

Valuing Gender Expansive¹ Data

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Key Points

- The prevalence of adults identifying as transgender and nonbinary is much higher in the under 30 age range compared to older populations, suggesting that the prevalence of reporting of **sex/gender expansive data** may become greater over time.
- Actuaries may want to engage in conversations with plan administrators to ensure understanding of the **sex/gender expansive data** provided and to evaluate process changes to accurately reflect the plan's population in the valuation.
- Actuaries can contribute to research and development of best practices and methods, new mortality differentiators, and other potential future solutions to the collection and use of **sex/gender expansive data**.

Background

Some pension actuaries are beginning to consider alternative approaches to actuarial methods and assumptions regarding *sex* and *gender*.² Research and drafting of this issue brief revealed that there is little literature on this topic valuable to pension actuaries. Historically, actuaries generally use these terms interchangeably, with limited focus on the differences between the two when collecting data and making assumptions. However, there is now a greater understanding in society of the differences between the concepts of *sex* and *gender*, leading to a more nuanced and intentional use of these terms and resulting in changes to data collection and reporting to actuaries. An example of this societal shift is the Department of State's recent decision to give three options for gender on U.S. passports (male, female, or other), with no requirement for individuals to provide any documentation or to demonstrate consistency with other identity documents.

In the pension actuarial field, when mortality assumptions are set for an actuarial valuation, various factors are considered, such as participant status (employee/annuitant, healthy/disabled, etc.), collar/industry, salary information, and sex/gender.³ Data pertaining to these factors historically has been collected by plan administrators and provided to the actuary as part of the actuarial valuation data. Most of this information continues to be easily available to or determinable by the actuary.



AMERICAN ACADEMY
of ACTUARIES

1850 M Street NW, Suite 300
Washington, DC 20036
202-223-8196 | www.actuary.org

Geralyn Trujillo, Senior Director of Public Policy
Linda K. Stone, MAAA, FSA, Senior Pension Fellow

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¹ See Appendix for a definition of "Gender Expansive."

² Terms in italics are used as defined in the "Sex vs. Gender" section.

³ Although actuaries typically focus on mortality assumptions as a significant valuation assumption influenced by sex/gender information, other plan assumptions often also are based on sex/gender (for example, percent married, form of payment, etc.). With respect to an actuarial valuation, mortality assumptions are those used to determine pension liabilities/cost and are not references to the use of unisex mortality assumptions required by the *Employee Retirement Income Security Act of 1974* (ERISA) in certain circumstances (i.e., lump sums and other optional forms of payment from private sector pension plans).

Some retirement plan sponsors and administrative/governing bodies may be updating the information collected regarding sex/gender, prospectively for new hires and voluntarily for existing employees. Anecdotal evidence indicates that some employers consider this to be private information unnecessary to have on record, so the data may be collected only in limited circumstances or not at all. As such, actuaries may need to consider how to value retirement benefits for populations where sex/gender is either not provided for a significant portion (or all) of the population, provided inconsistently for different cohorts, or provided with non-binary data components.

Scope of Issue Brief

This issue brief examines issues pension actuaries may consider when performing an actuarial valuation⁴ using *sex/gender expansive data*. It also discusses several possible approaches to handling such data and setting reasonable actuarial assumptions, while also welcoming external input from the reader and professional practitioners.

This brief isn't intended to spur actuaries and plan sponsors or administrators to pursue or collect detailed and personal information about participants' *sex* or *gender* identity. Rather, it is to help actuaries better understand the data they receive, without making assumptions (in the non-actuarial sense) as to what the data represents. This issue brief is meant to encourage actuaries to use that understanding in the actuarial valuation process, as well as to suggest approaches actuaries may wish to consider in setting mortality and other actuarial assumptions when faced with *sex/gender expansive data*.

Note that this issue brief does not address mortality assumptions for nonbinary and transgender people. The higher risk of mortality in the transgender community relative to the general population is reported in several large studies from the United States (Hughes et al., 2022⁵), Netherlands (de Blok et al., 2021⁶), and United Kingdom (Jackson et al., 2023⁷). Even considering all the data collected for these and other studies, as of yet, there is no clear information that specifically addresses mortality differences for transgender and nonbinary people who also are pension plan participants.

⁴ This issue brief is focused on valuations of pension plans and does not address issues specific to other postretirement benefit plans or insurance products.

⁵ "Differences in All-Cause Mortality Among Transgender and Non-Transgender People Enrolled in Private Insurance"; *Demography*; June 1, 2022.

⁶ "Mortality trends over five decades in adult transgender people receiving hormone treatment"; *The Lancet*; Sept. 2, 2021.

⁷ "Analysis of Mortality Among Transgender and Gender Diverse Adults in England"; *JAMA Network*; Jan. 30, 2023.

The Pension Committee, which authored this issue brief, includes Elena Black, MAAA, FSA, FCA, EA—*Chairperson*; Grace Lattyak, MAAA, FSA, FCA, EA—*Vice Chairperson*; Michael Antoine, MAAA, FSA, FCA, EA; Michael Bain, MAAA, ASA, FCA, FSPA, EA; Rachel Barnes, MAAA, FSA, FCA, CERA, EA; Margaret Berger, MAAA, FSA, FCA, EA; Maria Carnovale, MAAA, FSA; Jonathan de Lutio, MAAA, EA; C. David Gustafson, MAAA, FCA, EA; Scott Hittner, MAAA, FSA, FCA, EA; Lloyd Katz, MAAA, FSA, FCA, EA; Maria Kirilenko, MAAA, ASA, FCA, EA; Gerard Mingione, MAAA, FSA, EA; Maria Moliterno, MAAA, ASA, EA; Nadine Orloff, MAAA, FSA, FCA, EA; Melody Pranglely, MAAA, FSA, EA, FCA; Mary Stone, MAAA, FSA, FCA, EA; Todd Tauzer, MAAA, FSA, FCA, CERA; Hal Tepfer, MAAA, FSA, FCA, MSPA, EA; and Carolyn Zimmerman, MAAA, FSA, FCA.

The committee gratefully acknowledges the contributions of Susan Boyle, MAAA, FSA, FCA, EA and Koren Holden, MAAA, FCA, EA.

Lastly, actuaries may want to consider the magnitude of the changes within the *sex/gender expansive data* prior to conducting actuarial work. In many pension plans, participants who disclose being nonbinary or transgender currently represent a small enough percentage of the plan population to render the result of any related assumption change de minimis. However, this may not be the case universally, for example, in an organization where a significant portion of employees are members of the LGBTQ+ community. Furthermore, a 2022 Pew study found that among adults ages 18-29, 2.0% are transgender and 3.0% are nonbinary (compared to 1.6% of those 30 to 49 years old and 0.3% of those over 50 identifying as transgender/nonbinary), suggesting that the prevalence of reporting of *sex/gender expansive data* may become greater over time.⁸ And certainly, situations where *sex/gender data* is simply not provided will require the actuary to consider alternate approaches.

Sex vs. Gender⁹

Certain key terms used throughout this issue brief, including *sex*, *gender*, and *sex/gender expansive data*, are defined below.

Sex (sex at birth): The sex, typically based on binary designation of male or female, used to describe a child at birth based on their external biological anatomy.¹⁰

Gender (gender identity): Personal concept of self as male, female, both, neither, genderfluid, genderqueer, or agender—how individuals perceive and/or refer to themselves. Gender identity can be the same or different from sex assigned at birth.

Sex/gender expansive data: Sex/gender data that is either missing or non-binary (in this issue brief meant to refer to gender data other than only male or female, while there are other uses of the term).

A fourth term that is used in a looser sense in this issue brief is “sex/gender data.” There has been a lack of intentionality and consistency in how these terms are used on administrative forms, often resulting in a lack of clarity as to the nature of the information requested. As a result, collected participant/member data may be either *sex* or *gender* or even a mixture of both. When multiple employers participate in the plan, they may collect data in different ways, giving rise to additional data inconsistencies.

⁸ [“About 5% of young adults in the U.S. say their gender is different from their sex assigned at birth”](#); Pew Research Center; June 7, 2022.

⁹ This section discusses the definitions generally considered for this paper. However, see Appendix for additional definitions.

¹⁰ This definition is simplified and is not a scientific definition but represents the colloquial use of the term.

Data Collection Challenges

Research into current practices showed that employers—both private and public—are at various stages of thought, discussion, and action regarding the collection and retention of sex/gender data, including practices related to *sex/gender expansive data*. Whereas private sector plans are required to follow federal regulations, public plan practices often vary by what is acceptable or appropriate based on individual state law, or perhaps based on the general outlook of the state’s administration or population.

Historically, the meaning behind terms such as “sex” and “gender” were more blurred than the terminology that is starting to be applied today. The term “sex” often was used on administrative forms throughout the 1980s and 1990s. More recently, there has been a migration from the word “sex” to “gender” on data collection forms, such as new hire paperwork or member intake data forms. This change may have reflected the sense that the word “gender” was more socially appropriate than the word “sex” or was more likely to pass through content filters, with no actual intent to alter the nature of the data requested and collected.

Data collection forms often gather sex/gender data for multiple reasons, including for general employer demographic analysis, as well as for actuarial purposes. Because the intent of the data collection may not be primarily related to the pension plan or even other employee benefits, users must be careful not to misunderstand what the data represents. Actuaries may want to engage in conversation with plan administrators (including public plan governing boards) to ensure understanding of the data provided and to evaluate any necessary process changes to accurately reflect the plan’s population in the valuation. In addition, actuaries who use standard assumptions, such as the Pub-2010 and Pri-2012 mortality tables issued by the Society of Actuaries, should consider that the underlying data used in developing those tables came from historical actuarial valuation data, likely with similar inherent inconsistencies.

Private sector plans may have different data collection considerations than public sector plans. For example, single-employer plans must use prescribed funding mortality tables that are sex-distinct and binary, with no apparent ability to use a blended or unisex version. Therefore, actuaries working in the private sector who receive *sex/gender expansive data* need a methodology to comply with the requirement to use those tables. Mortality assumptions, generally, are not prescribed for valuing multiemployer plans, so actuaries working in this arena may have more flexibility and are not as limited to binary options. However, because all commonly available mortality tables are inherently binary, all pension actuaries, regardless of area of practice, still will need to develop an appropriate methodology when using *sex/gender expansive data*.

Public sector plans also have more flexibility when collecting sex/gender data. A small but diverse (as to size and location) sampling of public plans responded to a few informal questions related to sex/gender data collection. Their responses demonstrate a wide array of practices in use or under consideration, with no definitive trend. Some examples of this diversity in practice include:

- Sex/gender response options available to plan members reflect a wide variety of terminology (including a write-in option and/or “unspecified” category); some plans offer only a binary choice, but don’t require members to provide that data.
- Some public plans are moving to mimic the sex/gender options on other state-based administrative forms, such as the department of motor vehicles or department of health, even if not statutorily required to do so.
- Administrators within the responding group were not aware of any recently enacted legislation limiting or forbidding the collection of sex/gender data for “privacy reasons” that would change their practices, although once collected, sex/gender data is viewed as “protected data” for all public plans.

Using Sex/Gender Expansive Data

Plan sponsors and administrators are evolving their processes for collecting and reporting participant data; however, most actuarial valuation systems still allow for only the typical binary values of “Male” and “Female” for sex/gender status. Until actuarial valuation systems are able to accommodate other options, actuaries might consider several potential solutions to reflect non-binary sex/gender statuses.

- Most prevalent sex/gender: The actuary could value individuals not reported as male or female using the most prevalent sex/gender status reported in the data. For example, for a plan sponsor where the majority of plan participants are male, all those participants who are not reported with a male or female sex/gender status could be valued as male.
- Map a portion to male or female status: The actuary could map a portion of the group who are not reported with a male or female status to a male status with the remaining portion mapped to a female status. This could be based on the proportion of participants with male and female status reported in the data. For example, if 65% of the reported sex/gender statuses are male, then the actuary could map 65% of those without a male or female status to male and the remaining 35% to female.

The actuary using this approach may want to take care in assigning sex/gender code to ensure they do not introduce bias in the data by inadvertently assigning the same gender code to all of the highest-paid or longest-service participants. For this reason, the other methods discussed may be more practical to apply.

- Use the sex/gender status that minimizes liability understatement: Using female mortality for those who are not reported with a male or female status most likely would minimize the understatement of the liability being measured since female mortality often produces higher liabilities than male mortality.
- Blended table for some: The actuary could apply a blended table developed based on the proportion of male and female sex/gender statuses reported in the data, only for the group who are not reported with a male or female status. For example, if 65% of the reported sex/gender statuses are male, the actuary could develop a 65% male/35% female blended table and apply it to those reported without a male or female status.
- Blended table for all: The actuary could apply the blended assumption to all participants, as discussed in the prior bullet. However, the actuary may want to do this on a benefits-weighted basis to more accurately value liabilities.

Note that some of these approaches may not be permissible for certain purposes (i.e., single-employer plans can't use a blended table for minimum funding).

Regardless of the solution chosen, the actuary may want to consider the size and statistical credibility of the participant group, as well as any other applicable factors, when adjusting, blending, or otherwise setting current mortality and any other sex/gender status-driven assumptions. Those other factors may include the additional accuracy produced by the method relative to its complexity and whether benefit weighting is more appropriate.

Discussions with the plan sponsor or governing board may help all decision-makers understand the data reported versus the assumptions applied. The plan sponsor / governing body can help the actuary determine whether methods regarding development and application of the assumptions do not significantly conflict with what would be reasonable given the data collected and the demographics of the population being valued. The actuarial report should document the approach used and a rationale supporting that approach should be outlined, in accordance with actuarial standards of practice. The actuary should also follow standards to periodically review the approach to ensure it remains relevant and appropriately reflects any changes in plan sponsor's data collection procedures.

Ideas for the Future

In addition to the approaches for using *sex/gender expansive data* discussed above, some new concepts are emerging. One idea is to construct mortality tables using different criteria, rather than strictly sex/gender (e.g., industry, ZIP code, etc.). Although industry-derived tables are not a new concept, those currently in existence often rely on sex/gender in addition to industry, presumably because sex/gender data in those studies was determined to be a critical mortality differentiator even within an industry. However, further research might identify other criteria that would eliminate the need to rely on sex/gender data.

Another possibility is to create mortality rates based entirely on populations reporting non-binary sex/gender codes. However, because little mortality data is currently available for this population, developing a credible data set may take many years. To collect sufficient data to produce a study with full credibility may require aggregating data across many non-homogeneous data sets and disregarding other indicators of mortality experience such as industry, geography, or income levels. This presents an interesting new area of study for the actuarial profession. If an industry could be identified that has been collecting relevant data longer than others, a study could be done to develop tables for that industry that could be compared to the binary or blended mortality tables otherwise in use.

Expanding the capabilities of actuarial valuation systems to allow for more than two options regarding sex/gender will provide actuaries with additional modeling capabilities to accommodate changing data collection procedures. The actuary must use their professional judgment to determine the appropriate mortality tables (and possibly other assumptions) to apply to the non-binary group. As tables are developed and more experience is gathered for this group, expanding the tools in place to value populations outside of the current binary norm will help actuaries to evaluate the implications of future anticipated data reporting trends and associated expected actuarial valuation challenges.

In addition to considering how *sex/gender expansive data* may influence assumption selection (and the documentation of those assumptions), actuaries may want to incorporate other changes to those parts of their report that discuss *sex* or *gender*. Careful consideration should be given to appropriate wording when communicating assumptions regarding *sex/gender expansive data*, particularly if not conforming to the typical binary male or female options. Actuaries could avoid references to spouses as an “opposite” sex/

gender from the participant/member and instead could use specific language as to what is assumed—for example, *X% of male participants are assumed to have a female spouse who is Y years younger than the participant.*

Conclusion

This issue brief is intended to present a broad overview of non-binary sex/gender data challenges to initiate discussion among pension actuaries. The main challenges related to *sex/gender expansive data*, as discussed, include the development of effective data collection methods, appropriate actuarial assumptions, accurate reflection in plan liabilities, thoughtful documentation of assumptions within statements of actuarial opinion, and finally, potential future solutions to the collection and use of this data.

It is expected that resources, as well as actuarial practices, will continue to evolve in response to changes in sex/gender data collection and reporting. The Pension Committee, Multiemployer Plans Committee, and Public Plans Committee of the American Academy of Actuaries welcome continued discussion, idea sharing, and research related to this topic (contact pensionanalyst@actuary.org).

APPENDIX

Select Definitions from the National Institutes of Health¹¹

Agender: (pronounced ā-’jen-dər) Refers to a person who does not identify with or experience any gender. Agender is different from nonbinary (see Nonbinary) because many nonbinary people do experience gender.

Assigned Sex: The sex assigned to an infant at birth based on the child’s visible sex organs, including genitalia and other physical characteristics.

Bigender: While gender is now widely understood to be a spectrum and not on a binary, this is a term used to identify a person whose gender identity encompasses two genders, (often man and woman, but not exclusively) or is moving between two genders. More commonly used terms include genderfluid (see Genderfluid) or genderqueer (see Genderqueer), which better reflect the spectrum of all genders.

Biological Sex: Refers to anatomical, physiological, genetic, or physical attributes that determine if a person is male, female, or intersex. These include both primary and secondary sex characteristics, including genitalia, gonads, hormone levels, hormone receptors, chromosomes, and genes. Often also referred to as “sex,” “physical sex,” “anatomical sex,” or specifically as “sex assigned at birth.” Biological sex is often conflated or interchanged with gender, which is more societal than biological, and involves personal identity factors.

Gender: Broadly, gender is a set of socially constructed roles, behaviors, activities, and attributes that a given society considers appropriate (see Social Construction Theory¹¹).

Gender Expansive: An umbrella term sometimes used to describe people who expand notions of gender expression and identity beyond perceived or expected societal gender norms. Some gender-expansive individuals identify as a mix of genders, some identify more binarily as a man or a woman, and some identify as no gender (see Agender). Gender-expansive people might feel that they exist among genders, as on a spectrum, or beyond the notion of the man/woman binary paradigm. Sometimes gender-expansive people use gender-neutral pronouns (see Pronouns¹¹), but people can exist as any gender while using any pronouns. They may or may not be comfortable with their bodies as they are, regardless of how they express their gender.

¹¹ Additional terminology and definitions can be found at: National Institutes of Health: Office of Equity, Diversity, and Inclusion, “[Terms and Definitions](#)”; accessed August 9, 2023.

Gender Expression: The manner in which a person communicates about gender to others through external means such as clothing, appearance, or mannerisms. This communication may be conscious or subconscious and may or may not reflect their gender identity or sexual orientation. While most people’s understandings of gender expressions relate to masculinity and femininity, there are countless combinations that may incorporate both masculine and feminine expressions—or neither—through androgynous expressions. An individual’s gender expression does not automatically imply one’s gender identity. All people have gender expressions.

Gender Identity: A person’s deeply held core sense of self in relation to gender (see Gender). Gender identity does not always correspond to biological sex. People become aware of their gender identity at many different stages of life, from as early as 18 months and into adulthood. According to Gender Spectrum, one study showed that “...*the average age of self-realization for the child that they were transgender or non-binary was 7.9 years old, but the average age when they disclosed their understanding of their gender was 15.5 years old.*” Gender identity is a separate concept from sexuality (see Sexual Orientation¹¹) and gender expression (see Gender Expression).

Genderfluid: Describes a person who does not consistently adhere to one fixed gender and who may move among genders.

Genderqueer: Refers to individuals who blur preconceived boundaries of gender in relation to the gender binary (See Gender Binary¹¹); they can also reject commonly held ideas of static gender identities. Sometimes used as an umbrella term in much the same way that the term queer is used, but only refers to gender, and thus should only be used when self-identifying or quoting someone who uses the term genderqueer for themselves.

Intersex: Intersex is the current term used to refer to people who are biologically between the medically expected definitions of male and female. This can be through variations in hormones, chromosomes, internal or external genitalia, or any combination of any or all primary and/or secondary sex characteristics. While many intersex people are noticed as intersex at birth, many are not. As intersex is about biological sex, it is distinct from gender identity and sexual orientation. An intersex person can be of any gender identity and can also be of any sexual orientation and any romantic orientation. The Intersex Society of North America opposes the practice of genital mutilation on infants and children who are intersex. Formerly, the medical terms hermaphrodite and pseudohermaphrodite were used; these terms are now considered neither acceptable nor scientifically accurate.

Nonbinary: Refers to people who do not subscribe to the gender binary. They might exist between or beyond the man-woman binary. Some use the term exclusively, while others may use it interchangeably with terms like genderqueer (see Genderqueer), genderfluid (see Genderfluid), gender nonconforming (see Gender Nonconforming¹¹), gender diverse, or gender expansive. It can also be combined with other descriptors e.g. nonbinary woman or transmasculine nonbinary. Language is imperfect, so it's important to trust and respect the words that nonbinary people use to describe their genders and experiences. Nonbinary people may understand their identity as falling under the transgender umbrella, and may thus be transgender as well. Sometimes abbreviated as NB or Enby, the term NB has historically been used to mean non-Black, so those referring to nonbinary people should avoid using NB.

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