

# **SBA SIZE STANDARDS METHODOLOGY**

Prepared by:  
Size Standards Division  
Office of Government Contracting  
& Business Development

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## INTRODUCTION

This document describes the SBA methodology for establishing and adjusting its small business size standards pursuant to the Small Business Act (Act) and related legislative guidelines. Under the Act (Public Law 85-236, as amended), the SBA Administrator (Administrator) has authority to establish small business size standards for Federal government programs. Congress left to administrative discretion precisely how the Administrator should establish small business size standards or what they should be. This document provides a brief review of legal authority, early legislative history and a regulatory history of small business size standards, a detailed description of the size standards methodology, and concludes with a discussion of numerous policy issues regarding the objectives and direction of size standards. An appendix at the end of the document summarizes the detailed analytical steps involved in the evaluation of size standard for an industry.

In establishing size standards, the Act and its legislative history highlight two considerations. First, size standards should vary to account for differences among industries. Second, the policies of the Agency should assist small businesses as a means of encouraging and strengthening their competitiveness in the economy. These two considerations are the basis for the SBA current methodology for establishing small business size standards.

SBA size standards methodology examines the structural characteristics of an industry as a way to assess industry differences and the overall degree of competitiveness of an industry and of firms within the industry. As described more fully later in this document, industry structure is examined by analyzing five primary factors – average firm size, degree of competition within an industry, start up costs and entry barriers, distribution of firms by size, and small business share in Federal contracts. SBA also considers other secondary factors as they are relevant to the industries and the interests of small businesses, including technological change, competition among industries, industry growth trends, and impacts on SBA programs.

SBA conducts a statistical analysis of data on the primary factors, and secondary factors as appropriate, to establish a size standard for a specific industry. As a starting point, SBA presumes \$7.0 million as an appropriate size standard for the services, retail trade, construction, and other industries with receipts based size standards; 500 employees for the manufacturing, mining and other industries with employee based size standards; and 100 employees for the wholesale trade industries. These three levels, referred to as “anchor size standards,” are not minimum size standards, but rather benchmarks or starting points. To the extent an industry displays “differing industry characteristics,” a size standard higher, or in some cases lower, than an anchor size standard is supportable. This document includes an extensive discussion of the statistical analyses involved in size standards determination.

SBA periodically increases receipts and other monetary based standards for inflation. Under current SBA regulations, an adjustment to size standards for inflation will be made at least once every 5 years. Given the level of the size standards and the rate of inflation, recent inflation adjustments have been made on more frequent intervals.

The concluding section of this document raises a number of policy questions that SBA has to address in developing a robust methodology for establishing, evaluating and revising its small business size standards. Examples include how high of a size standard is too high? Should there be a single basis for all size standards (*i.e.*, employees or annual receipts)? Should there be a fixed number of “bands” of size standards or separate standard for each industry? This document includes several other issues, including some that tend to be on-going questions.

## STATUTORY AUTHORITY

Authority for the Administrator to establish small business size standards for Federal Government programs is the Small Business Act (Act) (Public Law 85-236, as amended). Congress has periodically modified the Act but has not provided specific size standards for Federal government purposes, other than for agricultural enterprises. The Act states the following:

§ 3 (a) (1) For the purposes of this Act, a small-business concern, including but not limited to enterprises that are engaged in the business of production of food and fiber, ranching and raising of livestock, aquaculture, and all other farming and agricultural related industries, shall be deemed to be one which is independently owned and operated and which is not dominant in its field of operation: Provided, that notwithstanding any other provision of law, an agricultural enterprise shall be deemed to be a small business concern if it (including its affiliates) has annual receipts not in excess of \$750,000.

### (2) ESTABLISHMENT OF SIZE STANDARDS. –

- (A) IN GENERAL. – In addition to the criteria specified in paragraph (1), the Administrator may specify detailed definitions or standards by which a business concern may be determined to be a small business concern for the purposes of this Act or any other Act.
  - (B) ADDITIONAL CRITERIA. – The standards described in paragraph (1) may utilize number of employees, dollar volume of business, net worth, net income, a combination thereof, or other appropriate factors.
  - (C) REQUIREMENTS. – Unless specifically authorized by statute, no Federal department or agency may prescribe a size standard for categorizing a business concern as a small business concern, unless such proposed size standard --
    - (i) is proposed after an opportunity for public notice and comment;
    - (ii) provides for determining --
      - (I) the size of a manufacturing concern as measured by the manufacturing concern's average employment based upon employment during each of the manufacturing concern's pay periods for the preceding 12 months;
      - (II) the size of a business concern providing services on the basis of the annual average gross receipts of the business concern over a period of not less than 3 years;
      - (III) the size of other business concerns on the basis of data over a period of not less than 3 years; or
      - (IV) other appropriate factors; and
    - (iii) is approved by the Administrator.
- (3) When establishing or approving any size standard pursuant to paragraph (2), the Administrator shall ensure that the size standard varies from industry to industry to the extent necessary to reflect the differing characteristics of the various industries and consider other factors deemed to be relevant by the Administrator.

Paragraph 3(a)(2)(C) refers to the establishment of size standards by other Federal agencies. SBA generally applies these same provisions when it establishes its size standards, but the Agency is not legally bound by them. On the other hand, Paragraphs 3(a)(2)(A) and 3(a)(2)(B) give the Administrator the flexibility to evaluate and establish size standards using a broader range of criteria, depending on what the Administrator determines will serve small businesses the best.

Along with the above broad statutory requirements, the Act also charges the Agency to encourage competition and to insure that a fair proportion of total Federal purchases, contracts, and property sales be placed with small business enterprises (Section 2(a)). Congress went on to state that “the preservation and expansion of such competition is basic not only to the economic well-being but to the security of this Nation.” 15 U.S.C. § 631(a).

## LEGISLATIVE HISTORY

The above statutory language defining a small business concern provides the Administrator with broad discretion in establishing size standards. Reading the legislative history of the Act provides a better understanding of Congress’ intent in the Act. The phrase “independently owned and operated” requires that SBA include the size of a firm together with its affiliates when calculating its size.<sup>1</sup> Therefore, SBA must use data about firms together with their affiliates when it establishes size standards and determining a business’ small business eligibility. In addition, Congress did not intend the phrase “is not dominant in its field of operations” to exclude firms that might dominate a geographic area. Rather, Congress intended to exclude firms that dominate an entire industry, nationally.<sup>2</sup> Congress also recognized that an extremely high percentage of business firms could properly be classified as small.<sup>3</sup>

The Banking and Currency Committee recognized the “impossibility of attempting to write into law a rigid definition of small business.”<sup>4</sup> Therefore, Section 3 of the bill defines a small business concern in a flexible and realistic manner. The Committee did this because it has become universally recognized that it is utterly impossible to define small business rigidly in terms of number of employees, amount of capitalization, or dollar volume of business.”

Again in 1957, the House Committee on Banking and Currency addressed how to characterize a small business and stated that “no single definition may be expected to meet all requirements. Recognition of varying situations motivated this committee in drafting the present Small Business Act to depart from rigid standards and leave the definition of small business to

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<sup>1</sup> See Hearings on H.R. 4090 and H.R. 5141 before the Committee on Banking and Currency of the U.S. House of Representatives, 83rd Congress, 1st Session (1953), page 17.

<sup>2</sup> See Hearings on S. 982. *et al.* before the Committee on Banking and Currency of the U.S. Senate, 83rd Congress, 1st Session (1953), page 56.

<sup>3</sup> See comments of Representative Seely-Brown, Congressional Record-House, June 5, 1953, page 6141. Representative Seely-Brown observed that more than 95 percent of business establishments could be classified as small and Representative Springer at page 6155 of the same Congressional Record observed that 95.2 percent of the businesses employed less than 20 people, so that on the basis of employment small business would be truly small in size.

<sup>4</sup> See House Report No. 494, 83rd Congress, 1st Session (1953).

administrative determination.<sup>5</sup> That same report explains that the origins of the present statutory requirement that the Agency vary the size standards from industry to industry where number of employees is used as the criteria was the result of the Agency's then existing flat 500-employee rule for all government contracts.

## REGULATORY HISTORY

Current small business size standards evolved from a limited number of general size standards for broad industry groups to a larger number of specific size standards based on individual industries. This transition was recognition that different industries had different characteristics, and thus warranted appropriate industry specific size standards. Many of today's size standards continue at levels established at historic levels.

Over the years, SBA has adopted a broad range of size standards – manufacturing industry standards ranged from 250 employees to 1,500 employees; other industry size standards have ranged from \$0.10 million to \$35.5 million in average annual receipts. SBA establishes its size standards for industries based on industry classifications developed by the Office of Management and Budget of the Executive Office of the President. The North American Industry Classification System (NAICS) contains the current listing of U.S. industries as of January 1, 2007. NAICS replaced the Standard Industrial Classification (SIC) system on January 1, 1997. SBA adopted NAICS as the basis for its table of size standards effective October 1, 2000. Census modifies parts of NAICS every five years and SBA adopts the revisions for its table of size standards effective October 1 of the same year. SBA has opted to use October 1 because that is the beginning of the Federal government's fiscal year.

The 500-employee size standard for Federal contracting predates SBA; it was used by the Reconstruction Finance Corporation and the earlier Small War Plants Corporation, which was a World War II Government contracting agency channeling Federal contracts to small manufacturers. The House Committee on Banking and Currency in 1957 observed that “the standard of 500 or less employees originated in World War II with several variations. For the want of a better definition, the 500 rule generally gained acceptance in the Government, although in many instances there was considerable reluctance by many Government officials and members of Congress to accept such a rigid formula.” (See Senate Report No. 555, 85th Congress, 1st Session, page 6.)

SBA adopted 500 employees as the standard for manufacturing industries at its 1953 inception; it has remained a standard for many industries until today, and is one of three “anchor” size standards (discussed later in this paper). By 1959, size standards regulations distinguished between manufacturing and financial industries. The Agency set 250-employee, 500-employee, and 1,000-employee size standard for its financial assistance programs, but retained the 500-employee standard for Federal contracting programs. As stated earlier, an anchor size standard is not a minimum standard, but rather a benchmark or starting point.

Generally, the Agency has used annual receipts as the standard for nonmanufacturing industries. Soon after its inception, the SBA created size standards for nonmanufacturing which relied on annual receipts rather than employees. They were between \$0.30 million and \$1 million for retail and services industries, between \$2 million and \$5 million for wholesale industries, and

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<sup>5</sup> See Senate Report No. 555, 85th Congress, 1st Session, page 6.

\$5 million for construction industries. (As indicated above, this led to the 1958 amendments that required a breakout on an industry basis where number of employees was used as the standard.)

By 1963, SBA size standards were as follows: \$1 million for retail trade industries; \$1 million for services industries; \$5 million for wholesale industries; and \$7.5 million for construction industries. There continued to be two sets of size standards for manufacturing industries – 250 employees to 1,000 employees for SBA financial programs, but basically 500 employees for Federal contracting programs.

From 1963 to 1975 many manufacturing size standards were increased to 750 or 1,000 employees and some of the services industries, such as engineering and janitorial services, with size standards of \$5 million and \$3 million, respectively, were broken to separate industries.

In 1975, SBA implemented a general increase to its monetary based size standards to account for the effects of inflation. The adjusted standards were \$2 million for retail trade and services industries, \$12 million for general construction, and \$5 million for special trade construction. Employee based standards remained unchanged.

After a series of public notices in the *Federal Register* from 1980 to 1983, the Agency adopted a detailed list of size standards by Standard Industrial Classification (SIC) code. Generally speaking, the size standards framework the Agency currently follows was put in place in 1984. Currently, most prevalent size standards are \$7.0 million in annual receipts for Retail Trade and Services, \$33.5 million for General Construction, \$14.0 million for Special Trade Construction, 100 employees for Wholesale Trade for all Federal programs except for Federal procurement where it is 500 employees under the non-manufacturer rule, and 500 employees for Manufacturing industries. Monetary based size standards range from \$0.75 million in annual receipts for most Agricultural enterprises to \$35.5 million in annual receipts for Facility Support Services. Similarly, employee based standards range from 50 employees for Heating Oil Dealers to 1,500 employees for some Manufacturing and Telecommunications industries. With a very few exceptions, uniform size standards are now in place for all SBA programs.

In 1992, SBA proposed, along with an inflation adjustment, a reduction in the number of size standard levels from more than forty different levels to nine receipts based size standards and five employee based size standards. Although public comments overwhelmingly accepted the fixed size standards approach, the proposed levels seemed arbitrary and produced large variations in changes to standards. SBA believed it could not justify such large variations, and therefore, limited the final rule to adjusting the then existing receipts based size standards for inflation.

In March 2004, SBA proposed to simplify and restructure size standards by establishing all size standards based on number of employees. For a number of industries, however, an employee based size standard could result in large businesses with very high receipts but few employees to qualify as small. There were other skewed outcomes as well, and SBA, therefore, also proposed a maximum receipts size standard along with an employee size standard for certain industries. Public comments showed that for some industries the proposed employee based standards were either too low or did not serve as a suitable measure of business size. Rather than issuing a revised proposed rule with adjusted size standards, SBA decided to seek additional input from the public.

The Agency issued an Advance Notice of Proposed Rulemaking (ANPRM) in December 2004. It sought comments on 10 specific issues that the public had raised in response to the March 2004 proposed rule. SBA did not make further proposals, but only sought public

comment on whether and how it should consider the following: 1) Approaches to simplification of size standards; 2) Calculation of number of employees; 3) Use of receipts based size standards; 4) Designation of size standards for Federal procurements; 5) Establishment of size standards solely for Federal procurement; 6) Establishment of tiered size standards; 7) Simplification of small business status and affiliation with other businesses; 8) Joint ventures and small business eligibility; 9) Grandfathering of currently eligible small businesses; and 10) Impact of SBA size standards on the regulations of other Federal agencies. SBA received several thousand comments on these issues, but no consensus. However, these questions affect small businesses and their ability to participate in opportunities reserved for them.

Besides the December 2004 ANPRM, in the summer of 2005 SBA also held a series of 11 public hearings throughout the country on the above issues. They were well attended, but as of yet, between the ANPRM and the hearings, there is no resolution to many of these issues.

SBA is currently conducting a comprehensive review of all size standards. Aside from the broader size standards changes and proposals discussed above, SBA, in the past, generally conducted ad-hoc reviews of size standards depending on the seriousness of a size standard issue or the overall level of public interest. As discussed above, the last overall review of size standards took place during the early 1980s. While adjustments to a large number of specific size standards have occurred since that time, subsequent economic trends and the implementation of a new industry classification system call for an overall review of size standards. Throughout this document this effort will be referred to as the “comprehensive size standards review”.

In developing size rules, SBA pays special attention to the judicial standards for review of Federal rulemaking procedures. In 1983, the U.S. Supreme Court discussed the standards that a Court would employ in examining whether an agency’s informal rulemaking procedures would pass a judicial scrutiny. In looking into whether a particular rule should be found to be arbitrary or capricious or not, the Court suggested that an agency “must examine the relevant data and articulate a satisfactory explanation for its actions.”<sup>6</sup> The Court further expanded on what it meant by an agency’s articulation of a satisfactory explanation by stating that it should not rely on factors Congress did not intend for it to consider, and that a decision should not run counter to evidence available to the Agency not explainable by a difference in view or the product of agency expertise.

The U.S. Supreme Court affirmed that it would uphold an agency’s decision of “less than ideal clarity” so long as the agency’s path could be reasonably discerned. This Supreme Court case and more recent Federal court decisions following its guidance identify the following principles to avoid a judicial finding that particular size standards are arbitrary or capricious:

- a) Relevant factual or objective evidence must be identified and discussed.
- b) Other relevant factors bearing on the decision, such as agency policies, presumptions and assumptions not clear from the factual evidence, should be identified and discussed.
- c) The logic leading from the factual evidence and the other factors to the Agency’s decision should be explained.
- d) Significant contrary evidence and argument which the Agency does not adopt or follow should be identified and its rejection explained.

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<sup>6</sup> Motor Veh. Mfrs Assn v. State Farm Mut., 463 US 29, 77 L., Ed. 2d 443 (1983).

## OVERVIEW OF SBA SIZE STANDARD METHODOLOGY

In keeping with the Act's statutory language and legislative history, SBA size standard methodology includes examining industry characteristics and the differences among various industries. The remainder of this paper describes SBA approach to analyzing industry structure and a detailed methodology for evaluating and establishing size standards. SBA has always followed the industry structure approach. However, the specifics of its methodology have evolved over the years with the availability of new and richer industry data and staff research leading to improved analyses of industry structure.

For the ongoing comprehensive size standards review, SBA has established three "base" or "anchor" size standards: (1) 500 employees for manufacturing, mining and other industries with employee based size standards (except for Wholesale Trade); (2) \$7.0 million in average annual receipts for most nonmanufacturing industries with receipts based size standards; and (3) 100 employees for all Wholesale Trade industries.<sup>7</sup> For a limited number of industries, SBA uses different measures, such as financial assets for the banking industries and barrels per calendar day (as part of a two-component standard) for the petroleum refining industry.

Since its adoption, 500-employee size standard has remained the prevailing standard for 72 percent of manufacturing industries. A 500-employee size standard was adopted for Federal procurements programs that had been established by the Small Defense Plants Administration, whose functions were incorporated into SBA. After considerable review and public comments in the 1940s and 1950s, the 500-employee level was selected to achieve the Federal government's objective of increasing the number of sources providing goods and services in support of the Nation's national security needs. This consideration also supported the Small Business Act's economic objective of fostering competition within the economy by enabling businesses beyond the start-up phase, but still small relative to the leading producers in the industry, to utilize small business programs. Over time, the 500-employee size standard was primarily applied to the manufacturing sector and other capital intensive industries. As SBA established different size standard levels within the manufacturing industries, the 500-employee level remained as the lowest and most common size standard, and became designated as the starting level for analyzing size standards for industries that have an employee based size measure.

In 1954, SBA established a \$1 million in average annual receipts as the size standard for nonmanufacturing industries for its loan programs. Size standards of \$2 million to \$5 million were established subsequently for the construction, wholesale trade, and trucking and warehousing industries. These levels were viewed as sufficient in addressing the problems of access to credit by small businesses. The minimum (excluding statutorily set size standard of \$0.75 million for agricultural enterprises) and most common size standard of \$1 million has been adjusted periodically by SBA to account for the level of general inflation in the economy and it has increased to \$7 million today. The \$7 million anchor level is the prevailing standard for more than two-thirds (68%) of nonmanufacturing industries that have receipts based size standards. In reviewing SBA

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<sup>7</sup> SBA analyses of industry characteristics using the 1997 and 2002 Economic Censuses show significantly different economic structure for the Wholesale Trade industry as compared to the structure of industries in both 500-employee and \$7 million anchor size standard industry groups, thereby requiring a separate 100-employee anchor group for wholesale industries. Much of these observed differences may be attributed to the definitional changes to the Wholesale Trade Sector between the Standard Industrial Classification System and the 1997 and 2002 North American Industry Classification Systems.

loan data, the \$7 million continues to capture the size of businesses that typically find SBA's financial assistance program a source of credit.

For the ongoing comprehensive size standards review, SBA has also established 100 employees as the anchor size standard for industries in Wholesale Trade. In 1984, to simplify procurement procedures, SBA adopted a single size standard of 500 employees for all Wholesale Trade industries for both procurement and SBA programs (49 FR 5023). Before that, the wholesale industries had a 500-employee size standard for Federal procurement and three levels of receipts based standards (\$9.5 million, \$14.5 million and \$22 million) for SBA programs. In 1986, SBA analyzed the Wholesale Trade industries using 1977 and 1982 Economic Census data. The Agency then amended its standards for the Wholesale Trade industries from 500 employees to 100 employees for all SBA programs (51 FR 25189), while it retained 500-employee size standard for Federal procurement. As with the other two anchor groups, SBA took into consideration the size of business that would seek and utilize SBA financial assistance along with its evaluation of industry data. The 100-employee size standard continues to be the current size standard for all industries in the Wholesale Trade Sector for all SBA programs.

### **Selection of Size Measure**

SBA has primarily used two measures of business size – receipts and number of employees. SBA generally prefers receipts as a size measure because it measures the value of output of a business and can be easily verified by business tax returns and financial records. Historically, the number of employee has been primarily used for the manufacturing industries. The 500-employee manufacturing size standard had been utilized by the Small War Plants Corporation, the Small Defense Plants Administration, and the Reconstruction Finance Agency prior to SBA's inception. Other size measures are applied to some specific industries.

The choice of a size measure for an industry depends on which measure best represents the magnitude of operations of a business. That is, the measure should indicate the level of real business activity generated by firms in an industry. Table 1 below summarizes a list of several industry factors SBA considers in selecting the number of employees or receipts as an appropriate size measure.

For a limited number of industries, SBA has established size measures based on other business characteristics. These mainly fall into two general categories – output or production capacity and financial measures, as summarized in Table 2.

SBA's decision to apply one of these nontraditional size measures (other than employees and receipts) continues to rest upon the principle of what measure best represents the magnitude of operations of a business within an industry. For the measures that apply to specific industries, the businesses classified under them are engaged in similar and discrete activities. Also, industry analysts typically monitor businesses based on those measures.

SBA decided to apply the net worth and net income measures to its Small Business Investment Companies (SBIC) program because investment companies evaluate businesses using these measures to decide whether or not to make an investment on them. The net worth and net income size standards were extended to the Community Development Corporations (CDC) program under the same statute as the SBIC program.

**Table 1**  
Industry Factors Supporting Employee vs. Receipts Based Size Measure

Industry factor	No. of employee	Receipts	Comment
Highly capital intensive	X		Employment levels vary with level of production while value of output substantially derived from fixed assets.
Low operational costs relative to receipts	X		Large receipts amounts generated with low labor inputs.
Variation of firms within industry by stage of production or degree of vertical integration	X		Firm's value added contribution to final value varies depending on structure of firm. Employment is more strongly correlated to value added than receipts.
Horizontally structured firms	X		Varying receipts to employee relationships among firms.
Highly labor intensive		X	Value of output varies with employment level and more easily verified.
Ease of factor substitution		X	Same value of output can be achieved by varying levels of labor and capital inputs.
Presence of subcontracting		X	Same value of output is achieved with differing levels of outsourcing.
High proportion of part-time or seasonal employment		X	Same level of output is achieved with differing employment practices.
Operation in multiple industries		X	Receipts is a more homogenous measure than employment.

**Table 2**  
Production Capacity and Financial Size Measures

Category	Measure	Comment
Output	Megawatts hours of electric output	Applied to producers of electric power.
Production capacity	Barrels/day of petroleum refining	Applied to petroleum refiners.
Financial measure	Total assets	Applied to most banking and other depository industries.
	New worth New income	Applied to the SBIC and CDC programs as alternate size standards to the industry size standards.

## **Assumptions**

Several assumptions underlie the structure of SBA small business size standards as follows:

First, SBA establishes size standard by industry category. As stated in the Small Business Act, size standards shall differ to reflect industry differences. Through the analysis of industry data, SBA has determined that a single, one-size-fits-all size standard is inappropriate to define the small business segment of each and every industry. For purposes of size standards, SBA utilizes the North American Industry Classification System (NAICS) of the United States as a basis for industry definition. Except for a few exceptions where a size standard may be established for an activity within in an industry, size standards are defined at the 6-digit NAICS level.

Second, an industry size standard is established at the national level. Similarly, the determination of “not dominant in its field of operation” is also done at the national level. Data limitations preclude an extensive analysis of businesses on a geographical basis. In addition, geographically based size standards may inappropriately influence decisions on business location.

Third, a single set of size standards applies to most SBA major programs. For smaller programs, a “program-based” or an alternate size standard may be established. However, in most of these cases, the size standard is related to the size standard for the industry of most program participants, such as the SBIR size standard.

Fourth, an industry size standard will be selected from a predetermined range of fixed size standard levels. The applicable anchor size standard will be the starting point for the analysis. A size standard above or below the anchor size standard will be selected within a predetermined range depending on the results of the analysis of industry and program data. Size standards will reflect sizes higher than the firm size at the entry level in order to include businesses that are competitively disadvantaged due to their size or represent the smaller group of businesses within an industry relative to the characteristics of all businesses within the industry. Size standard will also reflect business capabilities to compete for Federal contracts within an industry. The anchor size standard will apply to most industries, while different size standards will be established for industries possessing significantly different characteristics compared to the typical anchor industry group.

Fifth, an industry size standard shall have only one measure of size. Almost all industries have either a number of employees or receipts based size standard, not both. In limited cases an additional measure of size related to production or capacity may be included with an employee or receipts measure. For example, size standard for the petroleum industry includes a combination of the refining capacity and the number of employees.

Sixth, a business is defined on an enterprise basis rather than at the establishment level or as a legally incorporated entity. The size of a business includes all establishments, subsidiaries and affiliates under its control (whether controlled through ownership or other relationships). The size of a business owned or controlled by another business includes the size of its parent company and all of its subsidiaries and affiliates.

## **Using Comparison Groups**

SBA size standard analysis begins with a presumption that the 500-employee anchor standard is appropriate for manufacturing and other industries with employee based size standards (except for Wholesale Trade). Similarly, SBA presumes that the \$7.0 million anchor standard is appropriate for industries with receipts based size standards and that the 100-employee anchor standard is appropriate for the Wholesale Trade sector.

If the characteristics of a specific industry under review are similar to the average characteristics of industries in one of the anchor groups, SBA will consider adopting the anchor size standard as an appropriate size standard for that industry. SBA calculates the average characteristic of an anchor group by grouping data from all industries at the applicable anchor. If the specific industry's characteristics are significantly different from those of the anchor group, however, SBA would adopt a standard higher or lower than the anchor standard. The larger the differences between the characteristics of an industry under review and those in the anchor group, the larger the difference between the appropriate industry size standard and the anchor size standard. When an industry displays significantly different economic characteristics compared to industries in the anchor group, SBA will consider revising its existing size standard up or down depending on its characteristics.

The goal of SBA comprehensive size standards review is to assess whether its existing small business size standards reflect the current industry structure and revise the standards if necessary. The economic characteristics of industries in the anchor groups provide a good starting point for the analysis. In addition, the anchor groups include a sufficient number of firms to provide a meaningful assessment and comparison of industry characteristics. These anchor size standards have gained legitimacy through practice and general acceptance by the public.

To determine the level of a size standard above the anchor size standard, SBA evaluates characteristics of a second comparison group. For industries with receipts based standards, SBA has developed a second comparison group consisting of industries with the highest receipts based size standards. Size standards for this group of industries range from \$23.0 million to \$35.5 million in average receipts, with the weighted average size standard by total industry sales for the group equaling \$29.0 million. SBA refers to this comparison group as the "higher level receipts based size standard group" and serves as an upper bound in establishing size standards. For manufacturing industries and other industries with employee based size standards (except for Wholesale Trade), SBA has formed a second comparison group comprising industries that have a size standard of 1,000 employees. Since all industries in the Wholesale Trade sector have the same 100-employee size standard, a higher level size standard comparison group cannot be established for this sector in the above fashion. To develop a size standard for the Wholesale Trade sector, SBA will compare the characteristics of an industry under review with the average characteristics of the largest 25 percent of industries in that sector in terms of average firm size in number of employees. Depending on the result of that comparison, SBA will either retain the current 100-employee size standard or change it. These comparison groups consist of a sufficiently large number of industries to represent the typical industry at the respective anchor size level.

### **Primary Industry Factors**

The primary industry factors that SBA evaluates in analyzing the economic characteristics defining the structure of an industry include average firm size, start up costs and entry barriers, industry competition, and distribution of firms by size (13 CFR § 121.102(a)). Besides industry structure, SBA also examines the impact of an existing size standard as well as the potential impact of a size standard revision on SBA's Federal contract assistance to small businesses as an additional primary evaluation factor. SBA generally considers these five factors – average firm size, start up costs, industry competition, size distribution of firms, and Federal contracting – to be the most important elements in determining an industry's size standard.

## Secondary Industry Factors

Besides the primary factors listed above, SBA also considers a range of secondary factors that are relevant to deciding a size standard for a particular industry. These factors include, but are not limited to, technological changes, industry growth trends, SBA financial assistance and program factors, the presence of substitutable or competing relationships among industries, and historical activity within an industry.

## Public Comments

Public comments on proposed size standard rules provide additional important information. These comments supplement SBA analysis of industry structure by enabling it to consider other relevant information, where appropriate, in the final decision on a size standard. SBA thoroughly reviews public comments before making a final decision on the proposed size standard rule.

Subsequent sections provide a detailed description of the analysis of these factors. Figure 1 depicts an overview of SBA size standard methodology.

## PRIMARY FACTORS DESCRIBING INDUSTRY STRUCTURE

### Average Firm Size

SBA computes two measures of average firm size: simple average firm size and weighted average firm size. For industries with receipts based size standards, SBA calculates the simple average firm size in terms of receipts as follows:<sup>8</sup>

$$\text{Simple Average firm size (receipts)} = \frac{\text{Total receipts in an industry}}{\text{Total number of firms in that industry}}$$

Similarly, for industries with employee based size standards, the simple average firm size is expressed in terms of the number of employees as follows:<sup>9</sup>

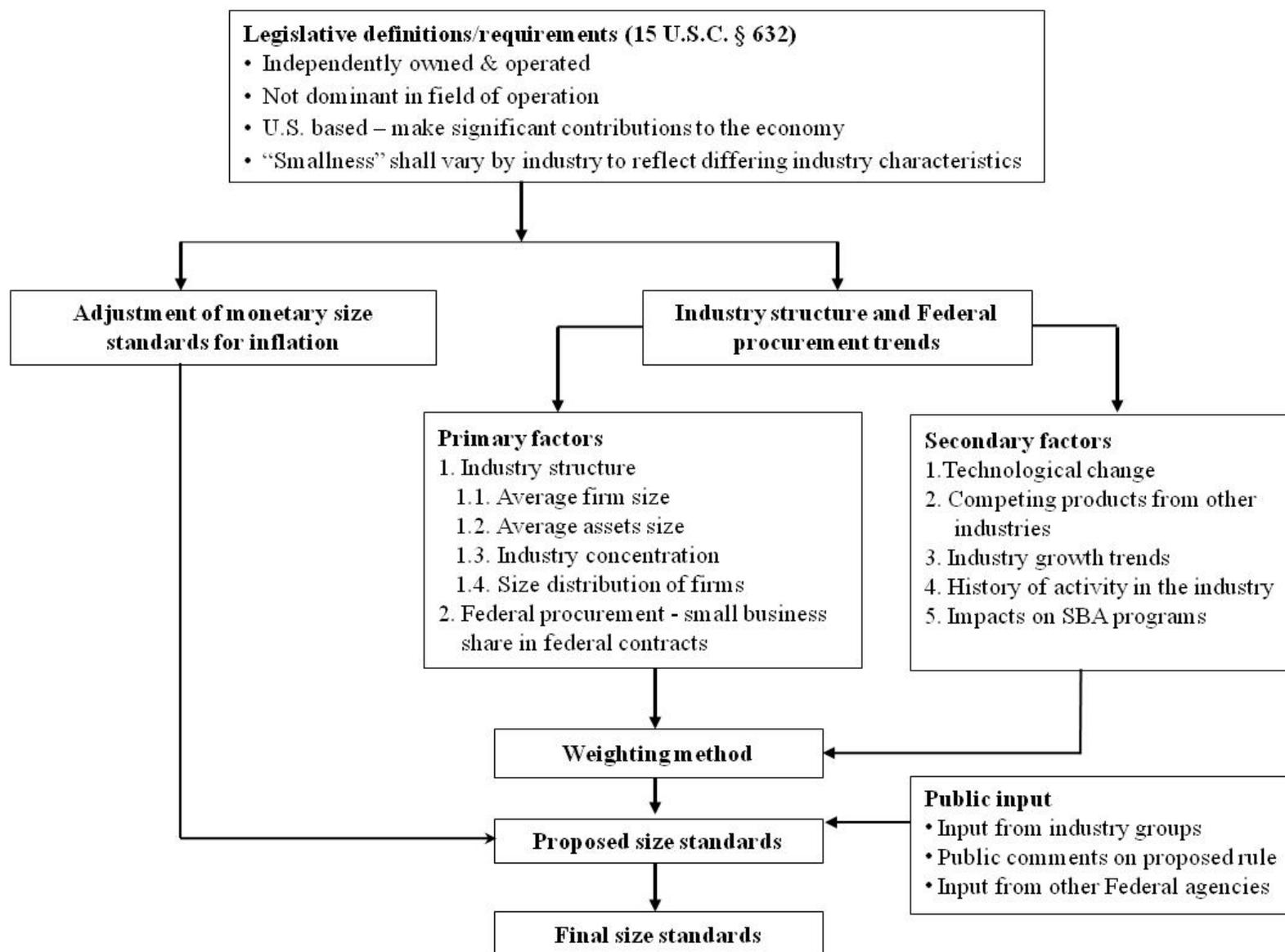
$$\text{Simple Average firm size (employees)} = \frac{\text{Total number of employees in an industry}}{\text{Total number of firms in that industry}}$$

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<sup>8</sup> For details on SBA's calculations of annual receipts, see 13 CFR Part 121.104.

<sup>9</sup> For details on SBA's calculations of number of employees, see 13 CFR Part 121.106.

**Figure 1. Overview of SBA's Size Standard Methodology**



One limitation of simple average firm size is that it weighs all firms within an industry equally regardless of their size.<sup>10</sup> To overcome this SBA also calculates the weighted average firm size, which gives more weights to larger firms. For industries with receipts based size standards, SBA calculates the weighted average firm size in terms of receipts as follows:

**Weighted average firm size (receipts)**

$$= \sum_{k=1}^m \left( \frac{\text{Total receipts in size class } k}{\text{Number of firms in size class } k} \right) \times \left( \frac{\text{Total receipts in size class } k}{\text{Total receipts in the industry}} \right)$$

$$= \sum_{k=1}^m (\text{Avg. receipts size for size class } k) \times (\text{Receipts share of size class } k)$$

Similarly, for industries with employee based size standards, the weighted average firm size is expressed in terms of the number of employees as follows:

**Weighted average firm size (employees)**

$$= \sum_{k=1}^m \left( \frac{\text{Total employees in size class } k}{\text{Number of firms in size class } k} \right) \times \left( \frac{\text{Total employees in size class } k}{\text{Total employees in the industry}} \right)$$

$$= \sum_{k=1}^m (\text{Avg. employee size for size class } k) \times (\text{Employee share of size class } k)$$

Average firm size is likely to be positively related to minimal efficient (optimal) firm size. The minimal efficient firm size refers to the level of output where firms in an industry are able to minimize their average cost of production and become competitive. Thus, conceptually, an industry's size standard should be set such that firms that have not achieved a minimal efficient firm size to remain competitive will be considered small and thus be eligible for SBA assistance, while firms that are fully competitive would exceed the size standard and thus be considered ineligible. *Ceteris paribus*, the higher the minimal efficient firm size for an industry, the higher should be its size standard. In general, industries with high minimal efficient size tend to be dominated by larger firms and, thus, their average firm size (especially weighted average) tends to be large.<sup>11</sup> Given the lack of data on minimal efficient firm size by industry, SBA uses the average firm size as the proxy of minimal efficient firm size.

For most industries, the simple average firm size would generally be smaller than the anchor size standards, while the weighted average firm size can be lower or higher than the anchor depending upon the industry. Because firms often compete with each other across industry lines, it is reasonable to compare the average firm size of an industry relative to the

<sup>10</sup> In fact, as shown below, the simple average firm size is also the weighted average firm size where weights are shares of firms in different size classes in total number of firms within an industry.

**Simple average firm size**

$$= \sum_{k=1}^m \left( \frac{\text{Total receipts/employees in size class } k}{\text{Total number of firms in size class } k} \right) \times \left( \frac{\text{Total number of firms in size class } k}{\text{Total number of firms in industry}} \right)$$

$$= \sum_{k=1}^m (\text{Simple Avg size for size } k) \times (\text{Shares of firms in size class } k)$$

<sup>11</sup> For discussion on the minimal firm size, see Sherer and Ross (1990).

average firm size of industries with the anchor size standard, and then to adjust the size standard upward or downward depending upon that comparison.

If the average firm size of an industry is significantly higher than the average firm size of industries in the anchor group, this would support a size standard higher than the anchor standard. Conversely, if the industry's average firm size is similar to or significantly lower than that of the anchor industry group, it would provide a basis to establish a size standard at or below the anchor size standard.

For example, if the average firm size for all industries with the \$7 million size standard is \$1.5 million in annual receipts, and the average firm size for a particular industry under review is \$2.0 million in annual receipts, the size standard for that industry should be somewhat higher than \$7 million, all other factors being equal.

### **Start Up Costs and Entry Barriers**

Start up costs reflect the amount of capital requirements for physical plant and production equipment new firms must have to enter an industry and become competitive with existing firms. If firms entering an industry under review have greater capital requirements than firms do in industries in the anchor comparison group, all factors remaining the same, this would be a basis for supporting a size standard higher than the anchor standard. Conversely, if the industry has similar or smaller capital needs compared to the anchor comparison group, the anchor size standard, or in rare cases, a lower size standard, would be considered appropriate.

Given the lack of data on actual start up costs and other measures of entry barriers (such as degree of product differentiation, advertising expenses, economies of scale, *etc.*), SBA uses average assets size as a proxy for the levels of capital needs for new businesses entering an industry.<sup>12</sup> An industry with a significantly higher average assets size than the anchor comparison industry group is likely to have higher start up costs, which in turn would support a size standard higher than the anchor size standard.

SBA is continuing to research other approaches and various data sources (including sales to assets from Risk Management Association and assets data from the Internal Revenue Service) in assessing start up costs which may lead to a more robust assessment of this factor in deriving a size standard in the future. As with any change to the methodology, SBA will explicitly explain why and how a new approach has been incorporated into the methodology.

### **Industry Competition**

A fundamental purpose of small business size standards is to support SBA mission and programs in promoting economic competition. A prevailing method of analyzing industry competition is the measurement of concentration or market power to determine the extent to which a particular industry is dominated by a few large firms.

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<sup>12</sup> Several studies have also used average assets size as a proxy for levels of capital requirements in analyzing industry structure, especially entry barriers (*e.g.*, see Bain, 1956; Comanor and Wilson, 1967; and Guth, 1971). Comanor and Wilson (1967) recognize that this measure is likely to understate capital requirements. The book value of total assets will normally be less than their replacement cost, as a result of inflation in preceding years. This measure also fails to account for intangible assets such as information and knowledge advantage of incumbent firms. In the past, SBA used average non-payroll costs as a proxy for capital needs.

To determine the degree of concentration in an industry, SBA will evaluate various standard measures of industry concentration, including the four-firm concentration ratio, Gini coefficient, and the Herfindahl-Hirshman index (HHI).<sup>13</sup>

The oldest and most commonly used measure of industry concentration is the *Kth*-firm concentration ratio, defined as the cumulative share of total industry receipts (or other dimension of size) obtained by the *Kth* leading (largest) firms within an industry. More formally, the *Kth*-firm concentration ratio (CRK) is defined as (Curry and George, 1983):

$$CRK = \sum_{i=1}^K s_i$$

where  $s_i$  (*market share*) =  $\frac{\text{Total receipts of firm } i \text{ in an industry}}{\text{Industry's total receipts}}$

$i = 1, 2, \dots, K$  largest firms in the industry such that  $s_1 > s_2 > \dots > s_K$ .

SBA uses the four-firm concentration ratio or the cumulative share of total industry receipts of the four biggest firms ranked by order of market share. The four-firm concentration ratio is the most commonly used concentration measure for judging the degree of industry competition (Lipczynski, Wilson and Goddard, 2005).<sup>14</sup> Although methodologically different, the four-firm concentration ratio and the Herfindahl-Hirshman Index tend to produce similar conclusions regarding industry concentration in an industry. Using the notations for the above formula, the four-firm concentration ratio (CR4) is defined as:<sup>15</sup>

$$CR4 = \sum_{i=1}^4 s_i, \text{ where } s_1 > s_2 > s_3 > s_4.$$

Using the four-firm concentration ratio SBA compares the degree of concentration within an industry to the degree of concentration of the industries in the anchor comparison group. If a significantly higher share of economic activity within the industry is concentrated among the four largest firms compared to the industries in the anchor comparison group, all else being

<sup>13</sup> The Herfindahl-Hirshman index (HHI) is computed as follows (Curry and George, 1983):

$$HHI = \sum_{i=1}^n s_i^2$$

where  $s_i$  (*market share %*) =  $\frac{\text{Total receipts of firm } i \text{ in an industry}}{\text{Industry's total receipts}} \times 100$

and  $i = 1, 2, 3, \dots, n$  denotes the total number of firms in an industry. SBA's analysis of industry factors is based on special tabulations of 2002 Economic Census from the Census Bureau. The 2002 data lacks information to compute the HHI. For 2007 Economic Census special tabulations, SBA plans to request this information.

<sup>14</sup> The number four is chosen because the Census may not disclose the data for any smaller number of firms.

<sup>15</sup> Special tabulations of the 2002 Economic Census do not have information on shares of individual firms. However, the data contain the amount of combined receipts generated by the four largest firms in each industry to compute the four-firm concentration ratio (CR4) as follows:

$$CR4 = \frac{\text{Total receipts of the biggest four firms in an industry}}{\text{Total receipts in that industry}}$$

equal, SBA would set a size standard relatively higher than the anchor. SBA would not consider this as an important factor in assessing a size standard for industries for which the four-firm concentration ratio is below 40 percent.<sup>16</sup> For industries where the four largest firms account for 40 percent or more of industry's total receipts, SBA would consider the average size of the four largest firms as a primary factor in determining a size standard for the industry.<sup>17</sup>

### **Size Distribution of Firms and Gini Coefficient**

SBA examines the shares of industry total receipts accounted for by firms of different receipts and employment sizes in an industry. This is an additional factor SBA considers in assessing competition within an industry.<sup>18</sup> If the preponderance of an industry's economic activity is attributable to smaller firms, this generally indicates that small businesses are competitive in that industry and supports adopting the anchor size standard. A size standard higher than the anchor size standard would be supported for an industry in which the distribution of firms indicates that most of the economic activity is concentrated among the larger firms.

Concentration among firms, like concentration of income among households, is a measure of inequality of distribution. The usual practice in measuring inequality of distribution is to arrange the firms (or groups of firms) in order of increasing size and express inequality in terms of percentages: for example “X” percentage of firms hold “Y” percentage of total receipts (or other dimensions of size such as employees or assets) in an industry. This comparison is often made in terms of the Lorenz curve, where cumulative percentages of units (firms) are shown in horizontal axis and percentages of receipts (or other measures of size) are in the vertical axis (*see* Figure 2). In the figure, 80 percent of firms hold 50 percent of total receipts in an industry. A diagonal line from (0,0) to (1.0,1.0) represents perfect equality, since every point on the line the “X” and “Y” percentages are equal. The ratio of the area between the diagonal and the Lorenz curve (area A) to the whole area below the diagonal (area A plus area B) serves as a coefficient of inequality, known as Gini coefficient. If receipts are distributed perfectly equally among all the firms in the industry, then the Lorenz curve and the line of perfect equality are merged (i.e., area A equals zero), and hence the Gini coefficient becomes zero. If all the receipts are attributed to one firm, the Lorenz curve would pass through the points (0,0), (1.0,0) and (1.0,1.0), and areas A and B would be identical, producing the value of Gini coefficient equal to one. Accordingly, the Gini coefficient values vary between zero and one, with zero implying perfect equality and one indicating perfect inequality.

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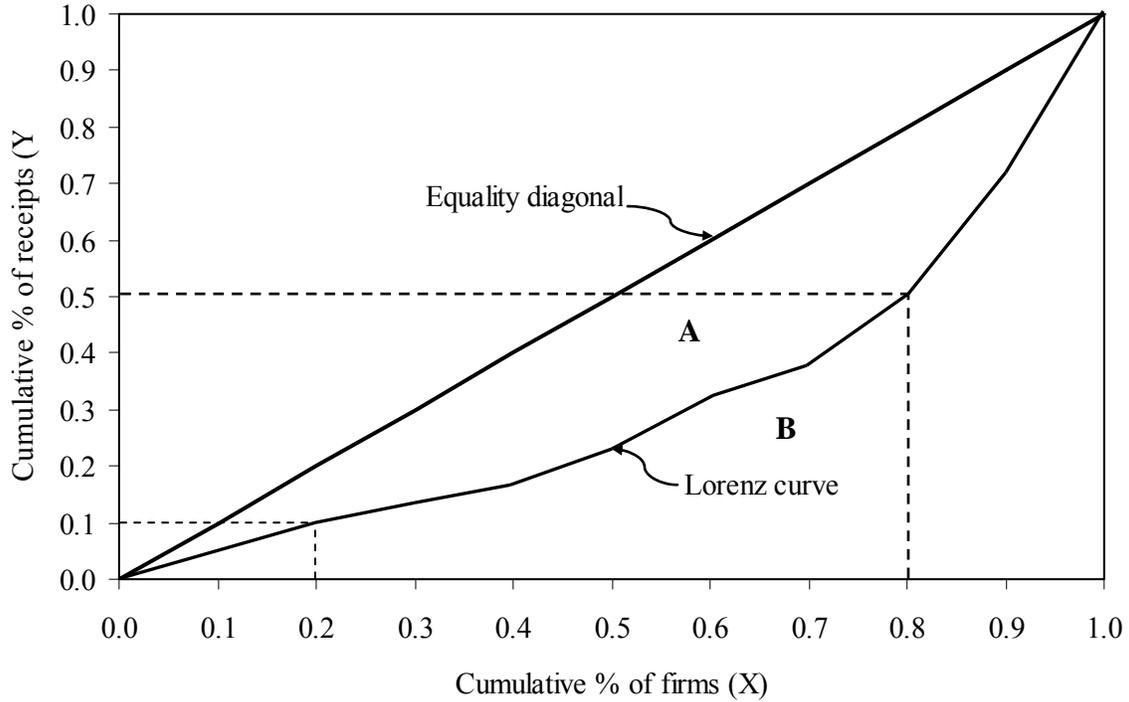
<sup>16</sup> According to Martin (2002), the CR4 value of 40 percent is used as the cut-off point, meaning that a 40 percent or higher value would imply a concentrated (oligopolistic) industry and less than 40 percent would imply a competitive industry. Shepherd (1991) also notes that a market share over 40 percent indicates market dominance.

<sup>17</sup> Average size of four largest firms (*AVG4*) is computed as follows:

$$AVG4 = \frac{\text{Total receipts (employees) of the biggest four firms in an industry}}{4}$$

<sup>18</sup> The four-firm concentration ratio suffers from a limitation that it only focuses on the cumulative share of the four largest firms in the industry and it does not account for differences in concentration among the four largest firms and remaining firms. The size distribution of all firms addresses that limitation. One alternative would be to use the Herfindahl-Hirshman Index (HHI). Given the lack of data to compute the HHI, SBA calculates the Gini coefficient based on distributions of firms and receipts by receipts and employee size classes from the special tabulations of the 2002 Economic Census. Because the Gini coefficient is a relative measure of industry concentration it is better suited to measure the degree of inequality of firm sizes than absolute measures of concentration such as the HHI.

**Figure 2.** Lorenz Curve of Distribution of Firms by Size



There are several statistical formulas for calculating the Gini coefficient. The following basic definition, in terms of Figure 2, provides a starting point for these formulas.<sup>19</sup>

$$\text{Gini coefficient } (G) = \frac{\text{Area A}}{(\text{Area A} + \text{Area B})} = \frac{\text{Area A}}{0.5} = 2 \cdot \text{Area A} = 1 - 2 \cdot \text{Area B}$$

SBA compares the degree of inequality of distribution for an industry under review with that for industries in one of the anchor groups. If an industry shows a higher degree of inequality of distribution (hence a higher Gini coefficient) compared to industries in the anchor comparison industry group this would, all else being equal, warrant a higher size standard than the anchor. Conversely, for industries with similar or more equal distribution (*i.e.*, similar or lower Gini

<sup>19</sup> Note that since total area of the box is 1.0, area below the diagonal (A+B) is half of that or 0.5. One common approach to estimating G is to estimate the value for “2 Area B” in the formula and subtract it from 1. Because the entire Lorenz curve is not known and only cumulative percentages at certain intervals (size classes) are available, following (Brown, 1994), SBA approximates the Gini coefficient (G) using the following formula.

$$G = 1 - 2 \cdot \sum_{k=1}^n (X_k - X_{k-1}) \cdot \frac{(Y_k + Y_{k-1})}{2} = 1 - \sum_{k=1}^n (X_k - X_{k-1}) \cdot (Y_k + Y_{k-1})$$

where  $X_k$  is the cumulative proportion of firms for,  $k = 0, 1, \dots, s$ , with  $X_0 = 0$  and  $X_s = 1$

$Y_k$  is the cumulative proportion of receipts for,  $k = 0, 1, \dots, s$ , with  $Y_0 = 0$  and  $Y_s = 1$

For receipts based standards cumulative percentages are calculated at 8 size classes as (*i.e.*,  $k = 0, 1, 2, \dots, 8$ ):  
Receipts sizes (in millions of dollars): < 2.5, < 6.5, <13.0, <23.0, <35.0, <50, <100, and < maximum.

For employee based standards, data are available at 9 size classes as (*i.e.*,  $k = 0, 1, 2, \dots, 9$ ):  
Employee-sizes (no. of employees): <50, <100, <250, <500, <750, <1,000, <1,500, <2,500, and < maximum.

coefficient values) than the anchor group, the anchor standard, or in some cases a standard lower than the anchor, would be adopted.<sup>20</sup>

### **Federal Contracting**

SBA also considers the share of Federal contracts received by small business within an industry as one of the primary factors in reaching a size standard decision. The Act includes the objective of ensuring that small businesses receive a “fair share” of Federal contracting. The legislative history also discusses the importance of size standards in Federal contracting.

The Federal Procurement Data System – Next Generation (FPDS-NG) contains data on Federal purchases of goods and services by six-digit NAICS industry. SBA uses this information to support an increase to an industry’s size standard where the small business share of Federal contracts is very low, other factors being equal. In cases where that share is already extremely high, it becomes a neutral factor in the size standards decision. Based on the FPDS-NG data for FY 2006-2007, small business share of Federal contract dollars shows a wide variation by industry, ranging from a low of 0 percent to a high of 100 percent.

SBA compares small business’ share of Federal contracting to its share of total industry receipts based on Economic Census. In general, if the share of Federal contracting dollars awarded to small businesses in an industry is significantly smaller than the small business share of total industry’s receipts, *ceteris paribus*, a justification would exist for considering a size standard higher than the current size standard.

The disparity between the small business Federal market share and industry-wide share may be attributed to a variety of reasons, such as extensive administrative and compliance requirements associated with Federal contracts, the different skill sets required by Federal contracts as compared to typical commercial contracting work, and the size of specific contracting requirements of Federal customers. These as well as other factors are likely to influence the type of firms that are able to compete for and succeed in getting Federal contracts within an industry. Firms receiving Federal contracts are likely to possess different characteristics than the average characteristics for all firms in that industry. By comparing small business Federal market share with industry-wide small business share, SBA includes in its size standards analysis the latest Federal contracting trends. This analysis may indicate a size standard larger than the current standard.

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<sup>20</sup> It should be noted that industries with similar receipts and Gini coefficients can have very different distributions as the Lorenz curves can have different shapes and yet still yield the same Gini coefficient. Despite this limitation, several studies have used the Lorenz curve and Gini coefficient in analyzing industry concentration (*e.g.*, see Guth, 1971; White, 1982; Reichardt, 1975; Yeats, 1973).

## **DATA SOURCES AND ESTIMATION**

### **Industry Data**

The primary source of data SBA uses in its industry analysis for ongoing comprehensive size standards review is a special tabulation of the 2002 Economic Census obtained from the U.S. Census Bureau.<sup>21</sup> The special tabulation is similar to the Enterprise Statistics, formerly published by the Census Bureau, except that the Economic Census data is limited to a business operation in its primary industry while the Enterprise Statistics also contained information on operations outside of the primary industry. The 2002 special tabulation contains information by NAICS industry on average firm size in terms of both receipts and employment, total receipts generated by the four largest firms, and size distributions of firms by various receipts and employment size classes.

One limitation of the special tabulation is that the employees and receipts figures are not fully displayed for some size classes due to disclosure prohibitions, mostly at the 6-digit NAICS level. SBA estimates such missing values using the displayed data at the 6-digit level and data at a higher level of industry aggregation, such as at the 2- or 3-digit NAICS level for which size distribution data are fully displayed.<sup>22</sup> For industries where SBA is not able to estimate missing values for some industry factors, SBA bases its analysis only on those industry factors for which information is complete.

Besides the Economic Census, SBA may also evaluate relevant industry data from other sources, including the County Business Patterns published by U.S. Census Bureau, Quarterly Census of Employment and Wages (QCEW, also known as ES-202 data) and Business Employment Dynamics (BED) from the U.S. Bureau of Labor Statistics, Census of Agriculture from the U.S. Department of Agriculture and data from industry associations, especially for those industries for which Economic Census data are either incomplete or missing and industries not covered by the Economic Census, such as Agriculture.

### **Assets Data**

As stated above under “Start up costs,” because of the lack of data on actual start up costs by industry, SBA uses average assets as a proxy for business start up costs. For this, SBA combines the sales to total assets ratios by industry, obtained from the Risk Management Association’s (RMA) Annual Statement Studies with the average firm size (in terms of receipts)

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<sup>21</sup> The latest industry data SBA is using for its ongoing comprehensive size review are based on the 2002 Economic Census. The complete industry data based on the latest 2007 Economic Census are not expected to be available until late 2010.

<sup>22</sup> For example, because of disclosure restrictions, employee figures in certain cells of size distribution by employment size groups are given in ranges, such as <20, 20-99, 100-249, and so on. Employees values for these cells are estimated using the mid-values of these ranges (such as 10 for <20, 60 for 20-99, 175 for 100-249 and so on) and adjusting these values such that final values are consistent with each industry’s total and total for each size class at a higher level of industry aggregation.. Missing values for receipts in distribution of firms by receipts size are estimated using the employment shares and adjusting the estimated values for internal consistency.

by industry from the 2002 Economic Census data to estimate the average assets size for each industry as follows:<sup>23</sup>

$$\begin{aligned} \text{Average assets size} &= \frac{1}{\left(\text{Sales / Total assets}\right)_{RMA}} \times \text{Average firm size ( receipts )} \\ &= \left(\frac{\text{Total assets}}{\text{Sales}}\right)_{RMA} \times \text{Average firm size ( receipts )} \end{aligned}$$

The latest sales to total assets ratios that SBA uses to calculate average assets size are from the Risk Management Association's Annual Statement Studies, 2006-2008.<sup>24</sup>

### **Federal Contracting Data**

To determine small business share of total Federal contracting dollars, SBA evaluates FPDS-NG data obtained from the U.S. General Service Administration's Federal Procurement Data Center (FPDC). The data contain a range of information on each Federal contract awarded, including name of the company receiving the contract and its small business status, dollar value of the contract, and an industry's NAICS code for the good and service being procured. For the comprehensive size standard review, SBA's evaluation of Federal contracting is based on the FPDS-NG data for fiscal years 2006-2008.

A big limitation of FPDS-NG data is that there is no information on specific employment or receipt size for individual contractors to conduct a more detailed analysis of the Federal contracting data. However, for certain sectors for which Federal contracting is a source of significant public concern, SBA matches FPDS-NG data with Central Contractor Registration (CCR) data to obtain information on specific size of individual firms receiving Federal contracts.

### **SBA Loan and Other Program Data**

To determine the impact of size standards on SBA loan and other assistance, SBA analyzes its internal data on guaranteed loans. The current comprehensive size review uses the loan data for fiscal years 2007-2008.

## **SELECTION OF SIZE STANDARDS**

### **Selection of Receipts Based Standards**

To simplify size standards in this comprehensive size standards review SBA is proposing to select a size standard for an industry from a limited number of fixed size standard levels. For many years, SBA has been concerned about the complexity of determining small business status caused by a large number of varying receipts based size standards (see 69 FR 13130, March 4, 2004 and 57 FR 62515, December 31, 1992). For example, current receipts based size standards have more than 30 different levels, ranging from \$0.75 million to \$35.5 million, with many of those levels applying to one or a few industries only. SBA believes that such a large

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<sup>23</sup> Please refer to [www.rmahq.org](http://www.rmahq.org) for further information on the RMA data. Annual Statement Studies(R) is a registered trademark of The Risk Management Association. One limitation of the RMA data is that sales to assets ratio are missing for a considerable number of industries at the 6-digit NAICS level.

<sup>24</sup> SBA will update these data once the new data become available from RMA.

number of standards with small variations are both unnecessary and difficult to justify analytically. Simplifying the administration of SBA's size standards with a fewer size standard levels will produce more common size standards for businesses operating in multiple and related industries and greater consistency in size standards among industries that are similar in their economic characteristics.

Under the current comprehensive size standards review, SBA is proposing to establish eight "fixed-level" receipts based size standards: \$5.0 million, \$7.0 million, \$10.0 million, \$14.0 million, \$19.0 million, \$25.5 million, \$30.0 million, and \$35.5 million. These levels are established by taking into consideration the minimum, maximum and the most commonly used current receipts based size standards. Currently, excluding NAICS Sector 11 (Agriculture, Forestry, Fishing and Hunting<sup>25</sup>), the most commonly used receipts based size standards cluster around the following six levels: \$2.0 million to \$4.5 million<sup>26</sup>, \$7.0 million, \$9.0 million to \$10.0 million, \$12.5 million to \$14.0 million, \$25.0 million to \$25.5 million, and \$33.5 million to \$35.5 million. SBA has selected \$7.0 million as one of the eight fixed receipts based size levels because it is the anchor size standard for receipts based standards, as described earlier. A lower or minimum size level is established at \$5.0 million.<sup>27</sup> Among the higher size clusters, \$10.0 million, \$14.0 million, \$25.5 million, and \$35.5 million are selected as other four levels of fixed size standards. Because of a large gap between two of the size standard intervals, an intermediate level of \$19.0 million is established between the \$14.0 million and \$25.5 million levels. For the same reason, another intermediate level of \$30.0 million is established between \$25.5 million and \$35.5 million. These two intermediate levels reflect roughly similar proportional differences between the two successive size standard levels.

Establishing a fixed size level at \$5.0 million would enable SBA to establish a receipt based size standard for certain industries below the \$7.0 million anchor. Most of the size standards for the crop production and animal production industries (NAICS codes 111110 through 112990) are statutorily set at \$0.75 million. In addition, unique industry characteristics or unique methods used in calculating an industry's receipts may also justify a size standard below \$7.0 million. For example, for industries such as travel agencies and real estate brokers where receipts are measured based on commissions received, as opposed to total transaction values, SBA may establish size standard below \$7.0 million.

In a further effort to simplify size standards, SBA may also propose a common size standard for certain closely related industries. Although the size standard analysis may support a specific size standard level for each industry, SBA believes that establishing different size standard levels for closely related industries may be inappropriate. For example, in cases where

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<sup>25</sup> The size standard for most of Crop and Animal Production industries is statutorily set at \$0.75 million, while the standards for Forestry, Fishing, Hunting and Support Activities for Agriculture and Forestry are established by SBA based on the Census of Agriculture and related data. The Economic Census includes no industry from NAICS Sector 11.

<sup>26</sup> These mostly include industries relating to real estate brokers and travel agencies that have a \$2.0 million size standard (where receipts are defined in terms of commissions received instead of total dollar value of business) and certain architectural and engineering (A&E) industries (including surveying and mapping) that have a standard of \$4.5 million.

<sup>27</sup> The \$5 million size level is about 40 percent below the \$7 million anchor, the same as average difference between other two consecutive size levels. Excluding monetary standards for agriculture and those based on commissions, \$5 million is in the close neighborhood of the current lowest \$4.5 million receipts based standard.

many of the same businesses operate in the same two or more industries, establishing a common size standard would better reflect the industry marketplace than establishing separate size standards for each industry. This situation led SBA to establish a common size standard for the Computer Systems Design and Related Services industries (NAICS 541511-541519), even though the industry data may support a unique size standard for each industry. Businesses engaged in Information Technology related services typically perform activities in two or more other related industries. Consequently, SBA has continued to use a common size standard for Computer and Office Machine Repair Maintenance industry in the Other Services Sector (NAICS 811211) and Computer Systems Design and Related Services Sector (NAICS 541511-541519). Whenever SBA proposes a common size standard for closely related industries it will include its justification in the proposed rule.

### **Selection of Employee Based Size Standards**

Currently, most prevalent levels of size standards for Mining and Manufacturing industries are 500 employees, 750 employees, and 1,000 employees. Only three Manufacturing industries have a 1,500-employee size standard. For the current comprehensive size standards review, for Mining and Manufacturing industries (to be referred to as “Manufacturing” hereafter) SBA is proposing to establish a new minimum size level at 250 employees or half of the 500-employee anchor. Similarly, SBA has adopted 1,000 employees as the maximum size standard for Manufacturing industries. This will allow SBA to revise downward the current size standards for some industries in which employees, due to technological progress and increased automation, are significantly more productive today than they were when the 500-employee size standard was adopted.

Currently, all industries in the Wholesale Trade sector have a single size standard of 100 employees. As part of current comprehensive size review, SBA establishes five employee-based size levels for this sector – 50 employees, 100 employees (anchor), 150 employees, 200 employees, and 250 employees. The smallest size level for the wholesale industries is half of the anchor level as was the case for Mining and Manufacturing industries. Similarly, the highest size level for wholesale industries is half of the current 500-employee size standard for Federal procurement under the “non-manufacture rule”. Use of multiple size levels will better enable SBA to account for differences among the industries within the sector.

Thus, with all Manufacturing and Wholesale Trade industries combined, there will be eight fixed levels of employee based size standards under the current comprehensive size review – 50 employees, 100 employees, 150 employees, 200 employees, 250 employees, 500 employees, 750 employees, and 1,000 employees. Of these, 200 employees and 250 employees are newly established size levels, while the rest are already in use. SBA is proposing to eliminate the current 1,500-employee size level for manufacturing industries. Currently, only three manufacturing industries have a 1,500-employee size standard.

## **EVALUATION OF INDUSTRY FACTORS<sup>28</sup>**

As mentioned earlier, to assess the appropriateness of the current size standards SBA evaluates the structure of each industry in terms of four economic characteristics, namely

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<sup>28</sup> See an appendix at the end of this document for detailed analytical procedures involved in evaluation of industry factor and Federal procurement trends.

average firm size, average assets size, four-firm concentration ratio, and size distribution of firms using Gini coefficient. SBA compares these economic characteristics for an industry to the average characteristics of industries in an appropriate anchor comparison group.

If, in terms of the four industry factors analyzed, the structure of an industry under review is similar to the average structure of industries in the anchor comparison group, SBA will consider adopting the anchor size standard as an appropriate size standard for that industry. If the individual industry’s structure suggests a higher size standard, a size standard higher than the anchor size standard would be selected. The level of the new size standard is determined by the proportional difference between the characteristics of the anchor comparison group and a second comparison group comprising industries with higher level size standards.

Differences in industry structure between an individual industry and the industries in the two comparison groups are determined by comparing data on the four industry factors, including average firm size, average assets size, four-firm concentration ratio, and Gini coefficient of distribution of firms by size. For each of these factors, a separate size standard is established based on the amount of differences between the values for an industry under review and those for the two comparison groups. Table 3 shows two measures of the average firm size (simple and weighted), average assets size, four-firm concentration ratio, average receipts of the four largest firms, and Gini coefficient for anchor level and higher level comparison groups for receipts based size standards.<sup>29</sup> Similar results for employee based size standards are presented in Table 4.

**Table 3**  
Average Characteristics of Receipts Based Comparison Groups

Receipts Based Comparison Group	Avg. Firm Size (\$ million)		Avg. Assets Size (\$ million)	Avg. Four-firm Concentration Ratio (%)	Avg. Receipts of Four Largest Firms (\$ million) <sup>a</sup>	Gini Coefficient
	Simple Average	Weighted Average				
Anchor Level	1.19	17.64	0.71	18.7	189.9	0.599
Higher Level	4.77	52.27	2.05	22.3	639.4	0.725

<sup>a</sup>. To be used for industries with a four-firm concentration ratio of 40% or greater.

<sup>29</sup> It should be noted the figures shown in these and subsequent tables are subject to change when SBA updates its analysis with new data or adopts a new analytical procedure. Those changes will be reflected in proposed or final rules.

**Table 4**  
Average Characteristics of Employee Based Comparison Groups

Employee Based Comparison Group	Avg. Firm Size (number of employees)		Avg. Assets Size (\$ million)	Avg. Four-firm Concentration Ratio (%) <sup>a</sup>	Avg. Receipts of Four Largest Firms (\$ million) <sup>b,c</sup>	Gini Coefficient <sup>a</sup>
	Simple Average	Weighted Average				
Manufacturing						
Anchor Level	52.1	294.0	4.38	36.7	260.2	0.714
Higher Level	155.8	844.5	17.04	68.7	655.6	0.759
Wholesale						
Anchor Level	16.3	117.0	3.44	22.3	2,161.0	0.699
Higher Level	28.1	421.8	5.60	26.8	3,329.8	0.812

<sup>a</sup>. Four-firm concentration ratio for industries with employee based standards is defined in terms of receipts instead of employees of the largest four firms because the receipts is a better measure of market power. For the same reason, the Gini coefficient is also computed in terms of percentages of receipts.

<sup>b</sup>. The average number of employees of the four largest firms would have been a better measure for the calculation of employee based size standards. However, since the special tabulation of the 2002 Economic Census did not have this information, average receipts size of the four largest firms is used.

<sup>c</sup>. To be used for industries with a four-firm concentration ratio of 40% or greater.

## ESTIMATION OF RECEIPTS BASED SIZE STANDARDS FOR INDUSTRY FACTORS<sup>30</sup>

An estimated size standard supported by each industry factor is derived by comparing its value for a specific industry under review to the corresponding values for the two comparison groups, as presented in Table 3. If the industry value for a particular factor is near that for the anchor comparison group, the \$7.0 million anchor size standard would be considered appropriate for that factor.

If an industry's value for a factor is significantly above or below that of the anchor comparison group, a size standard higher or lower than \$7.0 million would be warranted. The level of the size standard in these cases is derived based on the proportional difference between the industry value and the values for the two comparison groups.

Let X = Industry value for a given industry factor

AV = Average value for anchor size standard industry group

HLV = Average value for the higher-level size standard industry group

<sup>30</sup> Appendix at the end of this document shows specific formulas involved in deriving size standard for each of the five primary factors.

ASTD = Anchor size standard (\$7 million)

HLSTD = Higher level group average size standard (\$29 million)

Using these notations, a size standard for each industry factor is computed as follows:

$$\left[ \frac{(X - AV)}{(HLV - AV)} \right] \times (HLSTD - ASTD) + ASTD$$

Substituting the values for ASTD and HLSTD yields,

$$\left[ \frac{(X - AV)}{(HLV - AV)} \right] \times (29 - 7) + 7 = \left[ \frac{(X - AV)}{(HLV - AV)} \right] \times 22 + 7$$

In this expression, the first term within bracket is the difference between the industry value and the anchor value as a proportion of the difference between higher level industry value and anchor level industry value. Applying this proportion to the difference between the higher level \$29 million size standard and the anchor level \$7 million size standard yields an estimated increase above the anchor size standard. Adding this increase to the \$7 million anchor size standard yields a specific size standard supported by the data. This procedure is illustrated below for each factor using a specific value for each factor for a hypothetical industry. This procedure is based on a linear interpolation technique as graphically depicted in Figure 3 below. Size standards for other industry factors can be derived in a similar manner using this framework.

### **Size Standard Based on Average Firm Size**

#### *Simple Average Firm Size*

A simple average firm size of \$1.9 million in receipts would support a size standard of \$10 million. As can be seen from Table 3, the simple average firm size of industries with the \$7 million anchor size standard is \$1.19 million and the average firm size of industries with the higher level receipts based standard is \$4.77 million.

Thus, in this example, X equals \$1.9 million, AV equals \$1.19 million, and HLV equals \$4.77 million. Substituting these values in the formula we get,

$$\left[ \frac{(X - AV)}{(HLV - AV)} \right] \times 22 + 7$$
$$\left[ \frac{(1.9 - 1.19)}{(4.77 - 1.19)} \right] \times (29 - 7) + 7 = \left[ \frac{0.71}{3.58} \right] \times 22 + 7 = 0.20 \times 22 + 7 = 4.36 + 7 = \$11.36 \text{ mil.}$$

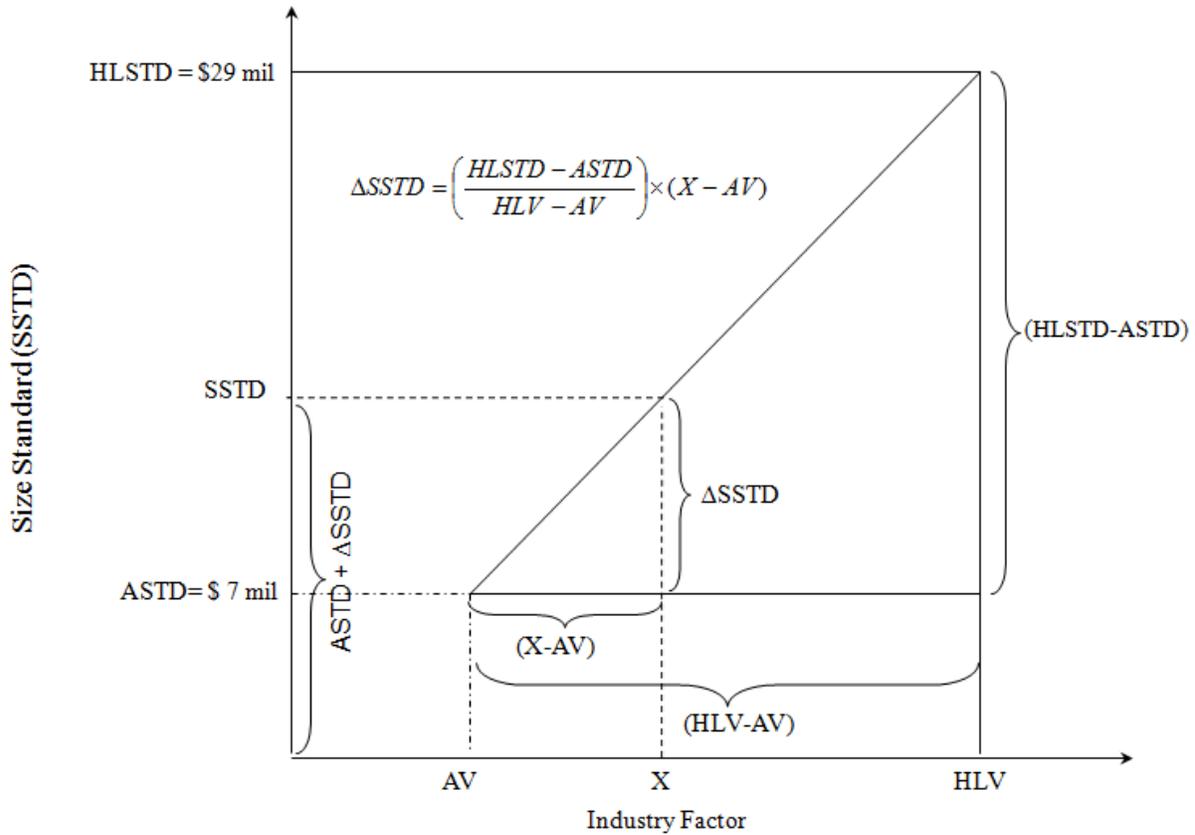
Rounded to the nearest fixed level, the above result gives a size standard of \$10 million.

#### *Weighted Average Firm Size*

For an industry with a weighted average firm size of \$35.0 million, all else being equal, \$19 million would be a supportable size standard. As shown in Table 3, the weighted average size for the anchor industry group is \$17.64 million and that for the higher level comparison group is \$52.27 million.

Thus, here, X equals \$35.0 million, AV equals \$17.64 million, and HLV equals \$52.27 million. Substituting these values in the formula we get,

**Figure 3.** Receipts Based Size Standard Using Linear Interpolation Technique



$$SSTD = \left( \frac{(X - AV)}{(HLV - AV)} \right) \times (HLSTD - ASTD) + ASTD$$

$$= \left( \frac{(HLSTD - ASTD)}{(HLV - AV)} \right) \times (X - AV) + ASTD = ASTD + \Delta SSTD$$

$$\left[ \frac{(X - AV)}{(HLV - AV)} \right] \times 22 + 7 = \left[ \frac{(35.0 - 17.64)}{(52.27 - 17.64)} \right] \times 22 + 7 = \left[ \frac{17.36}{34.63} \right] \times 22 + 7$$

$$= 0.50 \times 22 + 7 = 11.03 + 7 = \$18.3 \text{ million.}$$

Rounded to the nearest fixed level it becomes \$19 million.

### Size Standard Based on Average Assets Size

If the average assets size of an industry under consideration is \$1.17 million, the appropriate size standard for this factor would be \$14 million. As shown in Table 3, the average assets size of the industries with the anchor size standard is \$0.71 million and the average assets size of the industries in the higher size standard group is \$2.05 million.

Here, X = \$1.17 million, AV = \$0.71 million, and HLV = \$2.05 million. Plugging these values in the formula we get,

$$\left[ \frac{(X - AV)}{(HLV - AV)} \right] \times 22 + 7 = \left[ \frac{(1.17 - 0.71)}{(2.05 - 0.71)} \right] \times (29 - 7) + 7 = \left[ \frac{0.46}{1.34} \right] \times 22 + 7$$

$$= 0.34 \times 22 + 7 = 7.55 + 7 = \$14.55 \text{ million.}$$

Rounded to the nearest fixed level, this gives a size standard of \$14 million.

### **Size Standard Based on Four-firm Concentration Ratio**

If the biggest four firms account for 40 percent or more of total industry receipts, a size standard for that factor is derived based on the average receipts size of the four biggest firms in an industry and that for the four biggest firms in the two comparison groups.

If the four largest firms in an industry account for 53.3 percent of total industry receipts and the average firm size of the four biggest firms in that industry is \$241.2 million, the appropriate size standard for this factor will be \$10 million.

Since the four-firm concentration ratio is above the cut-off point of 40 percent, a separate size standard is computed for this factor. As shown in Table 3 above, the average firm size of the four biggest firms for industries in the anchor size standard group is \$189.9 million and average firm size of the four biggest firms in industries in the higher level size standard group is \$639.4 million.

Here, X = \$241.2 million, AV = \$189.9 million, and HLV = \$639.4 million. Substituting these values in the formula we get,

$$\left[ \frac{(X - AV)}{(HLV - AV)} \right] \times 22 + 7$$

$$= \left[ \frac{(241.2 - 189.9)}{(639.4 - 189.9)} \right] \times 22 + 7$$

$$= \left[ \frac{51.3}{449.5} \right] \times 22 + 7 = 0.114 \times 22 + 7 = 2.51 + 7 = \$9.51 \text{ million.}$$

Rounded to the nearest fixed level, this gives a size standard of \$10.0 million.

### **Size Standard Based on Size Distribution of Firms**

If an industry's size distribution produces a Gini coefficient value of 0.64, its size standard for this factor would be \$14.0 million. The average Gini coefficient value for the anchor industry group is 0.599 and that for higher level size group is 0.725 (Table 3).

Thus, for this example, X = 0.64, AV = 0.599, and HLV = 0.725. Substituting these values in the formula we get,

$$\left[ \frac{(X - AV)}{(HLV - AV)} \right] \times 22 + 7$$

$$= \left[ \frac{(0.640 - 0.599)}{(0.725 - 0.599)} \right] \times 22 + 7 = \left[ \frac{0.041}{0.126} \right] \times 22 + 7 = 0.33 \times 22 + 7 = 7.16 + 7 = \$14.16 \text{ mil.}$$

Rounded to the nearest fixed size level, this gives a size standard of \$14 million.

Table 5 shows ranges of values for each industry factor and the size standards supported by those values.

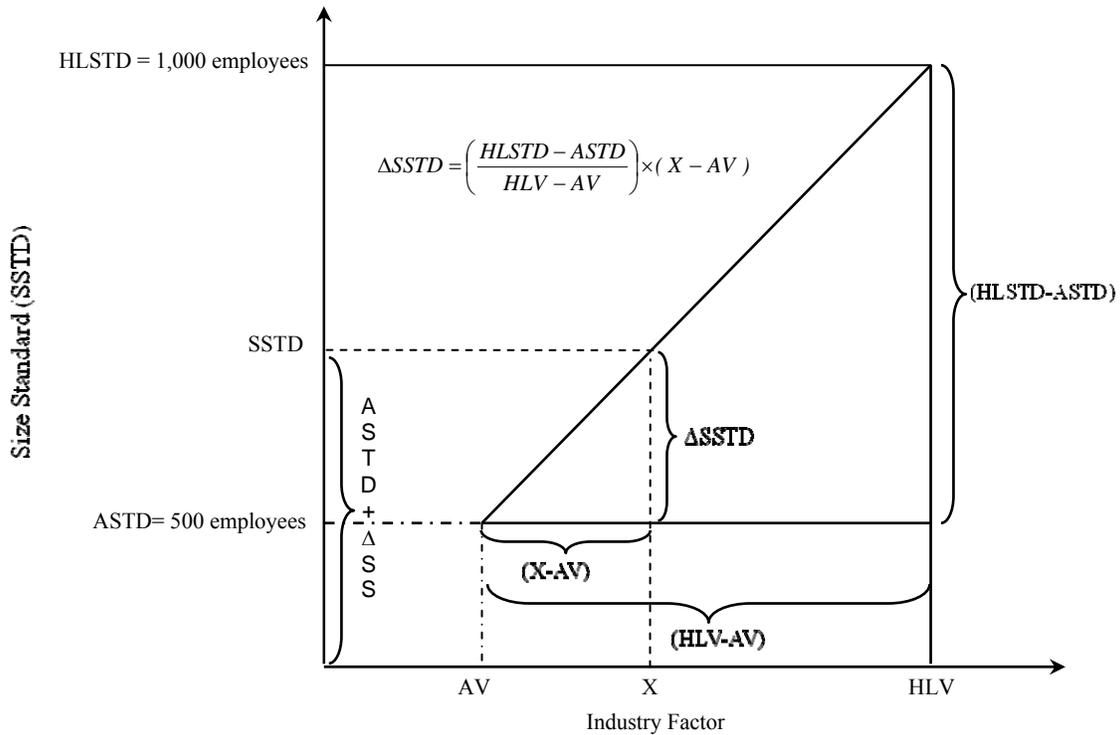
**Table 5**  
Value of Industry Factors and Supported Receipts Based Size Standards

<u>If</u> Simple Avg. Receipts Size (\$ million)	<u>Or if</u> Weighted Avg. Receipts Size (\$ million)	<u>Or if</u> Avg. Assets Size (\$ million)	<u>Or if</u> Avg. Receipts of Largest Four Firms (\$ million)	<u>Or if</u> Gini Coefficient	<u>Then</u> Size Standard is (\$ million)
< 1.03	< 16.07	< 0.65	< 169.4	< 0.593	5.0
1.03 to 1.43	16.07 to 20.00	0.65 to 0.80	169.4 to 220.5	0.593 to 0.608	7.0
1.44 to 2.00	20.01 to 25.51	0.81 to 1.02	220.6 to 292.0	0.609 to 0.628	10.0
2.01 to 2.74	25.52 to 32.59	1.03 to 1.29	292.1 to 384.0	0.629 to 0.653	14.0
2.75 to 3.67	32.60 to 41.65	1.30 to 1.64	384.1 to 501.5	0.654 to 0.686	19.0
3.68 to 4.57	41.66 to 50.30	1.65 to 1.97	501.6 to 613.8	0.687 to 0.718	25.5
4.58 to 5.38	50.31 to 58.17	1.98 to 2.28	613.9 to 716.1	0.719 to 0.746	30.0
> 5.38	>58.17	> 2.28	> 716.1	> 0.746	35.5

## ESTIMATION OF EMPLOYEE BASED SIZE STANDARDS FOR INDUSTRY FACTORS

Employee based size standards for the manufacturing and wholesale industries are established in the same manner as receipts based standards as described above. That is, a separate employee based standard is established for each industry factor for every industry. This involves comparing an industry under review with anchor size and higher level size comparison groups with respect to each industry factor. If the factor value for the industry is similar to that of the anchor group, the anchor standard would be appropriate. Conversely, if the industry value for a factor is significantly above or below that of the anchor group, a size standard above or below the anchor would be adopted. The level of the size standard in these cases is derived based on the proportional difference between the industry value and the values for the two comparison groups. This procedure for deriving size standards for the manufacturing industries is depicted in Figure 4, which can easily be extended to wholesale standards.

**Figure 4.** Employee Based Size Standard Using Linear Interpolation Technique



$$\begin{aligned}
 SSTD &= \left( \frac{(X - AV)}{(HLV - AV)} \right) \times (HLSTD - ASTD) + ASTD \\
 &= \left( \frac{(HLSTD - ASTD)}{(HLV - AV)} \right) \times (X - AV) + ASTD = ASTD + \Delta SSTD
 \end{aligned}$$

Because of different anchor and higher level size comparison groups, the manufacturing and wholesale size standards are estimated using different formulas, as described below.

#### Estimation of Manufacturing Size Standards for Industry Factors

- Let X = Industry value for a given industry factor  
 AV = Average value for anchor size standard industry group  
 HLV = Average value for the higher-level size standard industry group  
 ASTD = Anchor size standard (500 employees)  
 HLSTD = Higher level group average size standard (1,000 employees)

Using these notations, a size standard for each industry factor is computed as follows:

$$\left[ \frac{(X - AV)}{(HLV - AV)} \right] \times (HLSTD - ASTD) + ASTD$$

Substituting the values for ASTD and HLSTD yields,

$$\left[ \frac{(X - AV)}{(HLV - AV)} \right] \times (1000 - 500) + 500 = \left[ \frac{(X - AV)}{(HLV - AV)} \right] \times 500 + 500$$

The above formula yields an estimated size standard for each factor, which is then rounded to the nearest fixed size level. Table 6 shows ranges of values for each industry factor and the manufacturing size standards supported by those values.

**Table 6**  
Values of Industry Factors and Supported Manufacturing Size Standards

If Simple Avg. Firm Size (employees)	Or if Weighted Avg. Firm Size (employees)	Or if Avg. Assets Size (\$ million)	Or if Avg. Receipts of Largest Four Firms (\$ million)	Or if Gini Coefficient	Then Size Standard is (employees)
< 26.1	< 156.4	< 1.21	< 161.3	< 0.647	250
26.2 to 78.1	156.4 to 431.7	1.21 to 7.54	161.3 to 359.0	0.647 to 0.677	500
78.2 to 129.9	431.8 to 706.9	7.55 to 13.88	359.1 to 556.7	0.678 to 0.707	750
> 129.9	> 706.9	> 13.88	> 556.7	> 0.707	1,000

**Estimation of Wholesale Trade Size Standards for Industry Factors**

- Let X = Industry value for a given industry factor
- AV = Average value for anchor size standard industry group
- HLV = Average value for the higher-level size standard industry group
- ASTD = Anchor size standard (100 employees)
- HLSTD = Higher level group average size standard (250 employees)

Using these notations, a size standard for each industry factor is computed as follows:

$$\left[ \frac{(X - AV)}{(HLV - AV)} \right] \times (HLSTD - ASTD) + ASTD$$

Substituting the values for ASTD and HLSTD yields,

$$\left[ \frac{(X - AV)}{(HLV - AV)} \right] \times (250 - 100) + 100 = \left[ \frac{(X - AV)}{(HLV - AV)} \right] \times 150 + 100$$

The above formula gives an estimated size standard for each factor, which is then rounded to the nearest fixed size level. Table 7 shows ranges of values for each industry factor and the wholesale trade size standards supported by those values.

**Table 7**  
Values of Industry Factors and Supported Wholesale Trade Size Standards

<u>If Simple</u> Avg. Firm Size (employees)	<u>Or if</u> Weighted Avg. Firm Size (employees)	<u>Or if</u> Avg. Assets Size (\$ million)	<u>Or if</u> Avg. Receipts of Largest Four Firms (\$ million)	<u>Or if</u> Gini Coefficient	<u>Then</u> Size Standard is (employees)
< 14.4	< 66.2	< 3.08	< 1.97	< 0.680	50
14.4 to 18.3	66.2 to 167.8	3.08 to 3.80	1.97 to 2.36	0.680 to 0.718	100
18.4 to 22.2	167.9 to 269.4	3.81 to 4.52	2.37 to 2.75	0.719 to 0.755	150
22.3 to 26.1	269.5 to 371.0	4.53 to 5.24	2.76 to 3.13	0.756 to 0.793	200
> 26.1	> 371.0	> 5.24	> 3.13	> 0.793	250

## EVALUTAION OF FEDERAL CONTRACTS

SBA considers Federal contracts as one of the primary factors in its size standard analysis for industries in which the annual amount of total Federal contracting dollars is \$100 million or more. SBA believes this threshold reflects a level of contracting in which an adjustment to a size standard may have a significant impact on small business opportunities and assumes that impact of size adjustment on small business would be insignificant below this level. .

To determine if small businesses in an industry are receiving a fair share of federal contracts, SBA computes the small business shares of Federal contracting dollars and industry total receipts as follows:

*Small business share in Federal contracts*

$$= \frac{\text{Total federal contracting dollars going to small business in an industry}}{\text{Total Federal contracting dollars going to that industry}}$$

*Small business share in industry total receipts*

$$= \frac{\text{Total dollars going to small business in an industry}}{\text{Total dollars going to that industry}}$$

All other factors being equal, if the share of Federal contracting dollars awarded to small businesses in an industry is significantly less than the small business share of total industry's receipts, a justification would exist for considering a size standard higher than the current size standard. Conversely, if the small business share of Federal contracting activity is near or above the small business share in total industry receipts, this will support the current size standard. Besides the small business share, SBA may also examine the distribution of contracts by contract size and by business status.

## **SIZE STANDARD BASED ON FEDERAL CONTRACTING FACTOR**

As mentioned earlier, the existing FPDS-NG data on Federal contracts are limited to identifying businesses as small or other than small with no information on exact size of businesses receiving Federal contracts to conduct a more precise analysis. Given limited data, SBA will designate a size standard at one level higher than their current size standard for industries where the small business share in Federal Government contracts is between 10 and 30 percentage points lower than their shares in total industry receipts and at two levels higher than the current size standard if the difference is higher than 30 percentage points.

Generally, SBA will not designate a size standard for the Federal contracting factor that is higher than two levels above the current size standard because this would result, in most cases, in designating a size standard more than twice the current size standard. SBA believes that given the limitations of the FPDS-NG data, and the complex relationships among a number of variables affecting small business participation in Federal contracting, a larger adjustment should usually be considered after further analysis of the impact of any subsequent revision to the current size standard. In limited situations, however, SBA may conduct a more extensive examination of Federal contracting experience to support a different size standard than indicated by this general rule to take into consideration significant and unique aspects of small business competitiveness in the Federal contract market. Engineering services for military weapons and aerospace equipment is an example where SBA took this approach because of the significant differences between firms engaged in this type of defense-oriented activities and those engaged in other types of engineering services.

For example, let's assume that an industry with current size standard of \$7 million had an average of \$150 million in Federal contracting dollars during FY 2006-2008, of which 15 percent went to small businesses. Let's further assume that small businesses accounted for 40 percent of total receipts of that industry. Thus, in this case, the small business share in Federal government contracts is 25 percentage points lower than their shares in total industry receipts. According to the above rule, the new size standard for that industry based on Federal contracting factor should be set one level higher than the current \$7 million size standard at \$10 million. SBA also employs this approach to account for Federal contracting factor in deriving employee based size standards.

## **DERIVATION OF COMPOSITE SIZE STANDARD**

SBA methodology presented above results in five separate size standards based on evaluation of the five primary factors. The hypothetical value for each of the five factors and corresponding size standard corresponding to each factor are summarized in Table 8.

Also shown in Table 8 is the derivation of the composite size standard for the five primary factors. The simple average of five size standards based on each of the five factors is \$12.4 million. Rounded to the nearest fixed size level, this becomes \$14.0 million. The simple average method weighs all factors equally. The composite size standard for employee based standards can also be derived in a similar fashion. SBA can assign different weights to these factors in response to its policy decisions and other considerations, as discussed below under weighting method.

**Table 8**  
Derivation of Composite Size Standard

Primary Factor	Factor Value	Size Standard (\$ million)	
1. Average firm size <sup>a</sup>		14.0	
1.1. Simple average firm size (\$ mil.)	1.9	10.0	} 14.0
1.2. Weighted average firm size (\$ mil.)	35.0	19.0	
2. Average assets size (\$ million)	1.17	14.0	
3. Four-firm concentration ratio (%)	53.3	} 10.0	
(Average firm size of 4 biggest firms (\$ mil.))	(241.2)		
4. Size distribution of firms (Gini coefficient)	0.64	14.0	
5. Federal procurement	-25%	10.0	
Average (composite)		14.4	

<sup>a</sup>. Note that size standard for average firm size is computed as average of size standards supported by simple average firm size and weighted average firm size, rounded to the nearest fixed size level.

## SECONDARY FACTORS

In addition to the primary factors discussed above, there are factors of lesser importance and not easily quantifiable, which SBA also considers in deciding a size standard. As in the case of primary factors, not all of the secondary factors would be applicable in every case, but each will be examined to see to what extent they are relevant. These factors will not by themselves impart the same direction to a size standard in all cases and thus are of secondary importance. These factors will be considered separately and explicitly discussed in the course of size standards reviews to determine the direction of influence on a size standard. Five such factors are discussed next.

### Technological Change

This factor affects the production process of an industry. It can result in fundamental shifts in an industry's operations and ultimately can revolutionize entire segments of the economy and the labor force. If a change is toward automation, for example, so that fewer employees produce the same product, the size standard in that industry could be nudged downward.

### Competing Products from Other Industries

This factor has to do with the way industries are defined according to the North American Industry Classification System (NAICS). With a few exceptions, size standards are set on the basis of industries according to the NAICS. This new system, first introduced in 1997 replacing the Standard Industry Classification System (1987), is used both inside and outside the government as a uniform framework for categorizing economic activity for the purpose of collecting statistics on the nation's economy.

The NAICS system classifies economic units that have similar production processes in the same industry. A market on the other hand, is a group of substitutable or competing products.<sup>31</sup> While there are millions of products and services, there are less than 1,200 six-digit NAICS categories to cover them all. Thus in adopting the NAICS System for size standards, SBA has implicitly decided that the standards should be defined according to production processes, not products or services. While this method may have some drawbacks, the NAICS is undoubtedly more manageable both because it limits the number of size standards to levels which are administratively practical and because most industry statistics are collected on the NAICS basis. When SBA is aware of competing products from other industries impacting the Federal procurement process, this can be used as a factor in setting size standards.

### **Industry Growth Trends**

This factor would take into consideration the overall trends in a particular industry, such as changes in firm size, concentration, and size distributions of firms. Like the other secondary factors, growth trends would have a lesser influence on an industry's size standard analysis. There is no unambiguous upward or downward influence it would have on setting size standards. Also because of changes in the industry classification systems and resultant inconsistencies in industry data over time, inclusion of this factor in the size standard is quite limited. However, with the release of 2007 Economic Census data, there will be 10 years of data covering three Economic Censuses under the NAICS basis. This will allow SBA to conduct a more detailed analysis of changes in industry structure for revising size standards in the future.

### **History of Activity in the Industry**

Prior correspondence or public comment, changes in Federal procurement policies, financial indicators or other relevant information is retained by the Size Standards Office for each industry. This would be examined in the course of establishing a size standard. SBA also thoroughly evaluates all public feedback on its proposed rule before issuing the final rule.

### **Impacts on SBA Programs**

SBA also evaluates the impact of a size standard revision on its programs, including the volume of SBA guaranteed loans within an industry and the number and size of firms obtaining those loans. This is to assess whether the existing or proposed size standard for a particular industry may be restricting the level of Federal small business assistance to firms in that industry. If the analysis shows that the proposed size standard based on the five primary factors (*i.e.*, average firm size, average assets size, four-firm concentration ratio, distribution of firms by size, and small business share of Federal contracting) results in a significant reduction in the small business assistance compared to the existing standard, a size standard higher than proposed level or the existing standard would be adopted. If small businesses have already been receiving a significant share of assistance through SBA loan programs, or if the financial assistance has been provided mainly to small businesses much smaller in size than the proposed size standard, consideration of this factor for determining the size standard may not be necessary.

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<sup>31</sup> Thus, while paper clips and bird cages are not competing products, they are produced in the same industry (NAICS 332618 "Fabricated Wire Products Manufacturing") due to the similarity of production process, *i.e.* bending metal wire. In contrast containers for liquid food, such as fruit juices, come in a variety of types such as glass, plastic, paperboard and cans. Each of the four types of containers is produced in a different industry, but competes with each other for the juice container market because they are sufficiently substitutable so as to constitute a market.

## **WEIGHTING METHOD**

As discussed above, the factors SBA evaluates in establishing size standards have been divided into two groups – primary and secondary. Although within each group there are no specific weights, the *Federal Register* discussion proposing any size standard change would describe how the various factors are weighted in devising a size standard. While each factor is examined for every industry, the importance of each factor within a group may vary according to the characteristics of each industry. This method ensures consistency of approach while maintaining sufficient flexibility in establishing a size standard for each industry.

Finally, SBA would attempt, whenever possible, to carry out in-depth industry studies to support its size standards reviews. When other relevant factors are introduced beyond those listed in this report, they will be made explicit and their effect described in the proposed regulation.

## **ASSESSING DOMINANCE IN FIELD OF OPERATION**

Section 3(a) of the Act defines a small business concern as one that is (1) independently owned and operated, (2) not dominant in its field of operation, and (3) within a specific small business definition or size standard established by the SBA Administrator. SBA considers as part of its evaluation of a size standard whether a business concern at a proposed size standard would be considered dominant in its field of operation. Consistent with legislative history, this assessment generally considers the industry's market share of firms at the proposed size standard, or other factors that may show whether an individual firm can exercise a major controlling influence on significant numbers of business concerns at a national level. If SBA analysis indicates a proposed size standard would include a dominant firm, a lower size standard would be considered to exclude the dominant firm.

## **OTHER MEASURES OF SIZE STANDARDS**

In limited situations, SBA establishes a size standard measure unique to an industry. This occurs when the receipts and employee based measures do not adequately reflect the level of activity of firms within an industry. An alternative size standard measure may be established where the NAICS industry comprises a single and discrete activity. The selected size measure is a widely used measure of industry activity by industry analysts. In addition, the availability of reliable industry data on the alternative size measure is also important. Below is a brief discussion of four specific alternative measures of size standards that SBA is using today.

### **Barrels Per Calendar Day Refining Capacity**

Since 1955, for purposes of Government procurement, SBA has always used 1,500 employees in conjunction with barrels per calendar day of refining capacity as the size standard for the petroleum refining industry. Currently, refining capacity is 125,000 barrels per calendar day. Refining capacity is considered to be a better indicator for measuring and comparing the operations of petroleum refiners than both the number of employees and receipts. In 1992, SBA proposed eliminating the refining capacity component of the size standard for refiners and using the 1,500-employee size standard only. However, industry comments overwhelmingly favored the continued use of refining capacity as part of size standard for the petroleum refining industry.

Moreover, several other Federal agencies, such as the U.S. Department of Energy and Environmental Protection Agency, also use the refining capacity as a measure to differentiate one refiner from another. The employee component in refining size standard is necessary to account for affiliation involving entities not engaged in refining activity.

For establishing a size standard based on refining capacity, SBA generally follows its standard approach to analyzing industry structure. For example, average firm size, distribution of firms by size, and concentration ratios, and Federal contracting participation are analyzed in terms of refining capacity. Depending on the availability relevant data, starts up costs are also evaluated. In lieu of an established anchor size comparison group as for the receipts and employee based standards, SBA focuses its analysis on changes in the industry structure since the previous adjustment to the size standard and the historic size of small business segment in the industry.

### **Megawatts Hours of Electric Output**

In 1974, SBA established four million megawatts hours in terms of the preceding-year total electric output as a size standard for Electric Utilities. Previously, SBA had used the receipts based anchor size standard of \$1 million. SBA examined two factors in arriving at this level – the level and distribution of receipts and trend of industry concentration among the top electricity producers. To encourage mergers among smaller producers and increase the level of competition within the industry, SBA adopted four million megawatts hours of annual output as the size standard for Electric Utilities.

### **Total Assets**

In 1984, SBA established a size standard of \$100 million in total assets for most of the industries in the banking sector. For this, SBA analysis focused in the average assets size of banks and the distribution of banks by assets size. It also considered the number of bank branches at a particular size as well as whether the bank had the capability for electronic fund transfers. The Agency also took into consideration the expert opinions of industry economists on what constitutes a small bank. The consensus view supported the SBA estimate of \$100 million standard in total assets. Due to periodic adjustments for inflation, that value has increased to \$175 million today.

### **Net Worth and Net Income**

The Small Business Investment Company (SBIC) program and the Certified Development Company (CDC) program (504 program) utilize either SBA industry based size standard or an alternate size standard based on net worth and net income. SBA decisions on the levels of size standards in terms of net worth and net income are based on the objectives of the program. The last change to the SBIC net worth and net income size standards occurred in 1994. Because of statutory changes to the SBIC program in 1992, the Agency believed higher net worth and net income size standards were needed to support the level of small business assistance intended by those changes. To adopt the new levels of standards, SBA examined the maximum level of investment to businesses by a SBIC licensee and the overall level of financing by all investors. Current standards for the SBIC program are \$18 million in net worth and \$6 million in net income. Corresponding standards for the 504 program are \$8.5 million and \$3.0 million, respectively.

## ADJUSTMENT TO MONETARY BASED SIZE STANDARDS FOR INFLATION

SBA makes adjustments to its monetary based size standards when necessary. Under its current regulations, SBA assesses the impact of inflation on monetary based size standards at least once every five years. This assures the public that SBA monitors inflation and decides whether to adjust size standards at least that often, if not more frequently. Inflation adjustments are separate changes to those made through an analysis of industry structure; they are intended to maintain the real value of a monetary based size standards until a more detailed size standards analysis may be conducted. SBA made adjustments for inflation in 2008, 2005, 2002, 1994, 1984 and 1975.

To calculate an inflation adjustment, SBA follows the following steps:

1. Determine an inflation index to represent the change in monetary value from one period to the next. There are a number of inflation indexes that the Federal government produces, but for the last several adjustments for inflation, SBA has opted to use the chain-type price index for the Gross Domestic Product (GDP), a broad measure of inflation for the economy as a whole. The U.S. Department of Commerce, Bureau of Economic Analysis (BEA), publishes this index quarterly. To better account for a variation in inflation levels across industries, SBA may consider using industry specific inflation indices in its future inflation adjustments. Some possible industry specific indices include chain-type GDP price indices by industry from BEA and consumer and producer prices by industry from the U.S. Bureau of Labor Statistics.
2. Determine the base or starting period, which is usually the latest quarter for which GDP price index statistics were available at the time of previous inflation adjustment.
3. Determine the ending period, which is usually the latest quarter for which GDP price data are available at the time of current inflation adjustment.
4. Calculate the rate of inflation between base period and ending period as follows:

$$\begin{aligned} & \textit{Rate of inflation (\%)} \\ &= \left( \frac{GDP\ PRICE\ INDEX_{End\ period} - GDP\ PRICE\ INDEX_{Base\ period}}{GDP\ PRICE\ INDEX_{Base\ period}} \right) \times 100 \\ &= \left( \frac{GDP\ PRICE\ INDEX_{End\ period}}{GDP\ PRICE\ INDEX_{Base\ period}} - 1 \right) \times 100 \end{aligned}$$

For the latest inflation adjustment, the third quarter of 2001 was used as the base period and first quarter of 2008 was used as the ending period. When the proposed rule was prepared, the chain-type price index for GDP was 102.690 for the third quarter of 2001 (base period) and 121.363 for the first quarter of 2008 (end period). Based on these values, using the above formula, rate of inflation is 18.2 percent between the two periods.

$$\text{Rate of inflation} = \left( \frac{\text{GDP PRICE INDEX}_{\text{End period}}}{\text{GDP PRICE INDEX}_{\text{Base period}}} - 1 \right) \times 100 = \left( \frac{121.363}{120.690} - 1 \right) \times 100 = 18.2\%$$

- Adjust the monetary based size standards using the estimated rate of inflation and round the results off based on what SBA has chosen as the predetermined level. Generally, and most recently, SBA rounded off to the nearest \$500,000.

$$\begin{aligned} \text{Adjusted size standard}_{\text{End period}} \\ = \text{Size standard}_{\text{Base period}} + \text{Size standard}_{\text{Base period}} \times \text{Rate of inflation} \end{aligned}$$

The second term in the above formula is an increase in industry's size standard due to inflation. Adding this increase to the size standard at the base period (*i.e.*, current size standard at the time of adjustment) gives a new size standard adjusted for inflation, which is, in most cases, higher than the current standard.

If an industry's current size standard is \$6 million in annual receipts, based on the 18.2% inflation rate, its size standard will be \$7 million after being adjusted for inflation. Using the above formula,

$$\begin{aligned} \text{Adjusted size standard}_{\text{End period}} \\ = \text{Size standard}_{\text{Base period}} + \text{Size standard}_{\text{Base period}} \times \text{Rate of inflation} \\ = 6,000,000 + 6,000,000 \times 18.2\% \\ = 6,000,000 (1 + 0.182) \\ = 6,000,000 \times 1.182 \\ = \$7,092,000 \end{aligned}$$

Rounded to the nearest \$500,000, this becomes \$7 million.

## ALTERNATIVE SIZE STANDARDS METHODOLOGIES

SBA current small business size standards have evolved during the history of the Agency in response to changes in its programs and transformation of the U.S. economy from a manufacturing based industrial structure to an information and services based structure. Most changes to monetary based size standards over the years have resulted from periodic increases for inflation.

One of the most difficult challenges confronting SBA is establishing size standards at levels to adequately reflect differences among industries, yet keeping them simple and easy to use. Over the years, SBA has considered simplifying its size standards in several ways, such as establishing standards based only on number of employees, limiting the number of size standards levels, and establishing size standards based on broader (more aggregated) industry categories. In limited cases, SBA has also attempted to establish a common size standard for a group of closely related industries, even though the characteristics of each industry in the group may support a unique size standard. The simplest alternative would be to have a single, one-size-fits-all size standard for all industries across the board, but this will fail to account for industry differences as intended in the Act.

Another major challenge facing SBA is establishing meaningful size standards for the Federal contracting purposes without breaching the public's notion of what constitutes a small business or creating more complexity. Prior to 1984, SBA had separate sets of size standards for Federal contracting and for all other purposes. For a majority of industries, Federal contracting is a relatively minor source of industry revenues and, thus, not an important factor for size purposes. However, for about 200 industries, the level of Federal contracting and the additional requirements associated with Federal contracts may warrant a much higher size standard than otherwise supported by industry factors. SBA must consider the tradeoff between an appropriate size standard for Federal contracting and the degree of complexity in size standards. The Agency should also balance the public perception on what constitutes small business in deciding size standards.

This document has presented the current size standards methodology employed by SBA. Certainly other methodologies may be developed by applying different assumptions, data sources, and objectives. Over the years, SBA has refined its methodology within a consistent conceptual framework based on the analysis of industry and relevant program data. Several alternative methodologies have been suggested to SBA. In critiquing these, SBA has continued to believe that its historical methodology is sound and adequate because it has resulted in size standards that have been widely accepted by the public and found to be effective in providing Federal assistance to small businesses. Below is a brief description and evaluation of four alternative methodologies suggested to SBA.

### **Financial Performance Analysis**

Industry and financial analysts assess the economic viability of businesses using various financial performance indicators, such as return to capital (assets), gross margins, net worth, *etc.* Several private organizations and government agencies aggregate financial data at the firm level to derive the corresponding data at the industry level. Pursuant to the Small Business Act aimed at assisting businesses that are competitively disadvantaged, financial performance indicators may provide an alternative basis for developing small business size standards.<sup>32</sup>

This approach may provide a basis for identifying businesses, which, due to their size, may be underperforming relative to established industry norms. This, in turn, would form a basis for establishing size standard levels that can target businesses that are in need of Federal assistance.

The major disadvantage of the financial performance analysis is, however, the lack of robust and consistent data across industries for several reasons. First, financial data are not available for all industries at the 6-digit NAICS level, especially the distribution of businesses by size. Second, data at the industry level or by size class may be based only on a limited sample of businesses. Third, financial data are also likely to be riddled with measurement errors and accounting holes. These problems as well as concerns related to how businesses are classified in an industry and the treatment of affiliates may limit the applicability of available financial data to size standards analysis. More importantly, there is not necessarily a robust correlation between financial performance measures and size of a business. For example, during economic downturns even very large businesses may perform very poorly in terms of financial indicators,

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<sup>32</sup> See Jim Blum (1991) for evaluation of financial performance analysis as an alternative tool for establishing size standards. Jim was a MBA intern under Gary Jackson, Director of Size Standards.

thereby potentially qualifying them as small businesses under size standards based on financial measures.

Given above problems with financial data and possibilities of very large businesses of being qualified as small based on financial indicators, SBA has determined that a financial performance analysis alone is not applicable to developing small business size standards. However, SBA will explore if certain financial indicators can be incorporated into the existing size standards methodology as additional factors.

### **Size Standards Based on Program Objectives**

Federal contracting and some SBA financial programs have established specific objectives (targets) in providing assistance to small businesses. Some industrial economists suggest that varying size standards may serve as a tool in ensuring that small businesses are receiving the targeted level of Federal assistance.<sup>33</sup>

The advantage of this approach is that SBA and other Federal agencies can identify and estimate gaps between their predetermined objectives and current levels of attainment for an individual industry or a group of industries. Based on these gaps and the expected impacts of changes in current levels of size standards on program objectives, revised levels of size standards can be established. If an industry's gap in attainment of an objective is positive, its size standard can be reduced. Similarly, if the gap is negative, the level of associated size standard can be increased. Through repeated (iterative) adjustments of size standards this way would result in higher degrees of attainment of various objectives and produce uniform levels of size standards for similar groups of industries.

There are several serious flaws with this approach. First, the size standard becomes a function of a size of business supporting some predetermined levels of program objectives instead of identifying businesses that are, due to their size and other reasons, in a competitively disadvantaged position and need Federal assistance. Second, the approach generates fluctuating size standards based on past trends of small business assistance as opposed to those based on current needs of small businesses. Third, this approach assumes that the decision to approve a loan or award a contract is based primarily on the size of a business size rather than its credit worthiness or capabilities to execute Federal contracts. Fourth, the necessary data to evaluate the size standards are not available on a timely basis. For example, detailed industry data are available only once every 5 years. Similarly, verified Federal contracting data usually have least one year time lag. Finally, this approach would require establishing size standards on a program-by-program basis, thereby making size standards more complex and confusing to users.

For the above reasons, SBA has decided not to apply this approach for establishing size standards. The Agency feels that a size standard methodology must focus on identifying businesses that are in need of assistance as opposed to what level of assistance is provided under a particular program. SBA considers the small business participation in Federal contracting and SBA financial programs as one of the five factors in its current methodology. The frequent adjustment of size standards under this approach would create a high level of uncertainty among small businesses and overwhelm the regulatory process. This approach would be more appropriate as a program evaluation tool rather than a size standards methodology.

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<sup>33</sup> CONSAD. Proposed Options for Settings Business Size Standards.

## **Size Standards Based on General and Administrative Workforce**

A size standard for an industry may also be developed by examining the level of general and administrative workforce needed for a business to be competitive and calculating the amount of revenues at that level of workforce. General and administrative workers do not directly contribute to revenues of a business and must be supported by revenues generated from the goods and services produced. Total revenues needed to support the general and administrative workforce for a competitive business can be calculated based on average overhead rates, general and administrative compensation, fess, direct labor costs, materials, and subcontractor costs for a relevant industry.

This approach takes into consideration at what size a business becomes competitive. It attempts to identify the size of business that has overcome the competitive disadvantages associated with size.

The primary disadvantage of this approach is its reliance on an assumption that there exists a level of general and administrative workforce for a business to be competitive. There are no data sources that objectively provide that information. This approach also suffers from several methodological flaws, the most significant of which is inferring specific business level experience to the industry level. The type of data necessary to perform the calculation may be biased towards large businesses that are more likely to report such data.

SBA has not applied this approach because of the degree of arbitrariness of the underlying assumption. Moreover, this approach is likely to result in a much higher level of size standard, while an industry comprises a large number of competitive businesses below that level.

## **Size Standards Based on Qualitative Characteristics**

While most size standards methodologies tend to define a small business in quantitative terms (*e.g.*, the number of employees, annual receipts, amount of assets, *etc*), some business analysts and industry economists have also attempted to define a small business in qualitative terms. Under this approach, certain characteristics are used to differentiate businesses that are small from those that are not small. Some of the most commonly cited characteristics in the literature include the management and ownership structure of the business, control and decision making process, and sources of financing. Specifically, small businesses tend to share the following characteristics: they are independently owned and operated; they are closely controlled by owners/managers who also contribute most of the operating capital; and principal decision making functions rest with owners/managers.<sup>34</sup>

This approach resolves the inherent arbitrariness associated a strict numerical definition. It also focuses on the notion of what factors distinguish a business as small relative to a competitively viable business operation.

The most obvious disadvantage of this approach rests with the ability of SBA to verify the small business status. An on-site review of the business would have to be conducted to determine small business status. Also, businesses would not have definitive criteria to quickly assess their small business status. The difficulty of obtaining a consensus on what characteristics

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<sup>34</sup> See Holmes and Gibson (2001) for a detailed analysis of various quantitative and qualitative definitions of small business.

to examine and their interpretation would render the implementation of a qualitative small business size standard more contentious than a numerical approach.

The requirement to establish a definitive and easily verifiable small business size standard precludes this approach as an alternative size standards methodology for SBA.

## **REGULATORY IMPACT ANALYSIS**

### **Need for the Regulatory Action**

SBA's mission is to aid and assist small businesses through a variety of financial, procurement, business development, and advocacy programs. To assist effectively the intended beneficiaries of these programs, SBA must establish distinct numerical definitions to determine which businesses are deemed eligible small businesses. The Small Business Act (15 U.S.C. 632(a)) delegates SBA's Administrator the responsibility for establishing small business definitions. The Act defines a small business as one that is independently owned and operated, not dominant in its field of operation, and meets a numerical size standard as established by the SBA Administrator. The Act requires that the numerical definitions of small business vary to reflect industry differences. Size standards have the sole purpose of identifying a target population eligible for Federal small business assistance programs.

### **Alternative Regulatory Approaches**

SBA size standards and related regulations are established pursuant to guidelines stated in the Small Business Act and are published in 13 CFR Part 121. While several alternatives exist, at least conceptually, on how to structure and develop size standards, no practical alternatives exist to promulgating a regulation containing size standards. Federal officials must have specific information on size standards to determine if businesses are small for purposes of administering Federal programs. Similarly, the public must have definitive information to determine if they are eligible for Federal small business assistance.

### **Identifying and Measuring Benefits and Costs**

A revision to an existing size standard changes the population of businesses eligible for small business assistance programs. Because the purpose of the size standard is to ensure that Federal assistance is provided to a certain intended population, SBA assessment of benefits and costs of size regulations focuses on the distributional effects of a transfer of resources between small and large businesses rather than maximizing net benefits to the society. In the context of size regulations, SBA will attempt to estimate the changes in the coverage of eligible businesses and the level program assistance resulting from a size standard revision compared to the coverage and assistance under the existing size standard (the baseline) to identify and measure the impacts of its size regulations.

The most significant benefit to businesses obtaining small business status is eligibility for various Federal assistance programs, including SBA financial assistance programs, economic injury disaster loans, and preference to small businesses in Federal procurement. Other Federal, State and Local Government agencies may also use SBA size standards for a variety of regulatory and program purposes. Through the assistance of these programs, small businesses become more knowledgeable, stable, and competitive in their industries.

The benefits of a size standard increase would accrue to three groups: (1) Existing businesses that gain eligibility for a variety of Federal small business assistance programs; (2) growing small businesses that may exceed the current size standards in the near future will be able to retain their small business status and continue to receive Federal assistance; and (3) with a larger pool of small businesses eligible to compete for Federal contracts under a higher size standard, Federal agencies can more easily achieve their small business contracting goals. In cases where a size standard is lowered, the benefits would accrue to those businesses that retain small business status and obtain greater assistance on average, if the level of assistance is not lowered.

In general, SBA can easily estimate the number of businesses that will gain or lose small business eligibility resulting from a size standard revision and their relative market share of total industry revenues. In most cases, these estimates are derived from the special tabulation of the Economic Census or a comparable database. However, precise levels of monetary impacts of a size regulation are difficult to estimate in advance. Not all businesses gaining small business eligibility will participate in the Federal assistance programs. For example, the amounts of SBA loans to small businesses would depend on the creditworthiness of the individual small businesses. Similarly, the amounts of Federal contracts awarded to small businesses would depend on the capabilities of individual businesses vis-à-vis various requirements associated with individual Federal contracts. Also, an increase in the number of businesses participating in small business assistance program from a size standard revision would not necessarily result in an increase in total level of Federal assistance to small businesses.

To the extent that newly eligible small businesses participate in Federal small business programs, an increase in size standard may entail some additional administrative costs to the Federal Government associated with additional bidders for Federal small business procurement programs, additional firms seeking SBA guaranteed lending programs, additional firms eligible for enrollment in Central Contractor Registration's Dynamic Small Business Search database, and additional firms seeking certification as 8(a) or Historically Underutilized Business Zones (HUBZone) firms. There could also be some additional costs associated with compliance and verification of small business status and with responding to protests of small business status involving newly eligible small businesses. These incremental administrative and compliance costs are likely to be minimal because mechanisms and procedures are already in place to handle these additional tasks.

SBA will also estimate the impact that may result from a revised size standard on small business preference programs of Federal contracting and the SBA's 7(a) Business Loan Program – the two largest small business assistance programs. These estimates approximate the level of transfer of resources between small and large businesses. The newly defined small businesses under the revised standards would also be eligible for benefits from SBA's Economic Injury Disaster Loan (EIDL) Program. Since this program is contingent upon the occurrence and severity of a disaster, no meaningful estimate of benefits or costs can be projected for future disasters.

Within Federal contracting, a revised size standard would affect the potential of small businesses for obtaining Federal contracts through the small business set-aside program, the 8(a), HUBZone, and Service Disabled Veteran-owned Small Businesses (SDVOSB) Programs. In addition, a revised size standard may result in re-designation of future unrestricted Federal

contract awards from large business awards to small business awards, and vice versa, but would not constitute a benefit to either group.

The costs to the Federal Government may be higher for some Federal contracts due to an increase in size standard. With greater number of businesses defined as small, Federal agencies may choose to set-aside more contracts for competition among small businesses rather than using full and open competition. The shift from unrestricted to set-aside contracting is likely to result in competition among fewer bidders. In addition, higher costs may result if additional full and open contracts are awarded to HUBZone businesses because of a price evaluation preference. The additional costs associated with fewer bidders, however, are likely to be minimal since, as a matter of law, procurements may be set aside for small businesses or reserved for the 8(a) or HUBZone programs only if awards are expected to be made at fair and reasonable prices. In some cases, the Federal Government may experience lower costs on procurements reserved for small businesses through increased competition. Additional small businesses may be encouraged to compete for set-aside procurements if they perceive a greater likelihood of winning a contract. Due to data constraints, in most cases SBA will be unable to quantify the net impacts of size standard changes on costs of awarding Federal contracts.

Although the actual outcome of the gains and losses among small and large businesses cannot be estimated with certainty, several likely trends can be projected. First, if a size standard is raised, there would likely be a transfer of some Federal contracts from large businesses to small businesses. Large businesses may have fewer Federal contracting opportunities if Federal agencies decide to set aside more of their contracts for small businesses. Also, some Federal contracts may be awarded to HUBZone firms instead of large businesses since they may be eligible under a price evaluation adjustment for contracts otherwise competed on a full and open basis. Similarly, businesses defined as small under the current standard may obtain fewer Federal contracts in the future due to the increased competition from newly defined small businesses under the revised standard. A greater number of Federal procurements set aside for all small businesses may offset such negative impact on existing small businesses. The potential distributional impacts of these transfers may not be estimated with any degree of precision because the available data on the size of business receiving a Federal contract are limited to identifying small or other-than-small businesses, without regard to the exact size of the business.

Under SBA's 7(a) Guaranteed Loan Program, revising a size standard will likely result in only a small change in small business guaranteed loans. Because of the size of the loan guarantees, most loans are made to small businesses well below the established size standards. Therefore, any effects of a size standard revision are likely to be insignificant. Nonetheless, possible likely effects of a size standard increase may include crowding out of loans available to other eligible small businesses and a decrease in credit risk associated with loans to larger-sized small businesses. Conversely, a size standard decrease is likely to reduce the amount of small business lending and increase credit risks. As a self-funding program, cost implications of a size standard revision would fall on the borrower and not SBA.

## **POLICY ISSUES**

There have always been policy issues for the Agency to address. Many are settled issues, but others remain important questions regarding the direction and objectives of size standards. The following issues are among the most important:

- a) Should SBA set standards higher than industry entry-levels? SBA sets size standards higher than entry-level to provide opportunities for existing small businesses to compete against others of their size and (often) considerably larger businesses for Federal contracts set aside for small businesses. Also, SBA considers it important that small businesses be able to apply for and be eligible for its various business development programs, which have their own additional qualifications including a minimum number of years in business. This precludes setting size standards at too low a level or at the entry-level. Also, establishing size standards at industry entry-levels would cause small businesses to outgrow their eligibility very quickly; lacking sufficient cushion or experience to succeed outside of the small business arena would quickly lead to their demise.

Size standards also must be above the entry-level because Federal government contracting requirements usually cannot be met by a new or very small firm.

- b) Should size standards vary from program to program, *e.g.*, one set of standards for SBA loan programs, another for Federal procurement, another for other Federal programs, *etc*? SBA had, in the 1980s, established different size standards for different programs. The result had been that some firms were small for some programs and large for others. The statutory guidance encourages an industry by industry analysis and not a program-by-program analysis. While the characteristics and needs of a particular SBA program may necessitate the deviation from the uniform size standards, the Agency will continue its policy of favoring uniform size standards. These became very confusing to users and caused unnecessary and unwanted complexity in their application. SBA settled on having a single table of size standards for all programs. However, SBA has established 18 special size standards for some activities within certain industries that tend to focus on Federal government contracts.
- c) Should size standards apply nationally or should they vary geographically? The data SBA obtains from Census are national data. While Census does publish a Geographic Series of the data, application of those data to evaluating and establishing standards would be cumbersome and time consuming at best, resulting in a very complex set of size standards that would likely be unusable. For example, in Federal contracting, how would a contracting officer set the standard on a contracting opportunity? Would it depend on the contracting officer's location? On the location of the Agency's headquarters? On the place of delivery of the product or service? What about multiple delivery locations? On the location of the prospective contractor? On the location of the prospective contractor's headquarters? What if that were not in the U.S.? What about subcontractors, since size standards apply to their contracts as well? The same questions could be asked about them, which would affect a prime contractor's ability to bid. Would this encourage firms to relocate based upon perceived favorable size standards? That would defeat the purpose behind geographic distinctions. The undue complexity and resulting confusion would render geographic size standards unusable, for all practical purposes.
- d) Should there be a single basis for size standards – *i.e.*, should SBA start with number of employees, receipts, or some other basis to establish its size standards for all industries? SBA has considered having a single basis for its size standards in the

past. Most recently, SBA proposed in March 2004 to establish all size standards based on number of employees. This proposal received mixed comments from the public and in July 2004 SBA withdrew the proposal. For many industries under the proposal, either using receipts was a more suitable measure of size or the proposed employment levels were viewed as too low.

Subsequently the Agency issued the ANPRM referred to above (*q.v.*)

- e) Should there be a ceiling beyond which there should be no size standard; *i.e.*, should there be a maximum size standard? SBA has not increased its employee based standards beyond the 1,500-employee level. However, monetary based standards have gradually increased to where the highest is now \$35.5 million in average annual receipts. This is a policy decision that the Agency should make – is there a size beyond which a business is not small? The Agency should also evaluate the equivalent monetary level of its highest employee based standards and whether they are in line with those with other bases.
- f) Should there be a fixed number of size standard ranges or “bands”? This too was the subject of an Agency proposed rule that was favorably received by the public but not implemented by SBA.
- g) Outside of a review of inflation’s impact, what other reviews should SBA undertake? How often? What should be the impetus for these reviews?

Should SBA review all size standards on a regular basis? If so, how often? Current regulations require SBA to consider adjusting monetary based standards (e.g., receipts, net income, assets) for inflation at least once every 5 years. “If SBA finds that inflation has significantly eroded the value of the monetary based size standards, it will issue a proposed rule to increase size standards.” (See 13 CFR § 212.102(c)) Should SBA do so more often than every five years if inflation warrants? If so, how much inflation should occur for more frequent adjustments?

As a corollary, when SBA increases monetary based standards for inflation, should the Agency project future inflation (based on the index it uses in the increase)? When SBA drafts a rule to increase monetary based standards for inflation there is usually a substantial time lag between then and when the new standards are effective. This is due to SBA’s internal clearance process. The result is a table of size standards that is out of date as soon as it is published. Therefore, should SBA estimate how much inflation is likely to occur between when it submits the rule for clearance and its publication date?

- h) Should SBA consider adjusting employee based size standards for labor productivity growth? Just as firms in industries with receipts based standards may lose small business eligibility due to inflation, firms in industries with employee based standards may gain eligibility due to improvement in labor productivity. While the original \$1 million receipts based size standard has now increased to \$7 million due to adjustments for inflation, the 500-employee manufacturing size standard set at the inception of SBA has remained the same.
- i) Should SBA consider lowering its size standards? SBA receives periodic comments from the public that its standards are too high in certain areas or for some types of

Federal contracting opportunities. The comments generally concern the competitive edge that large small businesses have over the “truly small business” (a phrase heard frequently from commentators). This has always been a problem, one that SBA has had to deal with over the years. SBA’s size standards appear large to the smallest of small businesses while larger small business often request even higher size standards. This problem is tied to Federal procurement practice because contracts get larger year after year, and they are often out of the reach of the “truly small business.” Because SBA is not among the contracting agencies on these large contracts, SBA can do no more than advocate on small business behalf, often without favorable results.

- j) Should SBA size standards be specific, *i.e.*, to the precise dollar calculated based on the data and information it evaluates? SBA’s most recent increase for inflation, for example, would have increased the size standards for Architectural Services (NAICS 541310), Engineering Services (NAICS 541330) and Map Drafting (part of NAICS 541340, Drafting Services) from \$4.5 million to \$4.728 million. Or should SBA recognize that there are other factors that go into establishing size standards, such as the fact that the data SBA evaluates is not static, industries change over the years, and even within a given year?

Should SBA round off its calculated size standards for the various industries? If so, should SBA always round up? To what level? If not, what about those industries that do not get increases in size standards when others are? What should be the cut-off point for rounding either one way or the other?

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# APPENDIX

## Detailed Analytical Steps for Establishing Size Standards

### 1. Establish fixed-level size standards

Receipts based standards will have eight fixed size levels as follows:

- a. \$5.0 million
- b. \$7 million (anchor standard)
- c. \$10 million
- d. \$14 million
- e. \$19 million,
- f. \$25.5 million
- g. \$30 million
- h. \$35.5 million

Employee based standards for the manufacturing and mining industries will have four fixed size levels as follows:

- a. 250 employees
- b. 500 employees (anchor standard)
- c. 750 employees
- d. 1,000 employees

Employee based standards for the wholesale trade industries will have five fixed size levels as follows:

- a. 50 employees
- b. 100 employees (anchor standard)
- c. 150 employees
- d. 200 employees
- e. 250 employees

### 2. Establish anchor and higher-level size standards

Receipts based size standards:

- a. Anchor size standard (ASTD) - \$7 million
- b. Higher-level size standard (HLSTD) - \$25 million to 35.5 million, average \$29 million

Employee based standards for manufacturing and mining

- c. Anchor size standard (ASTD) – 500 employees
- d. Higher-level size standard (HLSTD) – 1,000 employees

Employee based standards for wholesale trade

- e. Anchor size standard (ASTD) – 100 employees
- f. Higher-level size standard (HLSTD) – 250 employees

### 3. Evaluate industry structure and federal procurement trends

#### a. Simple average firm size

- i. Calculate simple average firm size for industry  $i$  ( $SAFS_i$ )

$$SAFS_i = \frac{\text{Total annual receipts or employees in industry } i}{\text{Number of all firms in the industry}}$$

where  $i = 1, 2, 3, \dots$ , the number of industries in a 6-digit NAICS basis.

- ii. Calculate simple average firm size of all industries with the anchor size standards ( $SAFS^{anchor}$ )

$$SAFS^{anchor} = \frac{\sum_{i=1}^N SAFS_i^{anchor}}{N} = \frac{AFS_1^{anchor} + AFS_2^{anchor} + \dots + AFS_N^{anchor}}{N}$$

where N denotes the number of industries in the anchor industry group. Alternatively, SBA may calculate the simple average firm size for the anchor group as the median simple average firm size of industries making up the anchor group.

- iii. Calculate simple average firm size of all industries with higher-level size standards ( $SAFS^{higher-level}$ )

$$SAFS^{higher-level} = \frac{\sum_{i=1}^M AFS_i^{higher-level}}{M} = \frac{AFS_1^{higher-level} + AFS_2^{higher-level} + \dots + AFS_M^{higher-level}}{M}$$

where M denotes the number of industries in the higher-level size industry group. Alternatively, SBA may calculate the simple average firm size for the higher-level size group as the median simple average firm size of industries making up higher-level size group.

- b. Weighted average firm size

- i. Calculate weighted average firm size for industry i ( $WAFS_i$ )

$$WAFS_i = \sum_{k=1} \frac{\text{Total receipts or employees in size class } k \text{ for industry } i}{\text{Total number of firms in size class } k} \\ \times \frac{\text{Total receipts or employees in size class } k \text{ for industry } i}{\text{Total receipts or employees in industry } i}$$

where i = 1, 2, 3, ... is the number of industries in a 6-digit NAICS basis, and k = 1, 2, 3, ... is the number of receipts or employee size classes.

- ii. Calculate weighted average firm size of all industries with the anchor size standards ( $WAFS^{anchor}$ )

$$WAFS^{anchor} = \frac{\sum_{i=1}^N WAFS_i^{anchor}}{N} = \frac{WAFS_1^{anchor} + WAFS_2^{anchor} + \dots + WAFS_N^{anchor}}{N}$$

where N denotes the number of industries in the anchor industry group. Alternatively, SBA may calculate the weighted average firm size for the anchor group as the median weighted average firm size of industries making up the anchor group.

- iii. Calculate weighted average firm size of all industries with higher-level size standards ( $WAFS^{higher-level}$ )

$$WAFS^{higher-level} = \frac{\sum_{i=1}^M WAFS_i^{higher-level}}{M} = \frac{WAFS_1^{higher-level} + WAFS_2^{higher-level} + \dots + WAFS_M^{higher-level}}{M}$$

where M denotes the number of industries in the higher-level size industry group. Alternatively, SBA may calculate the simple average firm size for the higher-level size group as the median simple average firm size of industries making up the higher-level size group.

c. Average assets size

- i. Calculate average assets size for industry  $i$  ( $AAS_i$ )

$$AAS_i = \left[ \frac{1}{\left( \frac{\text{Total sales}}{\text{Total assets}} \right)_{i,RMA}} \right] \times AFS_i$$

$$= \left( \frac{\text{Total assets}}{\text{Total sales}} \right)_i \times AFS_i$$

where  $i = 1, 2, 3, \dots$ , the number of industries in a 6-digit NAICS basis.

- ii. Calculate average assets size of all industries with the anchor size standards ( $AAS^{anchor}$ )

$$AAS^{anchor} = \frac{\sum_{i=1}^N AAS_i^{anchor}}{N} = \frac{AAS_1^{anchor} + AAS_2^{anchor} + \dots + AAS_N^{anchor}}{N}$$

where  $N$  denotes the number of industries in the anchor size industry group.

Alternatively, SBA may calculate the average assets size for the anchor group as the median average assets size of industries making up the anchor size group.

- iii. Calculate average asset size of all industries with higher-level size standards ( $AAS^{higher-level}$ )

$$AAS^{higher-level} = \frac{\sum_{i=1}^M AAS_i^{higher-level}}{M} = \frac{AAS_1^{higher-level} + AAS_2^{higher-level} + \dots + AAS_M^{higher-level}}{M}$$

where  $M$  denotes the number of industries in the higher-size industry group.

Alternatively, SBA may calculate the average assets size for the higher-level group as the median average assets size of industries making up higher-level size group.

d. Four-firm concentration ratio and average firm size of the four largest firms

- i. Calculate the four-firm concentration ratio for the  $i$ -th industry ( $CR4_i$ )

$$CR4_i = \frac{\text{Total receipts of four largest firms in } i\text{th industry}}{\text{Total receipts in that industry}}$$

- ii. If the four-firm concentration ratio  $\geq 40\%$

1. Calculate the average firm size of the largest four firms for the  $i$ -th industry ( $AFS4_i$ )

$$AFS4_i = \frac{\text{Total receipts of the four largest firms in } i\text{th industry}}{4}$$

2. Calculate the average firm size of the largest four firms for all industries with anchor size standards ( $AFS4^{anchor}$ )

$$AFS4^{anchor} = \frac{\sum_{i=1}^N AFS4_i^{anchor}}{N} = \frac{AFS4_1^{anchor} + AFS4_2^{anchor} + \dots + AFS4_N^{anchor}}{N}$$

where  $N$  denotes the number of industries in the anchor size industry group.

Alternatively, SBA may calculate the average firm size of the largest four firms for the anchor size group as the median average firm size of the largest four firms for industries making up the anchor size group.

3. Calculate the average firm size of the largest four firms for all industries with higher-size standards ( $AFS4^{higher-level}$ )

$$AFS4^{higher-level} = \frac{\sum_{i=1}^M AFS4_i^{higher-level}}{M} = \frac{AFS4_1^{higher-level} + AFS4_2^{higher-level} + \dots + AFS4_M^{higher-level}}{M}$$

where M denotes the number of industries in the higher-level size industry group. Alternatively, SBA may calculate the average firm size of the largest four firms for the higher-level size group as the median average firm size of the largest four firms for industries making up the higher-level size group.

- e. Size distribution of firms and Gini coefficient

- i. Calculate cumulative shares of firms and receipts by size class as shown below

Size classes for receipts-based standards:

1. < \$2.5 million
2. < \$6.5 million
3. < \$13 million
4. < \$23 million
5. < \$35 million
6. < \$50 million
7. < \$100 million
8. < maximum value

Size classes for employee based standards:

1. < 50 employees
2. < 100 employees
3. < 250 employees
4. < 500 employees
5. < 750 employees
6. < 1,000 employees
7. < 1,500 employees
8. < 2,500 employees
9. < maximum value

- ii. Calculate Gini coefficient for industry i ( $G_i$ )

$$G_i = 1 - \sum_{k=1}^s (X_{i,k} - X_{i,k-1}) \cdot (Y_{i,k} + Y_{i,k-1})$$

where  $i = 1, 2, 3, \dots$ , the number of industries in a 6-digit NAICS basis,  $X_k$  is cumulative percentage of firms for size class  $k$ ,  $Y_k$  is cumulative percentage of receipts for size class  $k$ , and  $k$  denotes the receipts and employee size classes defined above.

- iii. Calculate Gini coefficient for the anchor size group ( $G^{anchor}$ )

$$G^{anchor} = \frac{\sum_{i=1}^N G_i^{anchor}}{N} = \frac{G_1^{anchor} + G_2^{anchor} + \dots + G_N^{anchor}}{N}$$

where N denotes the number of industries in the anchor size industry group. Alternatively, SBA may calculate the average Gini coefficient for the anchor group as the median Gini coefficient of industries making up the anchor size group.

- iv. Calculate Gini coefficient for the higher-level size group ( $G^{\text{higher-level}}$ )

$$G^{\text{higher-level}} = \frac{\sum_{i=1}^M G_i^{\text{anchor}}}{M} = \frac{G_1^{\text{higher-level}} + G_2^{\text{higher-level}} + \dots + G_M^{\text{higher-level}}}{M}$$

where M denotes the number of industries in the higher-level size industry group. Alternatively, SBA may calculate the average Gini coefficient for the higher-level size group as the median Gini coefficient of industries making up the anchor size group.

- f. Compute small business share in federal procurement and industry-wide receipts  
i. Small business share in the *i*-th industry's total receipts ( $SBSHARE_{i, \text{receipts}}$ )

$$= \frac{\text{Total dollars accounted for by small business in } i\text{th industry}}{\text{Total dollars going to that industry}}$$

- ii. Small business share in Federal contracting dollars in the *i*-th industry ( $SBSHARE_{i, \text{contracts}}$ )

$$= \frac{\text{Total federal contracting dollars going to small business in } i\text{th industry}}{\text{Total Federal contracting dollars going to that industry}}$$

4. Calculate size standards for each primary factor

*Calculation of receipts based size standards*

Let X = Factor value for each industry

AV = Average factor value for anchor size standard industry group

HLV = Average factor value for higher-level size standard industry group

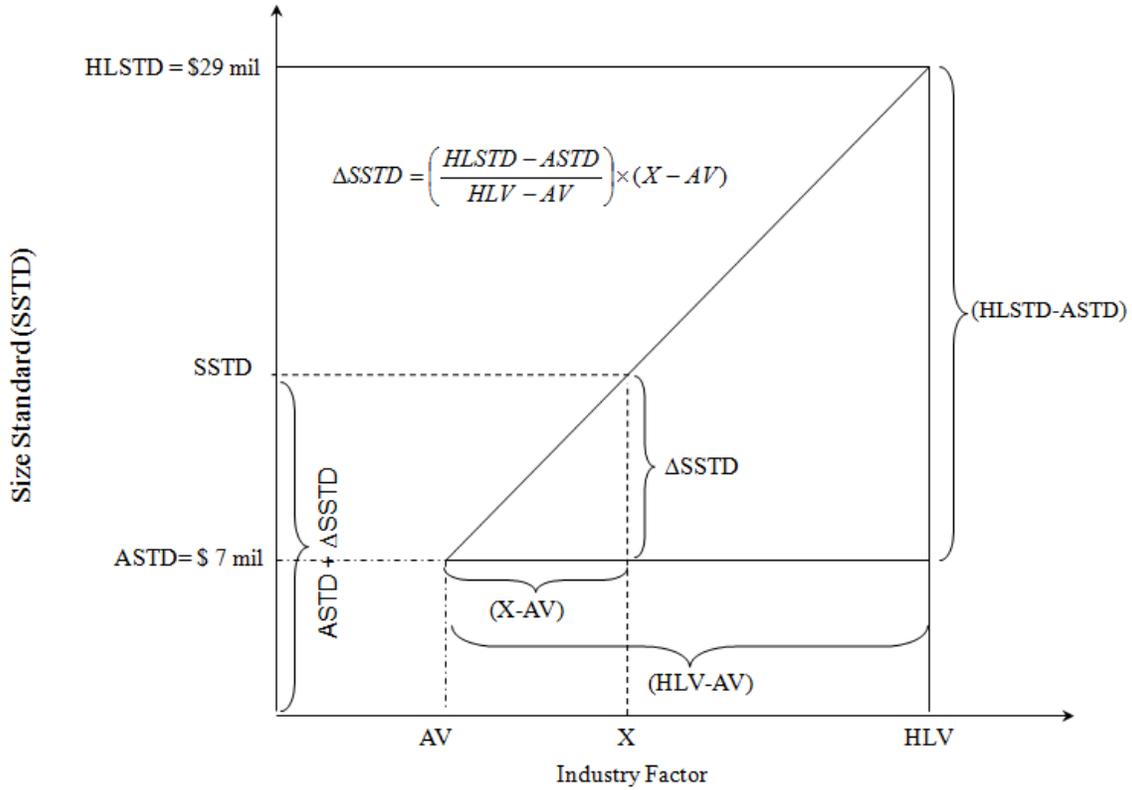
ASTD = Anchor size standard (\$7 million)

HLSTD = Higher level group average size standard (\$29 million)

Size standard for each industry factor is derived using the following general formula.

$$\begin{aligned} & \left[ \frac{(X - AV)}{(HLV - AV)} \right] \times (HLSTD - ASTD) + ASTD = \\ & = \left[ \frac{(X - AV)}{(HLV - AV)} \right] \times (29 - 7) + 7 = \left[ \frac{(X - AV)}{(HLV - AV)} \right] \times 22 + 7 \end{aligned}$$

The following chart illustrates this formula graphically.



$$\begin{aligned}
 SSTD &= \left( \frac{(X - AV)}{(HLV - AV)} \right) \times (HLSTD - ASTD) + ASTD \\
 &= \left( \frac{(HLSTD - ASTD)}{(HLV - AV)} \right) \times (X - AV) + ASTD = ASTD + \Delta SSTD
 \end{aligned}$$

- a. a. Size standard based on simple average firm size for industry  $i$  ( $SSTD_{i,SAFS}$ )

$$SSTD_{i,SAFS} = \left[ \frac{SAFS_i - SAFS^{anchor}}{SAFS^{higher-level} - SAFS^{anchor}} \right] \times 22 + 7$$

The result is then rounded to the nearest fixed-size level.

- b. Size standard based on weighted average firm size for industry  $i$  ( $SSTD_{i,WAFS}$ )

$$SSTD_{i,WAFS} = \left[ \frac{WAFS_i - WAFS^{anchor}}{WAFS^{higher-level} - WAFS^{anchor}} \right] \times 22 + 7$$

The result is then rounded to the nearest fixed-size level.

- c. Size standard based on average assets size for the  $i$ -th industry ( $SSTD_{i,AAS}$ )

$$SSTD_{i,AAS} = \left[ \frac{AAS_i - AAS^{anchor}}{AAS^{higher-level} - AAS^{anchor}} \right] \times 22 + 7$$

The result is then rounded to the nearest fixed-size level.

- d. Size standard based on four-firm concentration ratio for the  $i$ -th industry ( $SSTD_{i,CR4}$ )  
 Size standard for this factor is computed if  $CR4 \geq 40\%$ .

$$SSTD_{i,CR4} = \left[ \frac{AFS4_i - AFS4^{anchor}}{AFS4^{higher-level} - AFS4^{anchor}} \right] \times 22 + 7$$

The result is then rounded to the nearest fixed-size level.

- e. Size standard based on size distributions of firms for industry  $i$  ( $SSTD_{i,SIZEDIST}$ )

$$SSTD_{i,SIZEDIST} = \left[ \frac{G_i - G^{anchor}}{G^{higher-level} - G^{anchor}} \right] \times 22 + 7$$

The result is then rounded to the nearest fixed-size level.

- f. Size standard for Federal procurement for industry  $i$  ( $SSTD_{i,FEDPROC}$ )

Size standard for this factor is computed if an industry's annual federal contracting dollars is  $\geq$  \$100 million.

$SSTD_{i,FEDPROC}$  = One level higher than the current standard of industry  $i$

$$\text{if } (SBSHARE_{i,receipts} - SBSHARE_{i,contracts}) = 10 - 29\%$$

$SSTD_{i,FEDPROC}$  = Two levels higher than the current standard of industry  $i$

$$\text{if } (SBSHARE_{i,receipts} - SBSHARE_{i,contracts}) \geq 30\%$$

5. Derive composite or average size standard for industry  $i$  based on its industry factors and federal procurement factor ( $AVGSSTD_i$ )

$$AVGSSTD_i = \frac{[0.5SSTD_{i,SAFS} + 0.5SSTD_{i,WAFS} + SSTD_{i,AAS} + SSTD_{i,CR4} + SSTD_{i,SIZEDIST} + SSTD_{i,FEDPROC}]}{5}$$

The result is then rounded to the nearest fixed-level size level. This method assigns equal weights to all factors in deriving the composite size standard, but SBA can weigh different factors differently in consideration to agency's policy decision and other relevant factors. If different weights are applied, the above formula is modified as follows:

$$AVGSSTD_i = \left( \frac{w_{AFS} \cdot SSTD_{i,AFS} + w_{AAS} \cdot SSTD_{i,AAS} + w_{CR4} \cdot SSTD_{i,CR4} + w_{SIZEDIST} \cdot SSTD_{i,SIZEDIST} + w_{FEDPROC} \cdot SSTD_{i,FEDPROC}}{w_{AFS} + w_{AAS} + w_{CR4} + w_{SIZEDIST} + w_{FEDPROC}} \right)$$

where  $w_s$  are different weights for different factors.

### Calculation of employee based size standards

Employee based size standards for industry factors are computed exactly in the same manner as receipts based size standards except for that employee based anchor and higher-level size standards replace the receipts based anchor and higher-level size standards. For example for manufacturing and mining industries, anchor size standard is 500 employees and higher-level size standard is 1,000 employees. By substituting these, we get the manufacturing size standard formula as follows:

$$\left[ \frac{(X - AV)}{(HLV - AV)} \right] \times (1000 - 500) + 500 = \left[ \frac{(X - AV)}{(HLV - AV)} \right] \times 500 + 500$$

Based on the anchor standard of 100 employees and higher-level standard of 250 employees, we get the wholesale trade size standard formula as:

$$\left[ \frac{(X - AV)}{(HLV - AV)} \right] \times (250 - 100) + 100 = \left[ \frac{(X - AV)}{(HLV - AV)} \right] \times 150 + 100$$

6. Evaluate secondary factors
  - a. Technological change
  - b. Competing products from other industries
  - c. Industry growth trends
  - d. History of activity in the industry
  - e. Impacts on SBA programs
7. Issue proposed rule
8. Evaluate public comment
9. Issue final rule