

# DRC Working PAPER

WORKING PAPER NUMBER: 2016-01

## The Effect of a 1999 Rule Change on Obesity as a Factor in Social Security Disability Determinations

February 10, 2016

Anne Stahl  
Jody Schimmel Hyde\*  
Harnam Singh

\*Corresponding author's contact information:

Mathematica Policy Research  
1100 First St NE, 12th Floor  
Washington, DC 20002  
Telephone: (202) 554-7550  
Email: jschimmel@mathematica-mpr.com  
Reference Number: 40112.MPR14-02

The research reported herein was performed pursuant to a grant from the U.S. Social Security Administration (SSA) funded as part of the Disability Research Consortium. The opinions and conclusions expressed are solely those of the author(s) and do not represent the opinions or policy of SSA or any agency of the Federal Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, expressed or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of the contents of this report. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply endorsement, recommendation or favoring by the United States Government or any agency thereof.

This draft paper is intended for review and comments only. It is not intended for citation, quotation, or other use in any form without the permission of the author(s).

This page has been left blank for double-sided copying.

## ACKNOWLEDGEMENTS

---

The authors wish to thank David Stapleton and Yonatan Ben-Shalom of Mathematica's Center for Studying Disability Policy for their insightful comments on the draft manuscript. We also greatly benefitted from programming and analysis performed by Nancy Early at the U.S. Social Security Administration (SSA).

The research reported herein was performed pursuant to a grant from SSA, funded as part of the Disability Research Consortium. The opinions and conclusions expressed are solely those of the author(s) and do not represent the opinions or policy of SSA or any agency of the Federal Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, expressed or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of the contents of this report. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply endorsement, recommendation, or favoring by the United States Government or any agency thereof.

This page has been left blank for double-sided copying.

## CONTENTS

---

ABSTRACT .....	IX
I INTRODUCTION AND BACKGROUND .....	1
II SSA'S CONSIDERATION OF OBESITY IN DISABILITY DETERMINATIONS .....	5
III IDENTIFYING OBESITY IN DISABILITY APPLICATIONS .....	9
IV TRENDS IN APPLICATIONS WITH OBESITY IMPAIRMENTS .....	13
V CHANGES IN THE BODY SYSTEM PROFILE OF APPLICATIONS WITH AN OBESITY IMPAIRMENT .....	17
VI CHANGES IN DISABILITY ALLOWANCES AMONG APPLICANTS REPORTING OBESITY .....	19
VII. CONCLUSIONS AND IMPLICATIONS FOR POLICY.....	25
REFERENCES.....	27
ENDNOTES .....	29

This page has been left blank for double-sided copying.

## TABLES

---

1	Characteristics of initial applications, 1990–2012, by obesity recorded as a primary or secondary impairment.....	10
---	---	----

## FIGURES

---

1	Initial SSDI and SSI applications, 1990–2012, based on whether obesity was recorded as the primary or secondary impairment .....	14
2	Share of initial applications with obesity recorded as an impairment, 1990–2012, by program title .....	15
3	Number of applications with obesity in the primary or secondary impairment field, 1990–2012, by program title .....	16
4	Profile of body system categorizations of SSDI applications with obesity impairments, 1990–2012.....	18
5	Initial allowance rates for SSDI applications with obesity, 1990–2012, by body system .....	21
6	Profile of SSDI initial allowances among applications with obesity impairments, by body system categorization, 1990–2012.....	22
7	Reason for allowance among applications with obesity listed in the primary or secondary field and allowed at the initial determination, before and after the 1999 deletion of the obesity listing.....	23

This page has been left blank for double-sided copying.



## ABSTRACT

---

### Project Number

MPR14-02

### Title

The Effect of a 1999 Rule Change on Obesity as a Factor in Social Security Disability Determinations

### Authors

Anne Stahl (Health Resources and Services Administration), Jody Schimmel Hyde (Mathematica Policy Research, Harnam Singh (Health Resources and Services Administration)

### Date

October 2015

### Key Findings and Policy Implications

This paper explores the effect of a 1999 rule change by the Social Security Administration (SSA) in the treatment of obesity for purposes of making a determination of disability among new applicants to Social Security Disability Insurance (SSDI) and Supplemental Security Income (SSI). In that year, SSA removed the adult listing of obesity in the Listing of Impairments, reflecting the agency's experience that many with obesity who met the listing's requirements did not meet the functional limitation standards consistent with benefit eligibility (64 Federal Register 163, August 24, 1999). The implication of this change was that new applicants to SSDI and SSI were no longer determined to meet the listings based on their obesity alone. To ensure that obesity's effect on functioning was still considered by reviewers, SSA added language to the Listing of Impairments for several other body systems, noting its potential significance in reducing one's capacity for work in combination with other conditions. At the same time as these changes, SSA also moved away from a definition of obesity based on "ideal weight" to a measure based on Body Mass Index (BMI), typically used by clinicians to gauge body fat.

We use data from SSA's Disability Determination File (SSA-831) to examine the initial decisions on disability applications of working-age adults (ages 18–64) between 1990 and 2012. We consider primary and secondary impairments of obesity documented by SSA adjudicators at the time an initial determination was made for SSDI and SSI applications. In addition, we also document the body system noted at the time of initial review among those with obesity impairments, and consider changes in initial allowance rates over time by recorded body system. By documenting these trends over time, we are able to see how obesity's role in the determination process changed in response to the 1999 rule change and consider implications for its role going forward.

We find that:

- There was an immediate and sharp decline in the number of applications with obesity recorded as the primary impairment after the 1999 rule change. Despite this initial decline, obesity has

increasingly been recorded as an impairment since that time, though predominantly as a secondary impairment. By the end of our observation period, the number and share of applications with a recorded obesity impairment were at or above pre-1999 levels.

- After 1999, relatively few applications with an obesity impairment were categorized in the *Endocrine System*, the body system under which obesity was listed in the years before the policy change. The largest share of applications with obesity recorded as an impairment are in the *Musculoskeletal System* category. In addition, because adjudicators still found it to be an important component of reduced functional capacity for many applicants, there was also a large increase in applications with obesity in the unknown body system category.
- Among applicants with obesity recorded as an impairment, allowance rates at the initial determination fell dramatically after the 1999 delisting, with the largest decline for those in the Endocrine System category. In contrast, allowance rates at the initial level for those with obesity impairments in other body system categories rose (albeit at a slower rate). Similar to applications, the majority of allowances among those with obesity impairments were recorded under the *Musculoskeletal System*.

The policy implications of the findings are:

- Because of the high prevalence of obesity in the U.S. adult population and among disability applicants, obesity will undoubtedly continue to be an important consideration in reduced functional capacity among disability applicants. The 1999 policy change seems to have placed additional burden on adjudicators in making decisions on cases for obese applicants.
- SSA acknowledged when it delisted obesity that a share of applications would require more review than would have been necessary if it had been maintained as a separate adult listing, but estimated that the change would ultimately produce savings through the need for fewer continuing disability reviews and lower allowance rates. Our finding of lower initial allowance rates is consistent with the prediction of lower allowance rates at that level, but we do not know whether allowance rates fell after exhaustion of all appeals.

**Synopsis:** In this article, we document the effects of a 1999 policy change that altered how obesity was to be considered in the disability review process. Tracing changes in obesity recorded as an impairment by SSA adjudicators and the body system of record among applications with recorded obesity during this period, we find that the number of applications with obesity recorded as a primary impairment fell while the number with obesity as a secondary impairment rose. We also find that initial allowances rates among applications with recorded obesity impairments were lower after the policy change and, when they did occur, allowances were much more likely to be made for medical-vocational reasons than before the policy change.

**Abstract:** Obesity prevalence in the United States has risen at a rapid rate in recent decades, a time during which applications to federal disability programs have also increased substantially. SSA removed obesity as a discrete listing in the Listing of Impairments in 1999 in an attempt to more closely align allowances made for obesity with applicants' ability to engage in substantial gainful activity. This paper uses SSA Disability Determination (831) data to identify trends in recorded impairments of obesity among working-age applicants with initial determinations from 1990 through 2012. We find that the 1999 policy change shifted the recording of obesity from predominantly in the primary impairment field to the secondary impairment field, shifted the body system category of applicants with obesity recorded as an impairment, decreased the share of applications with recorded obesity impairments receiving an initial allowance, and increased the use of vocational factors in allowances made to applicants with obesity impairments.

**JEL Classification:** H55, J11, J14

This page has been left blank for double-sided copying.

## I. INTRODUCTION AND BACKGROUND

---

The prevalence of obesity in the United States has increased at an unprecedented rate in the last 30 years, more than doubling between the early 1980s and 2012 (Ogden et al. 2006;Centers for Disease Control and Prevention 2013). Although estimates suggest that the growth in obesity prevalence in the U.S. has leveled off in recent years (Ogden et al. 2014), obesity is still widespread and continues to be a leading public health issue. Individuals with obesity are at increased risk of developing heart disease, hypertension, stroke, gallbladder issues, sleep apnea, and adult-onset (Type II) diabetes (National Institutes of Health 2012; Centers for Disease Control and Prevention 2014a). In addition, obesity has been implicated as contributing to a range of musculoskeletal problems, including osteoarthritis, soft tissue disorders, gait disorders, and low back pain (Anandacoomarasamy et al. 2007).

As obesity prevalence has increased in recent decades, so too has the receipt of federal disability benefits (SSA 2013). Although there is not proof of causality, there is strong reason to believe that this increased obesity prevalence has contributed to increases in disability program applications and allowances. Obesity is higher among adults with disabilities than in the general population, and disability prevalence is higher among those who are heavier (Reichard et al. 2011; Reichard et al. 2013; Armour et al. 2013; Fox et al. 2014). Rising obesity rates have been associated with the increased prevalence of disability in both younger and older populations (Kaye 2003; Sturm et al. 2004; Lakdawalla et al. 2004; Capodaglio et al. 2010). At the same time, obesity has been shown to reduce the likelihood of employment (Morris 2007; Tunceli et al. 2012). The inability to engage in substantial gainful activity (SGA) because of a medically determinable condition that lasts at least 12 months or until death is a conceptual eligibility criterion for both Social Security Disability Insurance (SSDI) and Supplemental Security Income (SSI).

The Social Security Administration (SSA) can benefit from knowing how the treatment of disability in its own rules and regulations related to obesity may affect application to and take-up of disability benefits. Knowing whether there are more effective ways to assess obesity's contribution to the ability to engage in SGA could have important implications for the time and cost of disability reviews. A higher share of disability beneficiaries with obesity may ultimately translate to higher spending on the treatment of comorbid conditions in the associated Medicare and Medicaid programs, and may also signal avenues by which the agency could facilitate beneficiary efforts to reduce their functional limitations and return to work. The specific focus of this paper is to document the effects of a change in SSA regulations regarding obesity's role in the disability determination process.

In October 1999, SSA changed its consideration of obesity in the disability determination process. The rule change, which still allowed for obesity to be considered in disability application reviews, was intended to better identify those whose functional status and ability to engage in SGA was significantly impeded by their obesity. The primary change was the removal of obesity from the adult Listing of Impairments, meaning that applicants—even extremely obese applicants--would not necessarily be awarded benefits on that basis. This change was met by strong public concern and has been described as “one of the most controversial” changes made to the listings, with SSA receiving more than 500 comments from the public about possible effects of the change (Cowles 2005). Immediately preceding the change, SSA indicated that the impetus for this change was an acknowledgement that the pre-1999 listing was difficult to administer, subject to misinterpretation, overly vague in certain places and too prescriptive in others, and ultimately led to benefit awards to individuals who did not meet SSA's disability definition (64 CFR 163, August 24, 1999). Along with the delisting, SSA also moved from a measurement of obesity based on an ideal weight for height definition to one that relies on Body Mass Index (BMI), a commonly used

measure of obesity. In making this change, it effectively lowered the standard at which a person could be considered obese, as described in more detail in Section II. SSA acknowledged that the 1999 rule change meant that in some cases, the application review process would be more costly, presumably reflecting a shift from allowances based on meeting the listings to allowances for medical-vocational factors, and a higher share of cases requiring review at the appeals level and beyond.

Our assessment of the 1999 rule change uses data from SSA's Disability Determination File (SSA-831) and examines the application and award decisions at the initial review stage for working-age adults (ages 18–64) seeking SSDI or SSI benefits between 1990 and 2012. We trace the level and share of applications with obesity recorded as a primary or secondary impairment during that time, and also document patterns in the body system category of the impairments recorded by the adjudicator.

To be clear, our analysis does not provide the full picture of the role of obesity among disability applications—adjudicators do not necessarily list obesity as a primary or secondary impairment (based on the information available in electronic administrative records) even if an applicant is obese. In addition, although the evidence we present aligns with the 1999 rule change, and we conclude that our findings are a consequence of that change, outcome changes observed are not necessarily due solely to the rule change.

We find that rule change led to a compositional shift in the recording of obesity as an impairment from the primary to the secondary fields. Despite that shift, the overall share of applications with obesity as a recorded impairment is now at least as high as it was before the rule change. The share of applications with obesity receiving an initial allowance was lower after the rule change than before, and a higher share of their allowances are now based on medical-vocational factors. Our analysis considers only the initial decision; with obesity's role less codified

than it was before the 1999 change, it is possible that a reduction in initial allowances has meant more appeals and higher levels of review. This possibility highlights that the rule change may have increased the burden on adjudicators at a time when they were already burdened by the high volume of applications and appeals.

In Section II, we provide background information about the consideration of obesity in the eligibility determination process for applications to SSDI and SSI, including the motivation for the 1999 rule change and a less significant earlier change, in 1993. In Section III, we describe the data we used for our analysis and the way in which we identified obesity as a primary and secondary impairment. We then turn to documenting trends in applications with obesity as an impairment before and after the 1999 rule change (Section IV) before identifying patterns in the body system categories of initial applications with obesity impairments (Section V). Section VI presents information on differences in allowances among applicants with obesity before and after 1999. The final section concludes with a discussion of the implications.



## II. SSA'S CONSIDERATION OF OBESITY IN DISABILITY DETERMINATIONS

---

When reviewing initial applications to SSDI and SSI, disability examiners follow a sequential process for determining eligibility. They first verify financial eligibility for the program (different for SSI and SSDI), then check for the presence of a severe impairment. This process is completed for all applications, with the same medical criteria applied in both programs, and occurs whether or not applicants ultimately are allowed or denied benefits (SSA 2014). After meeting preliminary eligibility criteria, examiners review applicants' medical records and functional status. Some diagnoses are included in the Listing of Impairments, automatically making an applicant with such diagnoses eligible for benefits (20 CFR, Subpart P, Appendix 1). After review of a person's medical history and diagnoses, other conditions or combinations of conditions may be found equivalent to a listed impairment even though none of the conditions on their own satisfy a listing. Applicants with conditions either not listed or found to be equivalent to a listed impairment may still be eligible for benefits if the examiner determines that the residual functional capacity (RFC) of the applicant will not allow the applicant to return to past work, based on medical-vocational guidelines that consider the applicant's RFC, age, education, and work experience (SSA 1980). For applications that receive an award at the initial determination (the focus of our analysis), the adjudicator documents the basis for the award—having a listed impairment, having a condition that meets or equals the criteria of listed impairment, or meeting the medical-vocational criteria.

SSA has long recognized the potential for obesity to play a role in the disability determination process. Before 1999, applicants with a body weight more than 100 percent above the “ideal weight” given their height were considered obese; obesity was included as a separate condition in the Listing of Impairments provided an applicant met the weight threshold and at least one of the other conditions for the listing (SSA 2002). These conditions included the following:

- “History of pain and limitation of motion in any weight-bearing joint or the lumbosacral spine (on physical examination) associated with findings on medically acceptable imaging techniques of arthritis in the affected joint or lumbosacral spine
- Hypertension with diastolic blood pressure persistently in excess of 100 mm. Hg measured with appropriate size of cuff
- History of congestive heart failure manifested by past evidence of vascular congestion such as hepatomegaly or peripheral or pulmonary edema
- Chronic venous insufficiency with superficial varicosities in a lower extremity with pain on weight bearing and persistent edema
- Respiratory disease with total forced vital capacity equal to or less than 2.0 L. or a level of hypoxemia at rest equal to or less than the values specified in the listing”

From 1979 until July 1993, obesity was included as a separate adult listing in the Listing of Impairments under *Multiple Body Systems* (category 10.10). After July 1993, it continued to be a discrete listing, but was moved to *Endocrine System and Obesity* (category 9.09) (SSA 2005; 20 CFR, Subpart P, Appendix 1). During that period, an applicant with obesity who met the requirements of the listing could receive benefits on that basis but would have been identified based on a different body system pre- and post-1993; this pattern will be evident in the findings presented below.

On October 25, 1999, obesity was removed as a discrete adult listing in the Listing of Impairments (SSA 2000; 20 CFR, Subpart P, Appendix 1). According to the August 24, 1999 issue of the *Federal Register*, this change reflected the view that the criteria for obesity in the listing alone did not imply an inability to engage in SGA, noting that “[a]lthough many individuals with obesity are appropriately found ‘disabled’ within the meaning of the Social Security Act (the Act), we have determined that the criteria in listing 9.09 were not appropriate indicators of listing-level severity because they did not represent a degree of functional limitation that would prevent an individual from engaging in any gainful activity....we concluded that, because of the widely varying effects obesity and related impairments may have on an individual’s functioning, the only way we could be confident that individuals would be disabled under the listings would be to require

the other impairments to meet or equal the severity of their respective listings” (64 FR 163, August 24, 1999).

As a result of this change, individuals who met the existing SSA threshold for obesity would not have met the listings on the basis of obesity, but still may have been found to have a set of conditions equal to the listed impairments or be eligible based on medical-vocational guidelines. To ensure that adjudicators would continue to consider the effects of obesity on functioning, SSA added the following language to the *Cardiovascular, Respiratory, and Musculoskeletal* body system listings (20 CFR, Subpart P, Appendix 1):

- “Obesity is a medically determinable impairment that is often associated with system disorders—disturbance of these systems can be a major cause of disability in individuals with obesity
- The combined effects of obesity with impairments can be greater than the effects of each of the impairments considered separately
- When determining whether an individual with obesity has a listing-level impairment (or a medically equivalent combination), and when assessing residual functional capacity, adjudicators must consider any additional and cumulative effects of obesity.”

As described in the *Federal Register*, the intent of this language was to allay public concern that the change was meant to signal to adjudicators to exclude obesity from their consideration, or tighten eligibility criteria for obese applicants. Because obesity is to be considered in light of its effect on functioning, there is no longer a set numeric threshold in which obesity becomes “severe” (SSA 2002). Under the revised regulations, obesity and its relationship to other impairments is considered on a case-by-case basis, with an emphasis on how obesity factors into an individual’s functional capacity.

The delisting in 1999 was accompanied by a significant change in how SSA measured obesity (SSA 2000). Before October 1999, SSA defined obesity as body weight equal to 100 percent above the desired level, where “desired” was determined by using height and weight tables. After the delisting in 1999, SSA defined obesity based on Body Mass Index (BMI). Consistent with clinical

guidelines, SSA now considers individuals with a BMI of more than 30 as obese, though a BMI of 30 does not in any way ensure a benefit award. To illustrate the practical implications of this change, before 1999 a person who was 5'5" tall would have been considered to be obese under the listing at a weight of about 284 pounds. At that weight, the applicant's BMI would have been 47.3. From July 1999 on, a person of this height would be considered obese at a weight of 180 pounds, based on a BMI of 30. The shift from ideal weight to BMI implies that in the absence of the delisting, SSA would have classified a much higher share of applicants as "obese" after 1999. It is not possible to determine how these two changes—the change in how obesity factored into the determination process, and the elimination of a set threshold at which a BMI is judged to be a severe impairment by SSA—separately affected the share of applicants for whom obesity recorded as an impairment.

### III. IDENTIFYING OBESITY IN DISABILITY APPLICATIONS

---

We used SSA-831 to select those applications to SSDI and SSI from January 1990 through December 2012 that received an initial determination during that period.<sup>1</sup> We considered all working-age applicants to SSDI and SSI who received a medical determination (that is, we omitted technical denials for individuals not meeting the program eligibility criteria), where “working age” was defined to be ages 18 through 64. Thus, references to applications in what follows are applications that received an initial determination.

We considered each application to each program separately to isolate the potential effects of obesity in each program, meaning we viewed an individual who applied to SSDI and SSI concurrently as being in each program. Similarly, we considered individuals who applied to either program more than once during our analysis period as separate observations because their obesity and disabling conditions may have changed over time. Using this definition, SSA completed almost 60 million initial determinations from working-age adults between 1990 and 2012 (Table 1). These decisions were distributed just about evenly between SSDI and SSI, with just under half having filed concurrently to both programs at the same time (not shown).

We identified obesity in the 831 data using the primary and secondary impairment fields in the 831 file. Applications with obesity listed as a primary or secondary impairment during this time represented 3.4 percent of SSDI and 3.6 percent of SSI initial decisions. It is important to note that the share of applicants with obesity as a recorded impairment throughout this period is likely much lower than the share of applicants with obesity via the BMI definition; nearly 4 in 10 applicants in the later years of our observation period had a BMI of more than 30 (Schimmel Hyde et al. 2015). Obesity might affect the functional status of many more applicants than those for whom obesity is ultimately recorded as a primary or secondary impairment.

The demographic profile of initial decisions with a primary or secondary impairment of obesity is different from all others; they are significantly more likely to be females and slightly more likely concentrated in middle age (ages 41–55). Though not shown, the demographic profile as to gender and age of applicants with obesity in the primary or secondary field was about the same before and after the 1999 rule change.<sup>ii</sup>

Table 1. Characteristics of initial applications, 1990–2012, by obesity recorded as a primary or secondary impairment

	Initial decisions without obesity as a recorded impairment		Initial decisions with obesity as a recorded impairment	
	SSDI	SSI	SSDI	SSI
Working-age adults	29,285,167	28,349,098	1,030,558	1,048,518
<b>Sex (%)</b>				
Male	54.8	51.4	37.9	29.5
Female	44.9	48.4	61.9	70.3
<b>Age in years (%)</b>				
18–25	5.4	15.0	3.1	8.1
26–40	25.4	31.5	24.8	32.9
41–55	43.4	39.4	47.9	45.1
56–64	25.7	14.1	24.2	13.9
<b>Initial decision (%)</b>				
Allowed	35.2	30.1	40.3	35.3
Denied	64.7	69.9	59.7	64.7

Source: Authors' calculations using the SSA-831 file and applications filed between 1990 and 2012, and with an initial determination made during the same period.

Overall, the initial allowance rate of applications with obesity as a recorded impairment was slightly higher than for those with other impairments during the full period from 1990 through 2012. Interestingly, however, this finding largely reflects initial allowance rates during the 1990–1999 period, which were about 50 percent higher for applications with obesity impairments. After 1999, the initial allowance rate among those receiving a determination with an obesity impairment and those without one were nearly the same (36 percent for SSDI and 28–29 percent for SSI) (not shown).

Among applications with obesity recorded in one of the impairment fields, we also considered the body system that the adjudicator reported as being primarily affected by the applicant's

impairments. Our analysis focuses on the body systems most affected by the rule changes—the *Endocrine System*, in which obesity was listed before October 1999, and the *Cardiovascular*, *Respiratory*, and *Musculoskeletal* systems because of the language added to the listings to consider obesity’s effects following 1999. For reasons describe below, we also consider changes in *Multiple Body Systems* as well as recordings made in the “*Other/Unknown*” category.

This page has been left blank for double-sided copying.



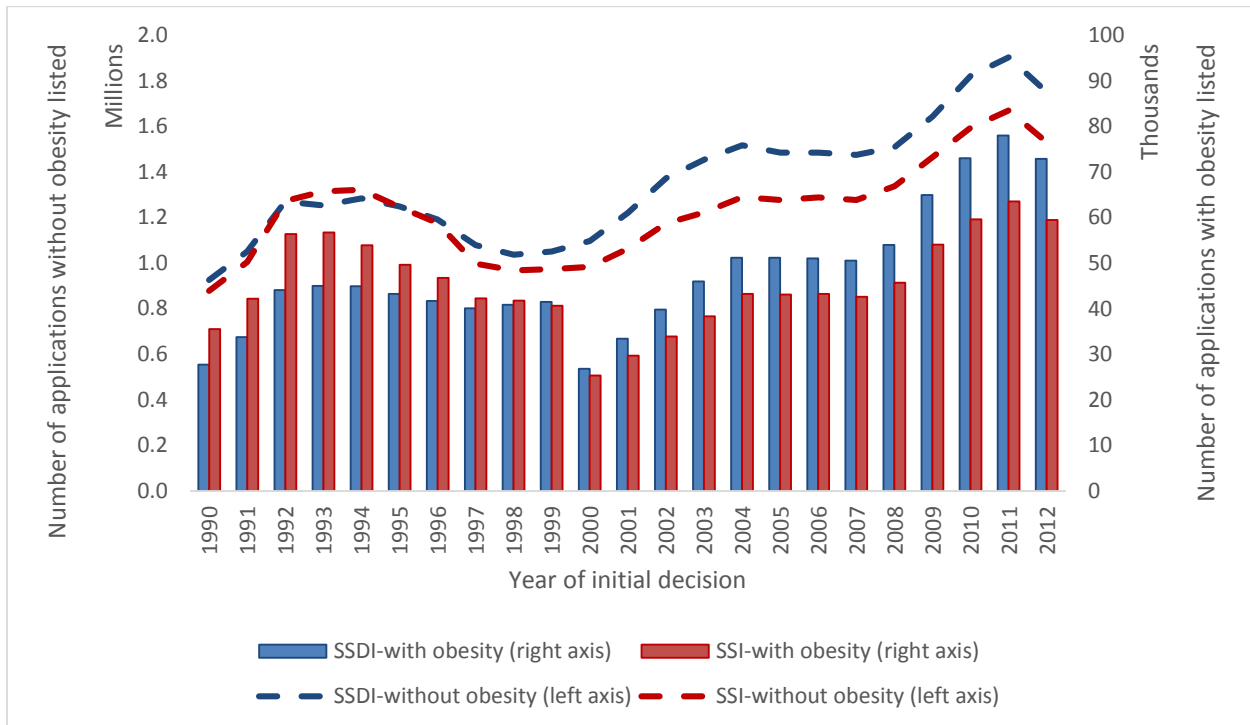
#### IV. TRENDS IN APPLICATIONS WITH OBESITY IMPAIRMENTS

---

In this section, we focus on changes in the number and proportion of applications that indicate obesity in either the primary or secondary impairment field around the time of the 1999 rule change. We document these changes based on recorded impairments, noting that the 1999 change included both the deletion of the obesity listing and a change to the BMI standard for obesity. Taken together, the figures in this section highlight that whereas the rule changes initially had discrete and noticeable effects in impairment and body system patterns, obesity listed as a first or second impairment has increased steadily at a rate that surpassed overall increases in applications during this time after 1999.

Figure 1 shows the number of applications in each year, by program title and based on whether obesity was recorded as an impairment (primary or secondary). Note that the total number of applications without obesity (lines) map to the left axis, whereas the number with obesity (bars) map to the right axis; the scale of these two axes is quite different. Broadly speaking, the trend in the number of applications with obesity recorded as an impairment more or less mirrored the general application trend during this time, with declining numbers through the mid-1990s and increases during the economic downturns in the early and late 2000s. Yet, growth in SSDI applications with obesity in the primary or secondary impairment fields outpaced growth in SSDI applications overall; looking from the start to the end of our study period, the total number of SSDI applications without obesity listed grew by 94 percent, whereas the number with obesity grew by 191 percent. Among SSI applications, those with obesity grew by a slightly smaller percentage than those without, at 68 and 74 percent, respectively.

Figure 1. Initial SSDI and SSI applications, 1990–2012, based on whether obesity was recorded as the primary or secondary impairment

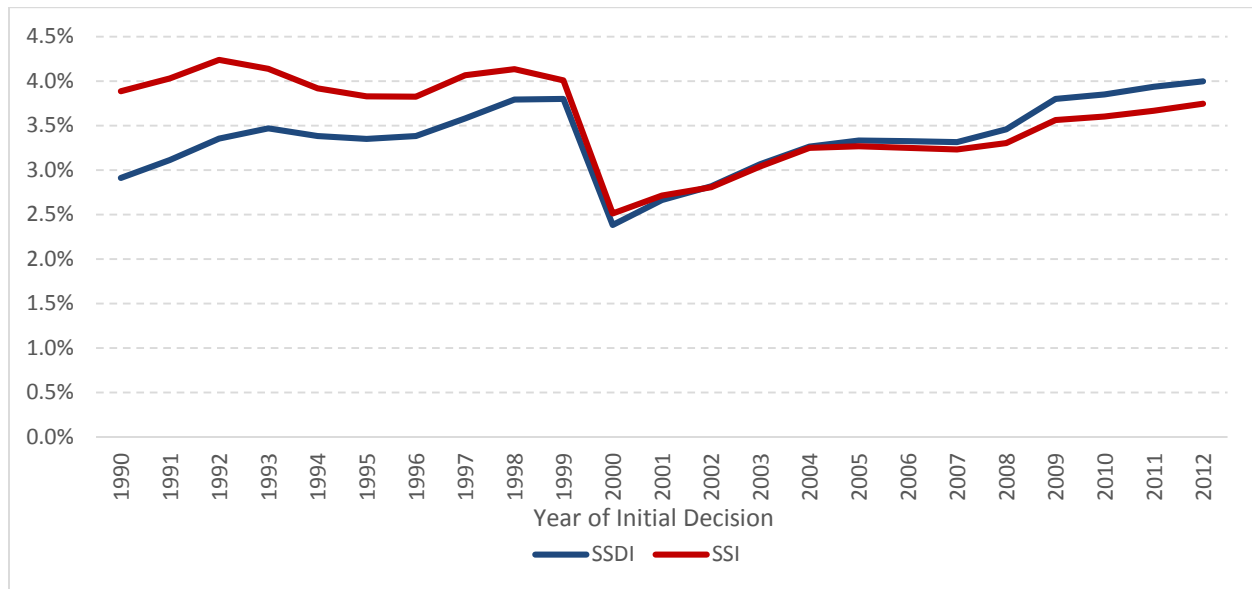


Source: Authors' calculations using the SSA-831 file and applications filed between 1990 and 2012, and with an initial determination made during the same period.

In contrast to applications without obesity recorded, there was a precipitous drop in applications with obesity in the primary or secondary impairment fields between 1999 and 2000 (Figure 1). The immediate decline in applications with recorded obesity after the rule change in late October 1999 is consistent with the rule change: examiners presumably switched to recording impairments under listings other impairments because they knew they could no longer make an award on the basis of the disability listing alone. Yet, this reduction was not permanent; by 2004, the number of SSI applications with obesity recorded had returned to the pre-1999 level, and SSDI application numbers had already surpassed the earlier amount. Despite the rapid growth in absolute terms, because application levels in general were also rising during this period, it was not until nearly the end of our observation period that the share of applications with obesity as a recorded

impairment reached nearly the pre-1999 levels (Figure 2). It is also interesting that before the 1999 rule change, the total number of SSI applications with obesity was higher than the number of SSDI applications with obesity, but that pattern changed directions after the rule change—the proportion of applications with obesity was about the same for SSDI and SSI after the rule change, rising to just about 4 percent of all applications by 2012.

Figure 2. Share of initial applications with obesity recorded as an impairment, 1990–2012, by program title

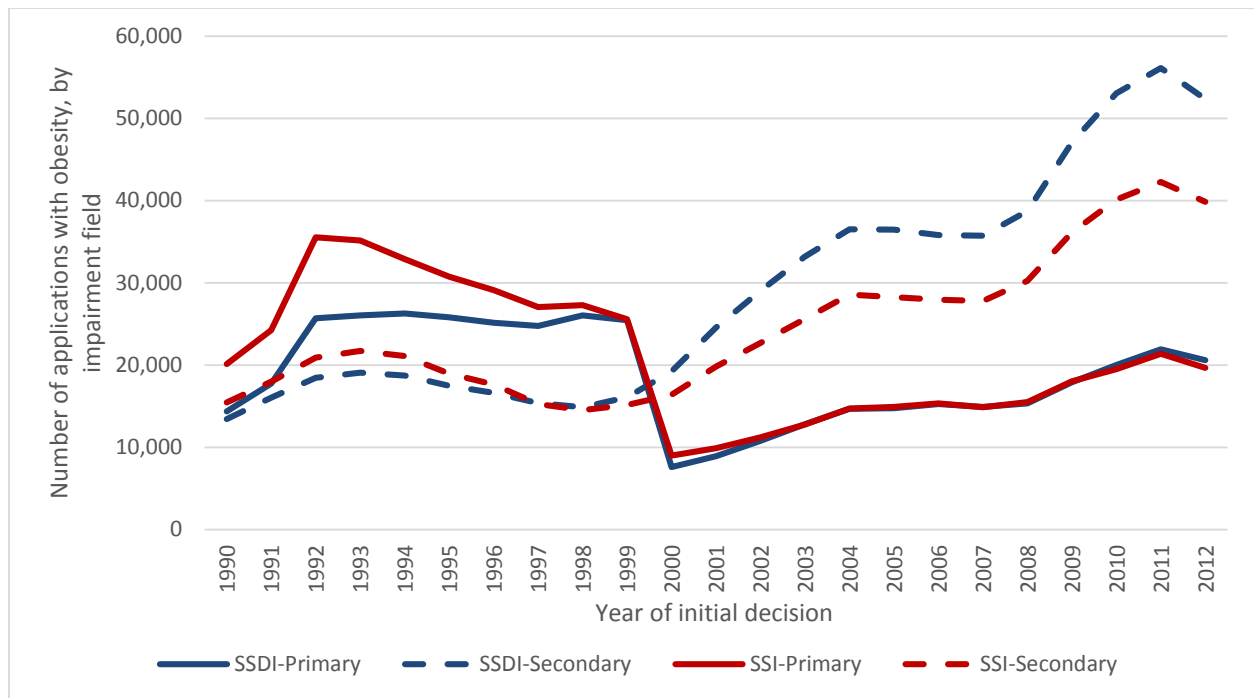


Source: Authors' calculations using the SSA-831 file and applications filed between 1990 and 2012, and with an initial determination made during the same period.

So far we have been considering applications with obesity listed in either the primary or secondary impairment fields. Figure 3 distinguishes between these fields. Before the 1999 delisting, obesity was more likely to be the primary rather than the secondary impairment. After 1999, this pattern reversed, with obesity recorded as the second impairment approximately twice as often as the primary impairment. Although there were level differences in SSDI and SSI, this pattern was true for both. Following the 1999 delisting, there was an initial discrete drop in applications with obesity in the primary field, with a more gradual but offsetting increase in obesity

listed as a secondary impairment. Nearly immediately following the precipitous decline between 1999 and 2000, the number of applications with obesity as a primary impairment also began to increase, albeit at a slower rate than for the secondary field.

Figure 3. Number of applications with obesity in the primary or secondary impairment field, 1990–2012, by program title



Source: Authors' calculations using the SSA-831 file and applications filed between 1990 and 2012, and with an initial determination made during the same period.

## V. CHANGES IN THE BODY SYSTEM PROFILE OF APPLICATIONS WITH AN OBESITY IMPAIRMENT

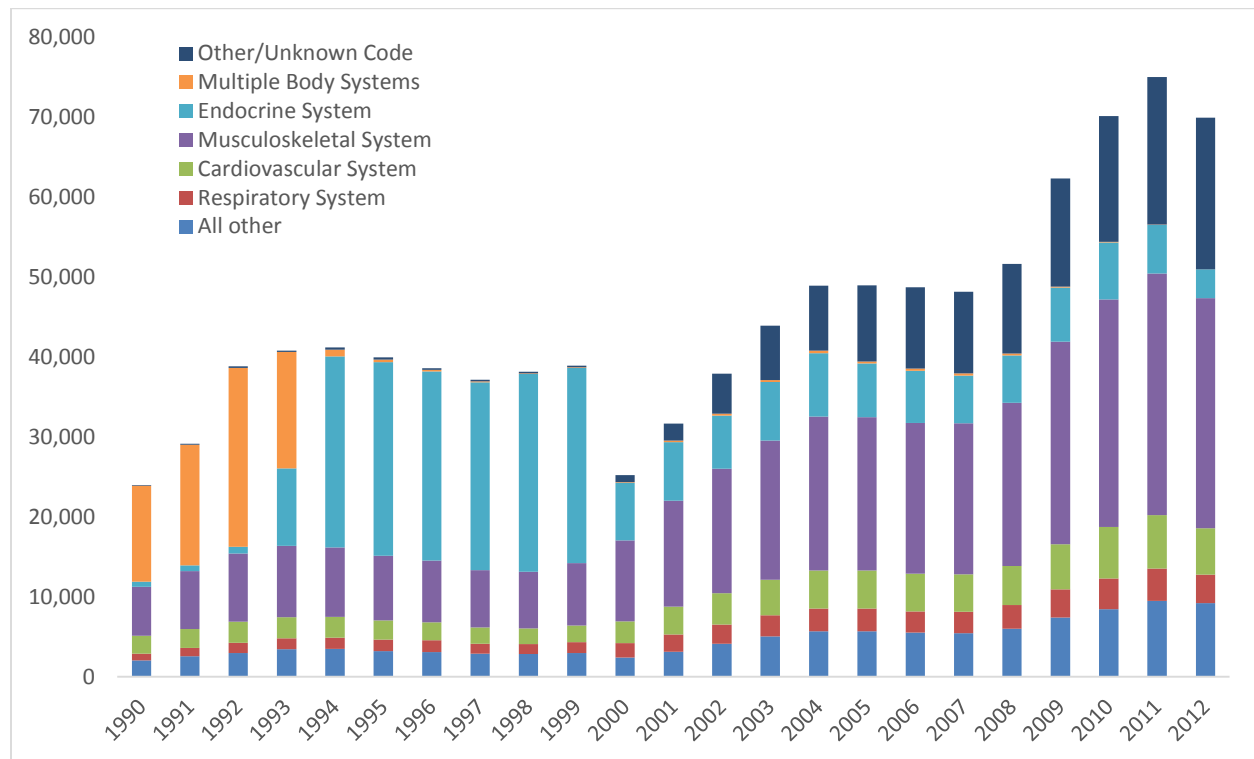
---

In this section, we focus on the pattern over time in the body system category among applications that had obesity recorded by an adjudicator as a primary or secondary impairment. Because SSA's guidance after 1999 indicated the potential role for obesity in *Respiratory*, *Cardiovascular*, and *Musculoskeletal* body systems, we would expect to see those body systems become more prevalent among those with an obesity listing, with declines after 1993 in *Multiple Body Systems* and after 1999 in the *Endocrine System* (the system under which the obesity listing appeared) Because we found that the body system profile among applications using obesity as an impairment was very similar for SSDI and SSI, for simplicity we focus here on SSDI applications.

Figure 4 shows the profile of body systems among SSDI applications with obesity in the primary or secondary disability field. As expected, there is a switch after 1993 from *Multiple Body Systems* to the *Endocrine System*. For both *Multiple Body Systems* and *Endocrine System*, the number of applications with an obesity impairment increased from 1990 through 1999, before the precipitous decline immediately following the rule change in that year.

We also find that whereas the number of applications categorized under *Cardiovascular* and *Respiratory Systems* certainly increased significantly in proportional terms from 1999 through 2012, the change in the raw number of applications in these categories was relatively modest and certainly did not offset the decline in the applications in the *Endocrine System* category. The majority of applications with obesity were recorded under the *Musculoskeletal System* and the "Unknown/Other" category during this period. Growth in the latter occurred because after obesity was removed as a listed impairment, it did not have a body system home, and many applications with obesity in the primary or secondary impairment field were included in this group. In fact, by 2012, nearly 30 percent of total applications with an obesity impairment were in this category.

Figure 4. Profile of body system categorizations of SSDI applications with obesity impairments, 1990–2012



Source: Authors' calculations using the SSA-831 file and applications filed between 1990 and 2012, and with an initial determination made during the same period.

## VI. CHANGES IN DISABILITY ALLOWANCES AMONG APPLICANTS REPORTING OBESITY

---

In this section, we explore allowances at the initial determination for those with recorded obesity impairments. We caution that these are not overall allowance rates; we are unable to track applications after the initial determination, so we do not know the ultimate share of applications awarded benefits after completion of all levels of review. Nonetheless, the patterns we identify at the initial determination level are marked and consistent with our predictions regarding the effects of the rule change.

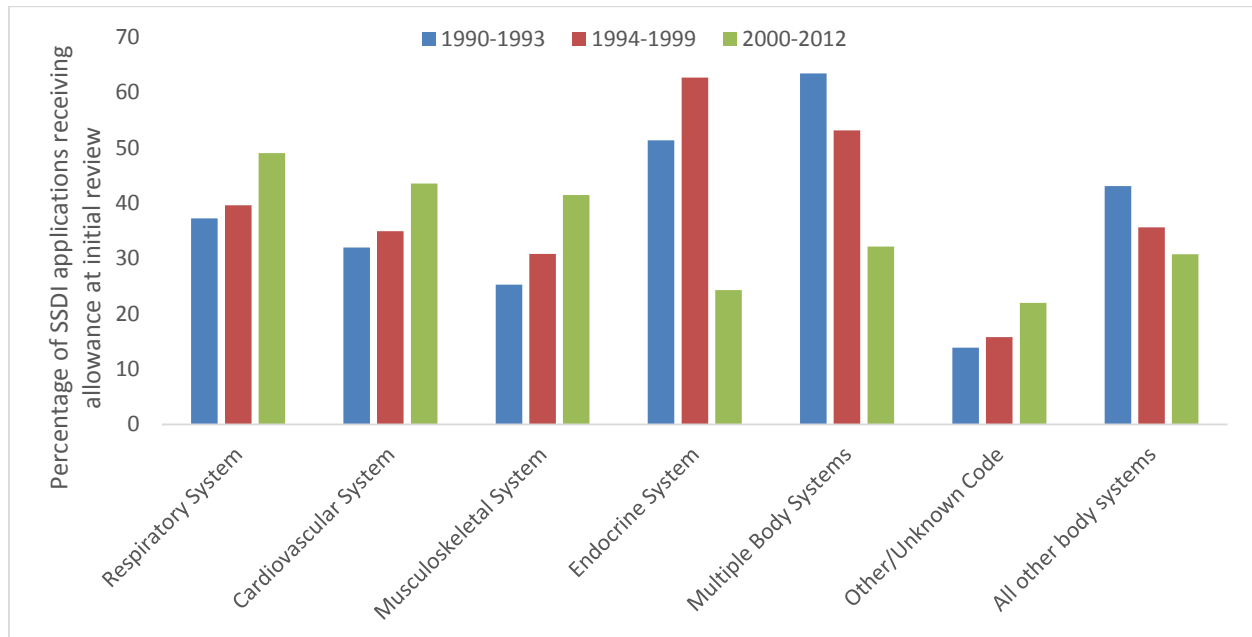
After SSA removed the obesity listing, the agency added text in several body system descriptions with the explicit intent that adjudicators were still to consider the potential role of obesity when making determinations. The *Federal Register* description of the change noted that it was in part intended to reduce allowances to individuals with obesity who were not significantly functionally impaired. Thus, we expect that allowance rates among applications at the initial level with recorded obesity would have declined following the change, provided that the other characteristics of applicants for whom obesity was still recorded did not change. One distinct possibility is that, after the change, examiners limited use of the obesity impairment category to those for whom other conditions were not very significant, in which case those with an obesity impairment after 1999 may have had less severe impairments than those with an obesity impairment before 1999. That would also lead to a reduction in allowance rates among applicants for whom obesity is recorded as an impairment. In addition, as a result of the delisting and all else being equal, we would expect that allowances after 1999 for individuals with obesity would more commonly fall under the medical-vocational guidelines, as opposed to a greater share meeting the listings before the rule change.

As anticipated, the allowance rate for applications with obesity recorded as an impairment fell substantially after 1999. Before 1999, the share of applications allowed for applicants with recorded obesity was 49.5 percent for SSDI (45.3 percent for SSI). This was significantly higher than the initial allowance rate for those with only non-obesity impairments during this time (34.4 percent for SSDI and 30.4 percent for SSI). After the 1999 rule change, the pattern changed, with allowance rates for those with obesity impairments nearly identical to those with only non-obesity impairments. Specifically, the allowance rate at the initial determination for those with recorded obesity fell to 36.0 percent for SSDI (28.5 percent for SSI), compared with 35.6 and 29.9 percent, respectively, for SSDI and SSI applications with non-obesity impairments.

In Figure 5, we present the allowance rates at the initial determination among SSDI applications with obesity impairments for three periods—1990–1993, 1994–1999, and 2000–2012—for the same body system categories shown above. We selected these periods to capture the effects of the 1993 and 1999 rule changes, both of which occurred in the middle to latter part of the year. Most notable is the sharp decline in allowances in the *Endocrine System* in 2000 and beyond relative to earlier years; allowances in *Multiple Body Systems* also declined following the 1993 change, but not by the same magnitude. Presumably applications in this category with obesity may have also had other serious health conditions affecting their functioning in broad ways, as the title suggests. After 1999, allowance rates for applications with obesity in all other systems increased, compared with declining allowance rates across all other body system categories. Notably, the *Cardiovascular*, *Respiratory*, and *Musculoskeletal* categories were those with language added to allow adjudicators to consider the role of obesity; this change was also accompanied by the change to use of the BMI definition for obesity, which may have affected the composition of those determined to have obesity as an impairment.



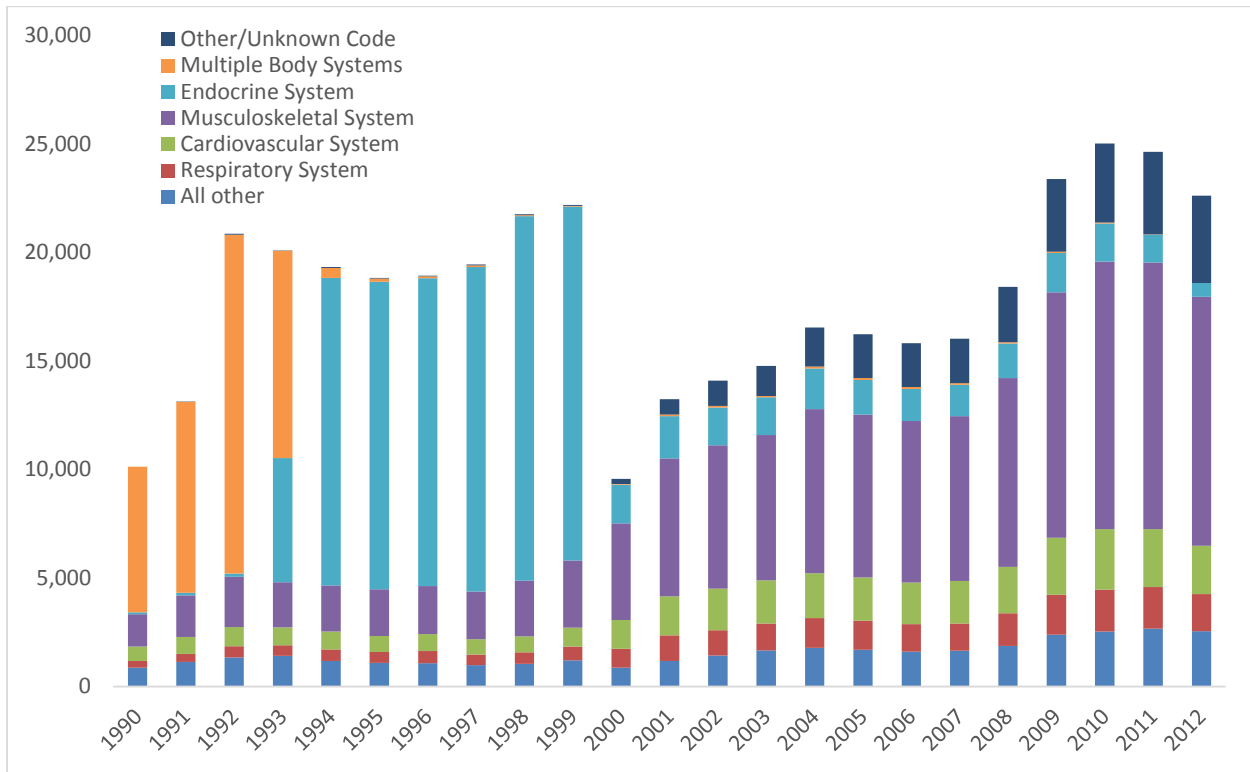
Figure 5. Initial allowance rates for SSDI applications with obesity, 1990–2012, by body system



Source: Authors' calculations using the SSA-831 file and applications filed between 1990 and 2012, and with an initial determination made during the same period.

The combination of the changing applications and allowances by body system translated into a changing profile of initial allowances by body system during this time (Figure 6). The pattern for allowances appears similar to that for applications but does highlight some interesting differences. In 2012, applications recorded in *Other/Unknown Code* represented 27 percent of applications but 18 percent of allowances among applications with obesity impairments. Similarly, applications in the *Endocrine* system represented 5 percent of applications and 3 percent of allowances. Conversely, applications recorded in the *Musculoskeletal* system represented 41 percent of applications and 51 percent of initial allowances.

Figure 6. Profile of SSDI initial allowances among applications with obesity impairments, by body system categorization, 1990–2012

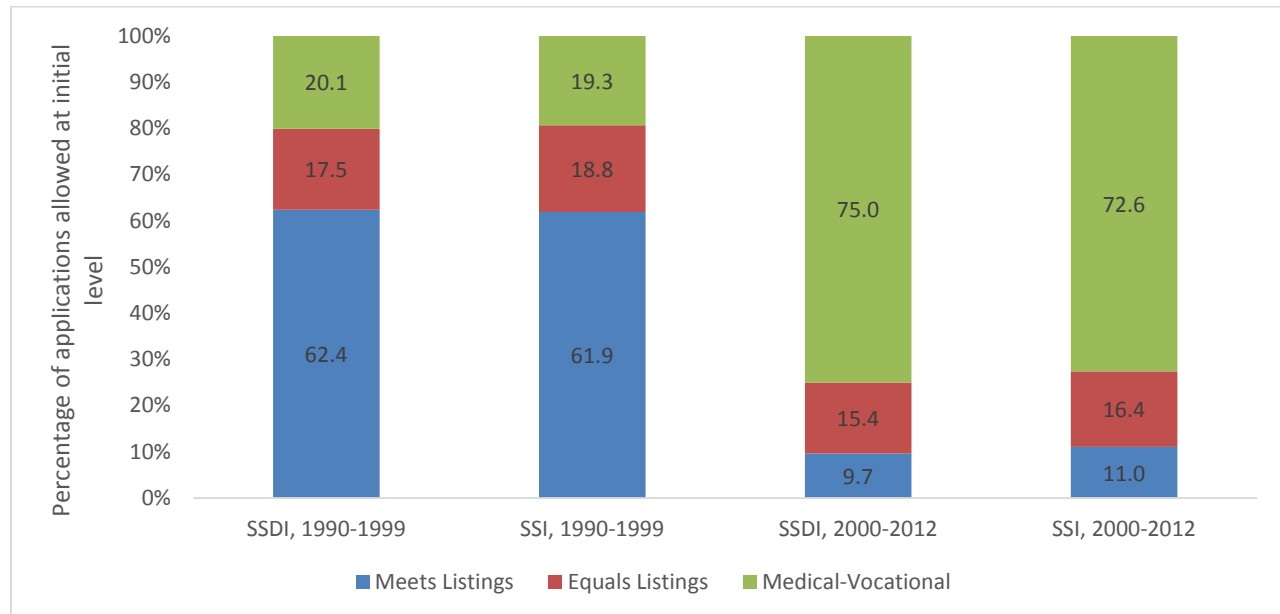


Source: Authors' calculations using the SSA-831 file and applications filed between 1990 and 2012, and with an initial determination made during the same period.

Figure 7 looks across all SSDI and SSI applications with obesity, regardless of the categorized body system, to consider the reason an allowance was made—known as the regulation basis code. Before the 1999 rule change, the majority of applications with obesity in one of the impairment fields were found to “meet the listings,” consistent with obesity being a discrete listing during this time. After the 1999 delisting, only 10 percent of such applications received an allowance because they met the listings. Although we did not examine the data for these cases, it seems likely that obesity was recorded as a secondary impairment along with a primary listed impairment. About 15 percent of allowed applications with obesity were found to have a condition equal to a listing before and after the 1999 change. Following 1999, however, the vast majority of allowed applications with obesity—nearly three-quarters—received an allowance for medical-vocational

reasons, meaning that the reviewer found that the applicant's condition(s) were sufficient to prevent engagement in SGA.

Figure 7. Reason for allowance among applications with obesity listed in the primary or secondary field and allowed at the initial determination, before and after the 1999 deletion of the obesity listing



Source: Authors' calculations using the SSA-831 file and applications filed between 1990 and 2012, and with an initial determination made during the same period.

Note: The reason for initial allowance is referred to as the "regulation basis code" within SSA.

This page has been left blank for double-sided copying.

## VII. CONCLUSIONS AND IMPLICATIONS FOR POLICY

---

The 1999 rule change deleting obesity as a listed impairment to receive SSDI or SSI benefits was primarily intended to reduce allowances for individuals whose functional capacity did not prohibit them from engaging in SGA. Our analysis can speak only to the initial allowance level, but it highlights lower allowance rates for applicants with recorded obesity impairments in the years following 1999. Although the finding appears consistent with the intent of the rule change, it is also possible that 1) the lower allowance rate reflects a concurrent change in the composition of applicants for whom examiners listed obesity as a primary or secondary impairment, and 2) more applicants with obesity who appealed denials and eventually received allowances.

The fact that disability examiners in 2013 identified obesity as an impairment in approximately the same share of cases as before the 1999 change might simply reflect a gradual change in how they use that listing, but could also be indicative of growth in the prevalence of obesity among applicants. In a companion paper (Schimmel Hyde et al. 2015), we have examined growth in obesity among applicants from 2007 forward, using applicants' self-reported weight and height—information that is not available electronically for all applicants before 2007. Those results show that the percentage of applicants who are categorized as obese by examiners (four percent in 2012) is just a one-tenth of the percentage of applicants who are obese by the BMI definition (40 percent in 2013). Moreover, those data confirm that obesity prevalence among applicants increased over the period from 2007 through 2013.

Although these data do not provide clear evidence of a negative impact on allowances, they are clearly indicative of an increase in effort to adjudicate claims from applicants with obesity, as predicted in 1999. The shift in allowances for cases with obesity impairments from the *Endocrine* to the *Musculoskeletal* and other body systems makes this apparent; the fact that adjudicators have

to consider the other condition criteria means additional work. The increased effort is also evident in the large shift of the basis for allowance from “meets the listing” to medical-vocational factors. Further, any reduction in initial allowances that is not due to compositional change among those recorded as having an obesity impairment would presumably be accompanied by a growth in appeals.

## REFERENCES

---

- Anandacoomarasamy, A., I. Caterson, P. Sambrook, M. Fransen, and L. Marc. 2007. "The Impact of Obesity on the Musculoskeletal System." *International Journal of Obesity* 32: 211–222.
- Armour, B.S., E.A. Courtney Long, V.A. Campbell, and H.R. Wethington. 2013. "Disability Prevalence Among Healthy Weight, Overweight, and Obese Adults." *Obesity* 21(4): 852–855.
- Capodaglio, P., G. Castelnuovo, A. Brunani, L. Vismara, V. Villa, and E.M. Capodaglio. 2010. "Functional Limitations and Occupational Issues in Obesity: A Review." *International Journal of Occupations Safety and Ergonomics* 16(4): 507–523.
- Centers for Disease Control and Prevention. 2013. *Health, United States, 2013*. Table 69. <http://www.cdc.gov/nchs/data/hus/2013/069.pdf>.
- . 2014a. "Overweight and Obesity." <http://www.cdc.gov/obesity/data/adult.html>.
- . 2014b. "Body Mass Index: Considerations for Practitioners." <http://www.cdc.gov/obesity/downloads/bmiforpractitioners.pdf>.
- Cowles, A.L. 2005. "A History of the Disability Listings." [http://www.ssa.gov/history/pdf/Listings\\_History.pdf](http://www.ssa.gov/history/pdf/Listings_History.pdf).
- Federal Register*. August 24, 1999. "SSA: Revised Medical Criteria for Determination of Disability, Endocrine System and Related Criteria." 64(163): 46122–46129.
- Fox, M.H., M.H. Witten, and C. Lullo. 2014. "Reducing Obesity Among People with Disabilities." *Journal of Disability Policy Studies* 25(3): 175–185.
- Haddad, P. 2005. "Weight Change with Atypical Antipsychotics in the Treatment of Schizophrenia." *Journal of Psychopharmacology* 19(6 Suppl): 16–27.
- Kaye, H.S. "Employment and the Changing Disability Population." In *The Decline in Employment of People with Disabilities: A Policy Puzzle*, edited by D.C. Stapleton and R.V. Burkhauser (eds.), Chapter 6. Kalamazoo, MI: W.E. Upjohn Institute for Employment Research, 2003.
- Lakdawalla, D., J. Bhattacharya, and D. Goldman. 2004. "Are the Young Becoming More Disabled?" *Health Affairs* 23(1): 168–176.
- Morris, S. 2007. "The Impact of Obesity on Employment." *Labour Economics* 14(3): 413–433.
- National Institutes of Health. 2012. "What Are the Health Risks of Overweight and Obesity?" <http://www.nhlbi.nih.gov/health/health-topics/topics/obe/risks.html>.
- Ogden, C.L., M.D. Carroll, B.K. Kit, and K.M. Flegal. 2014. Prevalence of Childhood and Adult Obesity in the United States, 2011–2012. *Journal of the American Medical Association* 311: 806–814.

- Ogden, C.L., M.D. Carroll, L.R. Curtin, M.A. McDowell, C.J. Tabak, and K.M. Flegal. 2006. "Prevalence of Overweight and Obesity in the United States, 1999–2004." *Journal of the American Medical Association* 295: 1549–1555.
- Reichard, A., and M.H. Fox. 2013. "Using Population-Based Data to Examine Preventive Services by Disability Type Among Dually Eligible (Medicare/Medicaid) Adults." *Disability and Health Journal* 6: 75–86.
- Reichard, A., H. Stolzle, and M.H. Fox. 2011. "Health Disparities Among Adults with Physical Disabilities or Cognitive Limitations Compared to Individuals with No Disabilities in the United States." *Disability and Health Journal* 4: 59–67.
- Schimmel Hyde, J., J. Mastrianni, Y. Choi, and J. Song. 2015. "Trends in Obesity Among Social Security Disability Applicants, 2007–2013." Washington, DC: Mathematica Policy Research.
- SSA. 1980. "SSR 85-15: Titles II and XVI: Capability to Do Other Work—The Medical-Vocational Rules as a framework for Evaluating Solely Nonexertional Impairments." [http://www.socialsecurity.gov/OP\\_Home/rulings/di/02/SSR85-15-di-02.html](http://www.socialsecurity.gov/OP_Home/rulings/di/02/SSR85-15-di-02.html).
- . 2000. "Program Operations Manual System (POMS): DI 34129.005 Endocrine Listings from 7/2/93 to 10/25/99." <https://secure.ssa.gov/poms.nsf/lnx/0434129005>.
- . 2002. "POMS: DI 24570.001 Evaluation of Obesity." <https://secure.ssa.gov/poms.nsf/lnx/0424570001>.
- . 2005. "POMS: DI 34130.003 Multiple Body Listings from 01/06/86 to 07/01/93." Available at [<https://secure.ssa.gov/poms.nsf/lnx/0434130003>]. Accessed on April 3, 2015.
- . 2013. "Annual Statistical Report on the Social Security Disability Insurance Program, 2012." [http://www.ssa.gov/policy/docs/statcomps/di\\_asr/2012/index.html](http://www.ssa.gov/policy/docs/statcomps/di_asr/2012/index.html).
- . 2014. "POMS: DI 26510.015 Completing Item 16A and 16B (Primary and Secondary Diagnosis, Body System Code and Impairment Code) on the SSA-831 Disability Determination and Transmittal." <https://secure.ssa.gov/poms.nsf/lnx/0426510015>.
- Sturm, R., J.S. Ringel, and T. Andreyeva. 2004. "Increasing Obesity Rates and Disability Trends." *Health Affairs* 23(2): 199–205.
- Tunceli, K., K. Li, and L.K. Williams. 2006. "Long-Term Effects of Obesity on Employment and Work Limitations Among U.S. Adults, 1986 to 1999." *Obesity* 14(9): 1637–1646.



## ENDNOTES

---

<sup>i</sup> Because of lags in initial determinations, there is some censoring of applications in the later years of our analysis period. For example, in Figure 1, the number of applications decreases in 2012 relative to an upward trend in the preceding years. Some, but not all, of this reflects a decline in actual applications as the economy improved (see Schimmel Hyde et al. 2015). Our analysis of applications listing obesity in 2012 was not substantively different than in earlier years, so we do not have a reason to believe this issue affects our findings.

<sup>ii</sup> Although obesity prevalence varies by race, the 831 data used for this analysis do not have reliable race data, so we did not incorporate them into these statistics. We do not have reason to believe that changes in how obesity was reported over time would have been correlated with race.

This page has been left blank for double-sided copying.

[www.mathematica-mpr.com](http://www.mathematica-mpr.com)

---

Improving public well-being by conducting high quality,  
objective research and data collection

---

PRINCETON, NJ ■ ANN ARBOR, MI ■ CAMBRIDGE, MA ■ CHICAGO, IL ■ OAKLAND, CA ■ WASHINGTON, DC

---

**MATHEMATICA**  
Policy Research

---

Mathematica® is a registered trademark  
of Mathematica Policy Research, Inc.