for each employment level (e.g., 37). These total receipt estimates were subsequently calibrated so that they would sum to the level of receipts for the 20-99 size class (2,888,696,648). Finally, the estimated number of firms and receipts were aggregated into the desired size classes (20-49, 50-99).

Distribution of the Number of Firms to Specific Employment Levels

The procedure used to create the size distribution is based on the same regression analysis utilized in Appendix A to distribute the SSA no-match counts. As noted earlier, that analysis relies on SBA data on firm counts and number of employees by size class for 2004 (see Exhibit B.1 in Appendix B). The specification uses a power trend to relate the percentage of total firms by size class to the average number of employees per firm by size class. See Appendix A for more details.

The coefficients were used to develop initial estimates of the percentage of firms for each discreet employment level (e.g., 37). The estimated percentages were then calibrated so that they would sum to 100 percent. Multiplying the percentages by the number of firms

in the class (508,249) estimates the number of employers for each discreet employment level.

These calculations are reproduced in the following table. Derived from the regression coefficients, the 2nd column reports the estimated percentage of firms accounted for by employers with the average number of people employed in the first column. For example, the first row shows the regression prediction that firms with 20 employees comprise 10.8 percent of all employer firms. This figure was computed as follows: $10.8\% = 0.4235 * 20^{-8927}$. This 10.8% figure was then calibrated by dividing it by 458%, the sum of the predictions for those 79 employment levels. The result, 2.38%, was multiplied by 508,249 (the total number of firms listed in Exhibit L.1) to produce 12,075: an estimate of the number of firms with 20 employees.

Exhibit L.2: Estimated Number of Firms by Employment Size

Employment Size (Number of Employees)	Percent of Firms (Regression Prediction)	Calibrated Percent of Firms for Size Class	Estimated Number of Firms
20	10.8%	2.38%	12,075
21	10.4%	2.30%	11,676
22	10.1%	2.22%	11,307
23	9.8%	2.16%	10,966
24	9.5%	2.10%	10,649
25	9.3%	2.04%	10,353
26	9.0%	1.98%	10,077
27	8.8%	1.93%	9,818
28	8.6%	1.88%	9,575
29	8.4%	1.84%	9,346
30	8.2%	1.80%	9,130
31	8.0%	1.76%	8,926
32	7.8%	1.72%	8,732
33	7.6%	1.68%	8,549
34	7.5%	1.65%	8,375
35	7.3%	1.62%	8,209
36	7.2%	1.58%	8,051
37	7.1%	1.55%	7,900
38	6.9%	1.53%	7,756
39	6.8%	1.50%	7,619
40	6.7%	1.47%	7,487
41	6.6%	1.45%	7,360
42	6.5%	1.42%	7,239
43	6.4%	1.40%	7,123
44	6.3%	1.38%	7,011
45	6.2%	1.36%	6,903
46	6.1%	1.34%	6,799

Exhibit L.2: Estimated Number of Firms by Employment Size			
Employment Size (Number of Employees)	**Percent of Firms (Regression Prediction)**	**Calibrated Percent of Firms for Size Class**	**Estimated Number of Firms**
47	6.0%	1.32%	6,699
48	5.9%	1.30%	6,602
49	5.8%	1.28%	6,509
50	5.7%	1.26%	6,419
51	5.7%	1.25%	6,332
52	5.6%	1.23%	6,248
53	5.5%	1.21%	6,166
54	5.4%	1.20%	6,087
55	5.4%	1.18%	6,011
56	5.3%	1.17%	5,936
57	5.2%	1.15%	5,864
58	5.2%	1.14%	5,794
59	5.1%	1.13%	5,727
60	5.1%	1.11%	5,661
61	5.0%	1.10%	5,596
62	5.0%	1.09%	5,534
63	4.9%	1.08%	5,473
64	4.8%	1.07%	5,414
65	4.8%	1.05%	5,357
66	4.7%	1.04%	5,300
67	4.7%	1.03%	5,246
68	4.6%	1.02%	5,192
69	4.6%	1.01%	5,140
70	4.6%	1.00%	5,090
71	4.5%	0.99%	5,040
72	4.5%	0.98%	4,992
73	4.4%	0.97%	4,944
74	4.4%	0.96%	4,898
75	4.3%	0.95%	4,853
76	4.3%	0.95%	4,809
77	4.3%	0.94%	4,766
78	4.2%	0.93%	4,724
79	4.2%	0.92%	4,682
80	4.2%	0.91%	4,642
81	4.1%	0.91%	4,602
82	4.1%	0.90%	4,564
83	4.0%	0.89%	4,526
84	4.0%	0.88%	4,488
85	4.0%	0.88%	4,452

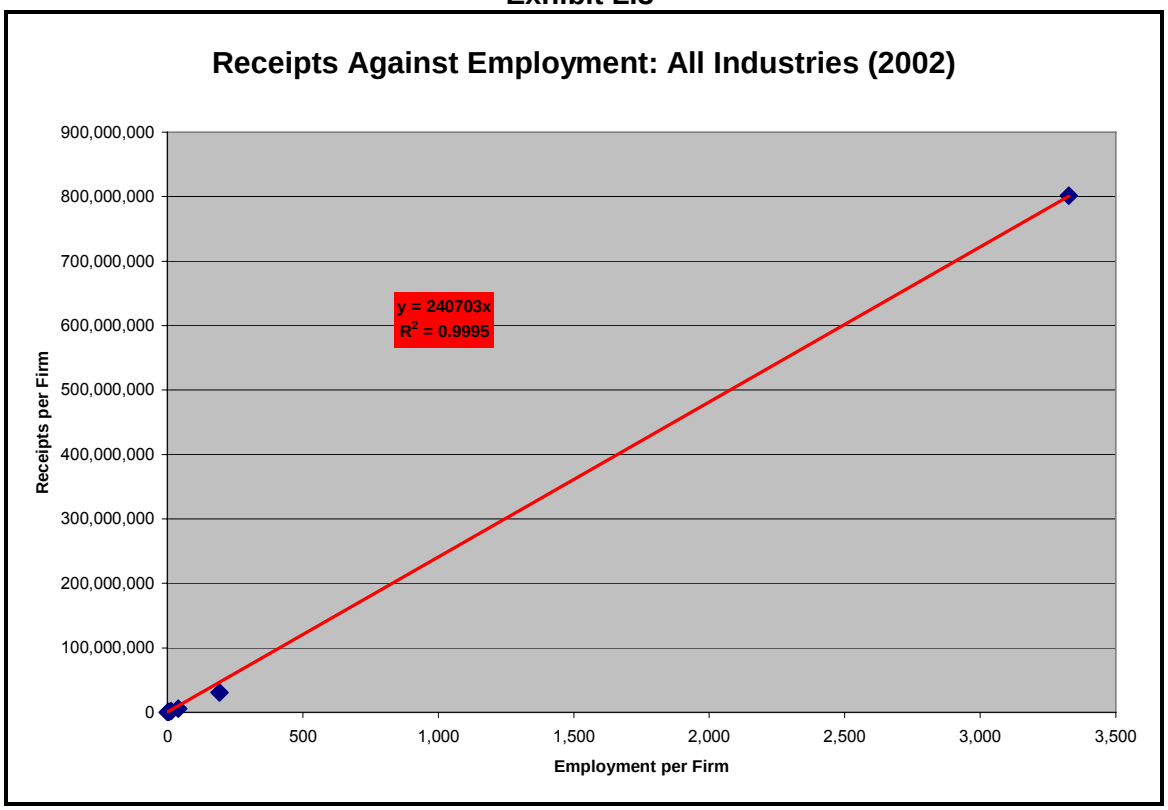
Exhibit L.2: Estimated Number of Firms by Employment Size			
Employment Size (Number of Employees)	**Percent of Firms (Regression Prediction)**	**Calibrated Percent of Firms for Size Class**	**Estimated Number of Firms**
86	4.0%	0.87%	4,416
87	3.9%	0.86%	4,381
88	3.9%	0.86%	4,347
89	3.9%	0.85%	4,313
90	3.8%	0.84%	4,280
91	3.8%	0.84%	4,247
92	3.8%	0.83%	4,215
93	3.7%	0.82%	4,184
94	3.7%	0.82%	4,153
95	3.7%	0.81%	4,123
96	3.7%	0.81%	4,093
97	3.6%	0.80%	4,064
98	3.6%	0.79%	4,036
99	3.6%	0.79%	4,007

The estimates of the number of firms in the fourth column were aggregated into the desired employment size classes using the employment levels in the first column. To compute the number of employers in the 20-49 employment size class, the first 30 rows of the fourth column were summed. For the 50-99 employment size class, all of the remaining rows were summed.

Estimation of Revenues for Specific Employment Levels

Regression analysis was used to estimate the relationship between revenues per firm and employment per firm. Exhibit L.3 depicts the results of the regression analysis in a graphic. Note the high R^2 and linear relationship.

Exhibit L.3



The slope coefficient of the regression (240,703) was multiplied by each specific employment level between 22 and 99 to produce a vector of receipts per firm for each level of employment. The results are shown in the second column in Exhibit L.4. In the first row, for example, 4,814,081 equals 20 * 240,703.

The third column in Exhibit L.4 reproduces the corresponding number of firms estimated in Exhibit L.2 above. Multiplying the receipt-per-firm estimates (second column) by the number of firms in the third column yields an initial estimate for total receipts for each employment level. To illustrate: in the fourth column of the first row, $58,131,979,515 equals $4,814,081 average receipts per firm * 12,075 firms. Dividing the figures in column 4 by the sum of that column produces the percentages in the fifth column. Multiplying those percentages by $2,888,696,648 (total revenues for the 20-99 size class) produces the final revenue estimates reported in column 6.

Exhibit L.4: Revenues by Employment Size

Employment Size (Number of Employees)	Receipts per Firm (Regression Prediction)	Estimated Number of Firms	Total Revenues (First Estimate)	Percent of Total Revenues	Total Revenues (Final Estimate)
20	4,814,081	12,075	58,131,979,515	0.91%	26,183,711
21	5,054,785	11,676	59,018,929,093	0.92%	26,583,209
22	5,295,489	11,307	59,877,209,796	0.93%	26,969,795
23	5,536,193	10,966	60,708,990,802	0.95%	27,344,444

Exhibit L.4: Revenues by Employment Size					
Employment Size (Number of Employees)	Receipts per Firm (Regression Prediction)	Estimated Number of Firms	Total Revenues (First Estimate)	Percent of Total Revenues	Total Revenues (Final Estimate)
24	5,776,897	10,649	61,516,191,171	0.96%	27,708,022
25	6,017,601	10,353	62,300,517,793	0.97%	28,061,297
26	6,258,305	10,077	63,063,496,297	0.98%	28,404,957
27	6,499,009	9,818	63,806,496,460	1.00%	28,739,618
28	6,739,713	9,575	64,530,753,250	1.01%	29,065,836
29	6,980,417	9,346	65,237,384,388	1.02%	29,384,116
30	7,221,122	9,130	65,927,405,097	1.03%	29,694,914
31	7,461,826	8,926	66,601,740,575	1.04%	29,998,647
32	7,702,530	8,732	67,261,236,595	1.05%	30,295,696
33	7,943,234	8,549	67,906,668,571	1.06%	30,586,410
34	8,183,938	8,375	68,538,749,349	1.07%	30,871,111
35	8,424,642	8,209	69,158,135,927	1.08%	31,150,094
36	8,665,346	8,051	69,765,435,294	1.09%	31,423,633
37	8,906,050	7,900	70,361,209,503	1.10%	31,691,981
38	9,146,754	7,756	70,945,980,115	1.11%	31,955,372
39	9,387,458	7,619	71,520,232,098	1.12%	32,214,026
40	9,628,162	7,487	72,084,417,256	1.13%	32,468,145
41	9,868,866	7,360	72,638,957,266	1.13%	32,717,920
42	10,109,570	7,239	73,184,246,369	1.14%	32,963,528
43	10,350,274	7,123	73,720,653,754	1.15%	33,205,136
44	10,590,978	7,011	74,248,525,701	1.16%	33,442,899
45	10,831,682	6,903	74,768,187,478	1.17%	33,676,964
46	11,072,386	6,799	75,279,945,060	1.18%	33,907,469
47	11,313,090	6,699	75,784,086,658	1.18%	34,134,544
48	11,553,794	6,602	76,280,884,108	1.19%	34,358,311
49	11,794,499	6,509	76,770,594,120	1.20%	34,578,885
50	12,035,203	6,419	77,253,459,409	1.21%	34,796,377
51	12,275,907	6,332	77,729,709,720	1.21%	35,010,888
52	12,516,611	6,248	78,199,562,764	1.22%	35,222,519
53	12,757,315	6,166	78,663,225,059	1.23%	35,431,361
54	12,998,019	6,087	79,120,892,713	1.24%	35,637,503
55	13,238,723	6,011	79,572,752,125	1.24%	35,841,029
56	13,479,427	5,936	80,018,980,635	1.25%	36,042,018
57	13,720,131	5,864	80,459,747,115	1.26%	36,240,547
58	13,960,835	5,794	80,895,212,517	1.26%	36,436,689
59	14,201,539	5,727	81,325,530,371	1.27%	36,630,512
60	14,442,243	5,661	81,750,847,249	1.28%	36,822,083
61	14,682,947	5,596	82,171,303,189	1.28%	37,011,464

Exhibit L.4: Revenues by Employment Size					
Employment Size (Number of Employees)	Receipts per Firm (Regression Prediction)	Estimated Number of Firms	Total Revenues (First Estimate)	Percent of Total Revenues	Total Revenues (Final Estimate)
62	14,923,651	5,534	82,587,032,089	1.29%	37,198,716
63	15,164,355	5,473	82,998,162,067	1.30%	37,383,896
64	15,405,059	5,414	83,404,815,805	1.30%	37,567,060
65	15,645,763	5,357	83,807,110,853	1.31%	37,748,262
66	15,886,467	5,300	84,205,159,924	1.31%	37,927,550
67	16,127,171	5,246	84,599,071,158	1.32%	38,104,975
68	16,367,875	5,192	84,988,948,380	1.33%	38,280,583
69	16,608,580	5,140	85,374,891,326	1.33%	38,454,419
70	16,849,284	5,090	85,756,995,863	1.34%	38,626,526
71	17,089,988	5,040	86,135,354,195	1.34%	38,796,945
72	17,330,692	4,992	86,510,055,046	1.35%	38,965,717
73	17,571,396	4,944	86,881,183,843	1.36%	39,132,880
74	17,812,100	4,898	87,248,822,881	1.36%	39,298,472
75	18,052,804	4,853	87,613,051,475	1.37%	39,462,527
76	18,293,508	4,809	87,973,946,112	1.37%	39,625,081
77	18,534,212	4,766	88,331,580,580	1.38%	39,786,166
78	18,774,916	4,724	88,686,026,104	1.38%	39,945,815
79	19,015,620	4,682	89,037,351,462	1.39%	40,104,058
80	19,256,324	4,642	89,385,623,102	1.40%	40,260,926
81	19,497,028	4,602	89,730,905,245	1.40%	40,416,447
82	19,737,732	4,564	90,073,259,990	1.41%	40,570,650
83	19,978,436	4,526	90,412,747,408	1.41%	40,723,562
84	20,219,140	4,488	90,749,425,631	1.42%	40,875,208
85	20,459,844	4,452	91,083,350,936	1.42%	41,025,614
86	20,700,548	4,416	91,414,577,826	1.43%	41,174,804
87	20,941,252	4,381	91,743,159,110	1.43%	41,322,803
88	21,181,957	4,347	92,069,145,965	1.44%	41,469,634
89	21,422,661	4,313	92,392,588,015	1.44%	41,615,318
90	21,663,365	4,280	92,713,533,387	1.45%	41,759,878
91	21,904,069	4,247	93,032,028,776	1.45%	41,903,334
92	22,144,773	4,215	93,348,119,502	1.46%	42,045,707
93	22,385,477	4,184	93,661,849,565	1.46%	42,187,017
94	22,626,181	4,153	93,973,261,698	1.47%	42,327,283
95	22,866,885	4,123	94,282,397,413	1.47%	42,466,523
96	23,107,589	4,093	94,589,297,054	1.48%	42,604,756
97	23,348,293	4,064	94,893,999,836	1.48%	42,742,000
98	23,588,997	4,036	95,196,543,893	1.49%	42,878,271
99	23,829,701	4,007	95,496,966,315	1.49%	43,013,587

Finally, the revenue estimates in column 6 were aggregated into the desired size classes (20-49, 50-99) using the employment levels in the first column. To compute the total revenues for the 20-49 employment size class, the first 30 rows of the sixth column were summed. For the 50-99 employment size class, all of the remaining rows were summed.