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Quality Considerations for EIGE's Gender Statistics Database

Note by European Institute for Gender Equality*

Abstract

> While much progress has been made to reach equality between women and men in the European Union (EU), remaining gender gaps still need to be addressed. Moreover and owing to international conventions, gender sensitive policies are of prominent importance. The adoption of a gender mainstreaming approach is therefore crucial to reach gender equality. The follow-up of these goals is impossible without the evidences provided by statistics. This leads to an increase demand for gender statistics and need for additional guidance to improve the availability of data throughout national and international statistical sources.
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> This paper reflects recent developments on Quality Considerations for the Gender Statistics Database of the European Institute for Gender Equality (EIGE). It presents the latest technological developments, the latest updates to statistical metadata system, and the latest conceptual approaches to producing equality data in general and gender equality data in particular. This includes improving the collection and use of equality data and a key area of focus on intersectional inequalities.
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> Together with its Database, EIGE also developed quality considerations applied to gender statistics included in the tool. Those considerations provide clarity on the limitations of the data available and recommendations on how to produce data in a gender-sensitive way, avoiding common pitfalls that lead to gender biases.

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I.   Gender statistics

1.   Gender statistics is an area that intersects traditional fields of statistics to identify, produce and disseminate statistical evidence reflecting the lives of women and men, related directly to the relevant policy issues. Used for understanding the roles and realities of women and men in society, the economy and/or the family, gender statistics reflect the underlying causes and consequences of gender inequality and are necessary to formulate and monitor policies and action plans, observe trends in gender equality, and inform the public.

2.   Following UN's Gender Statistics Manual (UNSD, 2013), gender statistics are 'statistics that adequately reflect differences and inequalities in the situation of women and men in all areas of life'. According to the same source, in addition to being 'collected and presented disaggregated by sex as a primary and overall classification' and 'reflecting gender issues', gender statistics data must also be 'based on concepts and definitions that adequately reflect the diversity of women and men and capture all aspects of their lives' and be collected using methods that 'take into account stereotypes and social and cultural factors that may induce gender biases in the data'.

3.   This definition of gender statistics is in line with the BPfA adopted at the UN's Fourth World Conference on Women (Beijing, China, 1995), an agenda for women's empowerment, which asked nations to 'ensure that statistics related to individuals are collected, compiled, analysed and presented by sex and age and reflect problems, issues and questions related to women and men in society (UN, 1995). According to Hedman et al. (1996), gender statistics not only cover the concept of statistics on women and men but also require that data are produced and presented to reflect women's and men's conditions, roles and contributions in society, and their needs and specific problems. This concept is much wider than sex-disaggregated data, which are data collected and tabulated separately for women and men without guarantees of reflecting gender roles and social inequalities (UNSD, 2013).

4.   The United Nations Economic Commission for Europe (UNECE) gender statistics guide (UNECE and World Bank Institute, 2010) illustrates the need to go beyond disaggregation by sex in the context of gender-based violence, where data on victims of homicide disaggregated by sex have some value, but additional information is needed to understand whether a killing is gender related. For instance, information on the perpetrator and the perpetrator's relationship to the victim is also needed in order to know whether the homicide was committed in a family context or by someone unknown to the victim.

5.   Moreover, it is worth highlighting that gender statistics do not need to consist solely of sex-disaggregated data. In fact, some relevant socioeconomic statistics reflect relevant gender aspects despite not being sex-disaggregated. For instance, national budgets or national accounts statistics produce different impacts and consequences for the lives of women and men and could be very useful when considering a component on gender budgeting or on planning infrastructure development.

6.   Gender statistics play a key role in the improvement of national statistical systems. The inclusion of the gender perspective throughout statistical work implies a deep review of definitions and methods of data collection, analysis and dissemination taking into account gender challenges and gender biases in all statistical activities.

II.   Sex as a key variable on Gender Statistics

7.   As discussed in the previous sections, most gender statistics are disaggregated by the variable sex rather than gender. Sex is also the key breakdown variable in EIGE's Gender statistics database. This choice might seem internally inconsistent at first: shouldn't gender statistics use the variable gender as its primary classification variable? There have, in fact, been calls and attempts to discard the biological variable sex in favour of the sociological variable gender identity both in statistics and law and on both sides of the Atlantic ocean (Burt, 2020; Sullivan, 2021). And yet, international best practices continue to insist on using sex as the key disaggregation variable in gender statistics (United Nations Statistical Division, 2013) and as a key disaggregation variable (in addition to gender identity) even when specifically studying transgender and other gender minority populations (The GenIUSS Group, 2014). National

statistical systems that are recording data on gender minorities (such as the Office of National Statistics (UK), Statistics Canada, Statistics New Zealand, and the Australian Bureau of Statistics) are also gravitating toward the two-step process advocated by The GenIUSS Group, whereby biological sex and gender identity are recorded in separate questions. Furthermore, sex is one of the six grounds for discrimination that the European Union has explicitly committed to eliminate, as stated in Article 10 of the Treaty for the Functioning of the European Union: "In defining and implementing its policies and activities, the Union shall aim to combat discrimination based on sex, racial or ethnic origin, religion or belief, disability, age or sexual orientation." Consequently, sex is one of the key variables in Eurostat's equality data collection (European Commission, 2016), and data in Eurostat's online database are disaggregated by sex whenever possible.

8.   In this section, we briefly review the reasons for the continued relevance of recording biological sex and using biological sex as the key disaggregation variable in gender statistics.

9.   Sex is, in and of itself, an important determinant of the inequalities between women and men and girls and boys. Some of these inequalities may, in fact, be the direct of result of biological differences (such as differences in body size, the unique capacity of women to give birth to children, and genetically or physiologically determined differences in the propensities for various diseases). But even where gender inequalities are the result of the so-cial norms and stereotypes embodied in society's concept of gender, these norms and stereotypes are applied to an individual from childhood based on the individual's sex, as perceived by parents, educators, and society at large. The chain of events leading to inequality is thus set in motion from the moment a new-born child's sex is observed and recorded at birth, long before a conscious gender identity is formed.

10. It is impossible to determine whether sex or lived gender play a more role in determining life outcomes/ gender inequality without recording both variables.

11. Questions on gender identity typically have higher non-response rates than questions about sex. Recording only gender identity and not sex therefore results in reduced effective sample sizes for gender equality research.

12. Conflating sex and gender can lead to misclassification errors that lead to large distortive effects in the analysis of phenomena where large imbalances between women and men exist. For example, men vastly outnumber women among perpetrators of violent crimes. Even if a small number of the male perpetrators are misclassified as women, the percentage of women among perpetrators can change greatly (Fair Play for Women, 2021). Furthermore, even though the proportion of the trans population is small in the general population, it is likely to be higher in specific subpopulations, and it is impossible to predict how this proportion will change over time. It is impossible to guarantee that the misclassification error stemming from confusing sex and gender will not have a major distortive effect on the measurement of imbalances between women and men in the future, especially in select subpopulations.

13. Secondary sources of gender statistics, such as EIGE's Gender statistics database, must rely on the primary sources, which overwhelmingly provide data on sex rather than gender. Even though sex coincides with gender identity for the vast majority of people, it is still dangerous to automatically map the sex variable provided by a source to a gender identity variable in a report or database: the exact extent of the misclassification error is un-known and may be varying among different subpopulations and over time.

14. Reporting the variable sex allows for continuity with historical data, which is necessary for the key data quality dimension of comparability (see Section 2, 'The general framework').

15. Sex is directly referenced as a key protected characteristic for eliminating discrimination in Article 10 of the Treaty for the Functioning of the European Union. It is therefore a duty of European providers of equality statis-tics to provide sex-disaggregated data for monitoring purposes.

III.   Mainstreaming gender into statistics

16. The overarching general principle in the production of high-quality gender-sensitive data is that of gender mainstreaming. At the highest level of generality, the European Commission's

Strategic engagement for gender equality 2020-2025 defines gender mainstreaming as "the inclusion of a gender perspective in all EU policies and processes"[1].

17. In the context of statistics, we can apply the same definition, with "data production" in the place "EU intervention". More specifically, as the UNECE guide (UNECE and World Bank Institute, 2010) explains, "Mainstreaming a gender perspective in statistics means that gender issues and gender-based biases are systematically taken into account in the production of all official statistics and at all stages of data production." Moreover, gender mainstreaming also requires that women and men be equally involved in the development and implementation of statistical strategies and work plans, so that indicators and data are gender-sensitive and the priorities and needs of both genders are taken into account within the statistical data collection process.

18. As recommended in the Beijing Platform for Action[2], the coverage of gender issues by official statistical systems and the adequacy of such systems should be regularly reviewed, updated and improved. The review should make clear whether relevant gender issues, as defined by major data users, are covered by existing data collection programmes and made available to users.

19. In the early stages of any data collection project, appropriate choice of definitions, classification systems, and research methods is of paramount importance. When analysing the existing definitions, classification systems, and research methods from a gender perspective, one must consider whether they properly ensure coherence and comparability, whether they are free from gender biases, and whether they are sufficiently fine-tuned to detect hidden inequalities. When inadequacies are detected, the existing definitions, classification systems, and research methods should be modified accordingly.

20. To ensure coherence and comparability of data across countries, it is very important that the same definitions and classification systems are used across all countries. This is particularly problematic when statistical evidence and analysis is done on the basis of administrative data, as the definitions used by national administrations are often far from being harmonised at the EU level. Crime statistics (necessary for administrative data on gender-based violence) are an extreme example of data where lack of international harmonisation of definitions severely limits comparability and coherence of data.

21. The use of definitions that are inappropriate for gender-sensitive statistics may introduce a gender bias that compromises accuracy and reliability for gender-related questions. For example, the standard definition of unemployment, which requires someone to be both actively seeking work and available to work in two weeks may lead to underestimating unemployment among women, who may have been forced to leave the labour market temporarily and would now like to resume working, but are unable to launch a full job search due to care duties and might not be able to start work immediately due to the need to hire care services before starting employment. Similarly, when unpaid work is not included in the definition of economic output, the contribution of women may be underestimated. Classification systems are also important. For example, when considering horizontal segregation in education, the traditional grouping of "Social sciences, business, and law" obscures massive gender differences within this catch-all field, with law, business administration and mathematical economics being heavily dominated by men and areas such as sociology and psychology equally dominated by women.

22. Questions pertaining to labour market participation are particularly important from a gender perspective, as this is an area where large gender differences still prevail. When classifying the reasons for part-time employment and inactivity, it is important to make sufficiently fine distinctions, such as distinguishing care for children from care for adult family members and care for the home. It is even more important to distinguish disparities in choices due to differences in preferences from disparities in choices due to differences in opportunities.

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[1] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions „A Union of Equality: Gender Equality Strategy 2020-2025". Retrieved from
IMMC.COM%282020%29152%20final.ENG.xhtml.1_EN_ACT_part1_v11.docx (europa.eu)
[2] paragraph 207 (b) of the Beijing Platform for Action (United Nations, 1996)

IV. Intersecting Inequalities

23. When producing, analysing, and reporting equality data in general and gender equality data in particular, it is important to keep in mind that various grounds for discrimination can coexist and interact. As a result, the full picture cannot be assessed by looking at any single one of them in isolation. Because inequality between women and men is more severe within specific groups of the population (such as immigrants, the undereducated, women of childbearing age, and the elderly), gender equality data may need to be disaggregated not only by sex but also by such additional breakdown variables as country of birth, educational achievement, and age.

24. The analysis of the interplay between sex and gender, on the one hand, and other personal characteristics and grounds for discrimination, on the other hand, is known as intersectionality. In its online Glossary and thesaurus, EIGE defines intersectionality as the "[a]nalytical tool for studying, understanding and responding to the ways in which sex and gender intersect with other personal characteristics/identities, and how these intersections contribute to unique experiences of discrimination."[3]

25. The underlying phenomenon is known as intersecting (or intersectional) inequalities. What distinguishes a pair of intersecting inequalities from two separate inequalities that simply coexist is their interaction. For example, for sex and age to be regarded as intersecting inequalities with respect to wages, the gender pay gap (i.e., the difference between women's and men's wages) must vary by age group; it is not sufficient that there exist both a gender pay gap and an age pay gap.[4]

26. It is precisely the interaction between the various characteristics/ grounds for discrimination that makes them inseparable and therefore calls for data to be simultaneously broken down by both characteristics (for example, when sex and age interact, data should be reported not only separately for women and men and for different age groups, but for women and men within each age group).

27. As an example of a stark case of intersecting inequalities, consider the interplay between sex and age in determining the risk of poverty and social exclusion, as shown in Table 1.[5]

Table 1. Risk of poverty or social exclusion (%) by age and sex in EU-27, 2021

Age\Sex	*TOTAL*	Men	Women	DIFFERENCE (Women-Men)
TOTAL (16 years or over)	*21.2*	*20.0*	*22.4*	*2.4*
16 to 64 years	*21.8*	21.0	22.5	*1.5*
65 years or over	*19.5*	16.2	22.1	*5.9*

28. Careful examination of the table shows that it is precisely the interaction between sex and age (and not the separate effects of sex and age in their own right) that stands out as the most prominent feature of the data. First, observe that there does exist a moderate difference between women and men (with women's overall risk of poverty and social exclusion (22.4%) being 2.4 percentage points higher than men's (20.0%)). There is also a similarly moderate difference between younger and older individuals (with the risk of those aged 65 or over (19.5%) being 2.3 percentage points lower than the risk of those aged 16 to 64 (21.8%)). However, the truly salient difference is the increase in the gender gap with age: In the under-

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[3] https://eige.europa.eu/thesaurus/terms/1263

[4] Readers familiar with regression analysis in statistics should think of interesting inequalities between sex (s) and another characteristic (c) as the *interaction term* between sex and that other characteristic ($s*c$). An intersecting inequality is present when the coefficient on this interaction term is significant. Significant coefficients on the individual terms (s and c) by themselves do not indicate intersecting inequalities.

[5] "Persons at risk of poverty or social exclusion by age and sex - current (EU 2030) definition". Downloaded from EIGE's Gender Statis-tics Database at https://eige.europa.eu/gender-statistics/dgs/indicator/ta_livcond_povsocex_inter_age__ilc_peps01n on April 4, 2023. Original source: Eurostat's online database, dataset ilc_peps01n.

65 group, the difference be-tween women's and men's risks of poverty and social exclusion is only 1.5 percentage points, while in the 65-and-over group, the difference increases to a massive 5.9 percentage points. Thus, in this instance, inter-sectionality between sex and age is more prominent then either of the separate inequalities (by sex and by age) on its own. The goal of intersectional analysis is precisely to detect instances like this. To this end, it is crucial to include simultaneous breakdowns by the affected variables whenever the presence of intersecting inequalities is suspected.

V.   EIGE's Gender Statistics Database

29. EIGE's Gender Statistics Database is a collection of statistical data and associated metadata pertaining specifically to the area of gender statistics. The logical structure of the Database is based on the SDMX (Statistical Data and Metadata Exchange) standard, which is an international standard for the organisation, production, and exchange of statistical information (data and metadata) among various data providers and users.[6]

30. The basic (lowest-level) organising elements ("building blocks") of the Database are datasets (DS). While in general the term "dataset" tends to be used in a number of different meanings throughout statistics, EIGE follows SDMX's and Eurostat's convention in defining a dataset as a set of observations that all meet the following two conditions:

    i.   they measure the same underlying concept (such as "employment", "employment rate", "level of education", "life expectancy", "satisfaction with life", etc.), AND

    ii. they are defined in terms of the same criteria (to be defined formally below, but loosely meaning the same breakdown variables, such as "sex", "age", "educational achievement", etc.).

31. According to current good practices, data providers use metadata structures to document data quality assessment. In particular, the current standard in the European Statistical System (ESS) is the Euro-SDMX metadata structure (ESMS), supplemented when necessary by the ESS Standard for Quality Reports Structure (ESQRS). The Single Integrated Metadata Structure (SIMS) combines these two structures. While the SIMS was developed already in 2012–2013, Eurostat is still in the process of transitioning to this standard, with its online database containing metadata in both ESMS and SIMS formats. For the time being, EIGE continues to use the ESMS as the standard for metadata (including quality reporting) in its database. Metadata provided in SIMS can be read by EIGE's metadata load utilities, but only the ESMS subset of the provided SIMS metadata will be displayed to users of the database.

32. The Database contains solely microdata[7]. However, most of these macrodata have been produced from microdata, either by the original or immediate source or by EIGE and its contractors. Depending on the way the data have been processed, we can distinguish three types of data:

    i.   data provided as macrodata by the source and used in the Database as-is (such as the employment rates),

    ii. data computed by EIGE from other data provided as macrodata by the source (such as the gender pay gap on monthly wages, computed from levels of monthly wages that are obtained as country-level aggregates from Eurostat),

    iii. data computed by EIGE from microdata (such as data on attitudes and opinions, computed from Eurobarometer microdata).

33. Datasets are displayed to users with the help of dataset views (DSVs), which define how the dataset will be displayed to the user. The DSVs define data visualizations (line charts, maps, and bar charts) and customizable data tables. A data table is a two-dimensional layout

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[6] http://ec.europa.eu/eurostat/web/sdmx-infospace/welcome

[7] Macrodata are statistical data observed at the level of countries or other geographical regions. This includes both data that are directly measured at the country level (such as GDP (Gross Domestic Product)) and aggregates or public opinion as gauged by the Eurobarometer survey), while microdata are statistical data observed at the level of individuals, households, or firms (such as data from population surveys). (country-level statistics) of microdata (such as unemployment rate estimated by the EU Labour Force Survey (LFS)

presenting all or part of a dataset to the user. To define a table, one must specify one or more criteria as row dimensions, one or more criteria as column dimensions. The value displayed in any given cell is the observation pertaining to the categories defining the corresponding row and column.

34. Dataset views are arranged in a tree structure, where they are grouped into several levels of themes (branches of the tree). The highest level themes are known as entry points. In principle, any given dataset may have multiple associated DSVs linking this DS to a number of different themes, although this is uncommon; the current organizing principles of the database aim to avoid redundancies in the tree.

35. Currently, the Database stores around 100 000 sex-disaggregated data observations from 2005 onwards. Nevertheless, if the original source provides data before 2005, this is still reported in the Database. Some series, such as employment, go back to the 1980s. The considered statistical data and metadata are extracted from international official data sources which provide data for the EU 27 Member States and countries included in the Instrument for Pre-Accession Assistance.

36. Given its large scope, the browsing tree structure allows users to easily navigate and access indicators through the eight entry points:

     i. EIGE's surveys: presents the results from most recent surveys carried out by EIGE such as the survey on gender equality and socio-economic consequence of Covid-19 and the survey of platform workers;

     ii. EU policies and strategies: reflecting the EU's political priorities for gender equality;

     iii. Thematic areas: structured following policies and actions on gender equality that help to monitor progress towards equality between women and men in all areas of life;

     iv. Beijing Platform for Action (BPfA): monitoring progress of women's empowerment under the BPfA critical areas of concern;

     v. Gender Equality Index: presenting all data under six core domains (work, money, knowledge, time, power and health) and two additional domains (intersectionality and violence);

     vi. Women and men in decision making: regularly collected data on the share of women and men in key decision-making positions in different policy areas;

     vii. Gender-based violence: supporting institutions and experts engaged in preventing and combating gender-based violence;

     viii. Gender Mainstreaming: displaying Contextual indicators that capture the institutional context within which a gender mainstreaming strategy can realise and Gender equality in policies and decision-making indicators, which capture the extent to which women and men are equally represented both as policy beneficiaries and in the decision-making process.

37. The Database is a structured guide for accessing gender statistics scattered across different data providers. Thus, it can serve as a tool to support the development of evidence-based gender-sensitive policies. It fills a gap since data are not always easily accessible and are not presented in a comparative perspective (between countries and also over time).

38. At the outset of its publication, the statistics provided from prominent external data providers such as Eurostat were the main component of the Database. This landscape has been changing quite substantially. Meaning that EIGE's statistical data collection and production is becoming a major piece of the Database such as the agency's unique data on Women and Men in decision-making as well as relevant indicator sets on Intimate Partner Violence and Female Genital Mutilation.

VI.   Concluding Points

39. EIGE has worked toward closing many of gender statistics gaps and highlighting the value of mainstreaming gender issues into statistical data production processes.

40. Gender statistics play a key role in the improvement of the national statistical systems. The inclusion of the gender perspective throughout statistical work implies a deep review of definitions and methods of data collection, analysis and dissemination taking into account gender challenges and gender biases in all statistical activities.

41. The way we think and speak about gender has changed radically over the last decades. Less than a century ago, dichotomous sex immutably assigned by nature was seen as the only relevant category. Only in the mid-twentieth century was the term gender introduced reflecting the complexity of social relations between women and men, highlighting social norms, stereotypes, and power structures.

42. By increasing awareness of the important role that social factors play in gender dynamics, this shift in social thought has helped to expose various gender inequalities and to make significant progress toward eliminating them. Multiple discriminations and the way sex and gender intersect with other personal characteristics/identities leads to the need of more valid and accurate statistics and sources of statistical data. Indeed, the very existence of EIGE and its Gender Statistics Database can be seen as a product of this process.

43. Against this background, EIGE's gender statistics database has been kept as an up-to-date, useful and relevant tool for its users and main stakeholders, through a constant dialogue and interaction with: users in order to understand and better address their needs; and statistical producers aiming to increase availability of gender sensitive data and improve quality of statistics.

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