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Deliverable 11.3

VULNERABLE GROUPS IN EUROPEAN DATA SETS

An inventory of the measurement of vulnerable groups in 27 data sets covering the European area

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Abstract

This working paper explores the extent to which different vulnerable groups in European labour markets are measured across 24 (27) data sets covering the European area. It studies the measurement of nine actor characteristics that have been associated with employment vulnerability: age, gender, sexual orientation, single parenthood, disability, religion, ethnicity, nationality and migration status. The inventory identified a number of measures that are relatively straightforward in regard to harmonisation. These include age groups and gender (binary), as well as migration status and nationality on higher levels of aggregation. A second set of vulnerable groups is identified indirectly, through questions on household composition and household grids. These are sexual orientation and single parenthood. Disability status has proven hard to harmonise, because the selected surveys operationalised the concept in different ways. There is relatively little data on respondents' ethnicity, nationality, migration status and religion. These variables are often excluded from studies, or included only at very high levels of aggregation. Finally, the inventory revealed three data gaps. There are no surveys in the European data infrastructure that measure levels of citizenship rights or non-binary gender identity and the identification of sexual minorities respondents beyond co-habiting same-sex couples is impossible in most surveys.

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1. Introduction

1.1 Labour market inclusion and exclusion in Europe

In recent decades, the issue of labour market exclusion has become a growing concern for individuals, political leaders, and academics for a variety of reasons. The labour market is generally perceived as a safeguard against poverty not only through the provision of income but also as a source of self-worth and important networks and social ties (OECD, 2019). Therefore, having access to continuous work might be crucial as it may reverse an otherwise downward spiral for particular groups in society. However, in recent years, European labour markets have faced new sets of simultaneous challenges, such as migration, digitalisation, and the demographic change of societies accompanied with the emergence of new and the disappearance of traditional areas and types of employment. While such changes might be a bonus for some workers equipped with high skills and in expanding occupations, they can also contribute to the labour market exclusion of groups with low or outdated skills who struggle to adjust to such pressures. Given these mechanisms, it is also not surprising that labour market exclusion substantially contributes to a growing income inequality (Thévenot, 2017).

The European Union has paid - since its inception - considerable attention to improving employment and working conditions as one of its key policy goals. Creating more jobs, increasing the living standard, as well as ensuring smart, sustainable and inclusive growth are main objectives of the EU 2020 Strategy (European Commission, 2010) and more recently the European Pillar for Social Rights (European Commission, 2017). While the former formulates clear targets (such as that 75% of the 20-64 year-old population should be employed by 2020) to achieve a more inclusive labour market until 2020, the latter defines twenty key principles including equal labour market access, fair working conditions and social protection and inclusion (for instance for people with disabilities). However, to reach specified targets, and for work and employment to be sustainable for all, steps need to be taken to avoid workers experiencing multiple disadvantages in terms of working conditions and job quality. This is a big challenge for European labour markets given the need to combine greater flexibility with maximum security for all, in particular against the background that advances in the reduction of vulnerability remain small (Eurofound, 2015). And also at the international level, the OECD emphasised in their current Employment Outlook 2019 that 'connecting those at risk of being left behind with better job prospects should be the policy compass to a more inclusive, fairer and sustainable economy and society' (OECD, 2019, p. 14).

1.2 Definition of vulnerability and vulnerable groups in the context of employment

In the context of the above described changes and trends in society at large and in the labour market in particular, it seems important to clarify the concept of *vulnerability*. In general, vulnerability is a complex social phenomenon that both influences, and is influenced by, a range of processes and risk factors. It is rather fluid, with individuals being more or less at risk of being in a vulnerable situation depending on their exposure to a range of personal and external factors that can change throughout the life-course. It is extremely challenging to measure the economic, psychological, and social dimension of vulnerability, but a common underlying principle is that it refers to a risk chain with the following components: (a) risk or risky events, (b) options for managing risk, or the risk responses and, (c) outcome in terms of welfare loss (World Bank, 2001). Therefore, it is not surprising that in the social sciences a common definition does not exist. Vulnerability can be broadly described as 'the

capacity to be wounded' (Patterson, 2013, p. 1). It implies a certain 'lack of resources' or 'social weakness' (Hanappi et al., 2015, p. 2). Vulnerability itself is not inevitably connected to manifest consequences but often remains a latent condition until critical events reveal the limits of available resources (ibid.). As such it combines difficulty for individuals to deal with risks or cope with the losses and costs associated with the occurrence of risky events or situations (Zimmermann, 2017). In this respect, vulnerable individuals can be seen as those with limited access to a set of resources and opportunities and therefore in need of protection and care (Misztal, 2011).

In the context of work, it is often referred to as *employment vulnerability* which can be broadly referred to as the risk of working under inadequate conditions, or lacking decent employment (Sparreboom & de Gier, 2008). In the UK, the TUC commission on vulnerable employment defined it in their report as 'precarious work that places people at risk of continuous poverty and injustices resulting in imbalance of power in the employer-worker relationship' (TUC commission, 2008, p. 12). Also for the concept of employment vulnerability, however, a commonly agreed definition in the social sciences is lacking. The term is often used interchangeably with precariousness (Burgess et al., 2013; Pollert & Charlwood, 2009). Even though the two concepts may be connected, they are not identical. Precarious work implies work features that are already established as risky for employees (like atypical contacts, etc.) and with certain negative outcomes (like welfare loss). Vulnerability implies a risk that has not yet materialised and which is by extension not directly observable (Green & Seghir, 2017).

A further challenge with respect to vulnerability and employment vulnerability is the question to which level it applies. To individuals and/or groups (with particular characteristics which increases the vulnerability risk), a situation (in which a person/group finds themselves which increase the vulnerability risk, like for instance precarious work), or whether this is a more universal concept which applies to all people as human beings, as everybody could become at one point in time 'vulnerable' and depending upon the state for our well-being (Fineman, 2008). While it is difficult to strictly separate those different levels analytically, it is important to stress the fact that vulnerability is not only multidimensional but also encompasses a multi-level structure.

For the purposes of this working paper, we want to focus on the individual level and particular characteristics of individuals which put them at a higher risk of employment vulnerability. As mentioned already at the beginning, due to the severe changes in the labour market, increased attention is being paid to vulnerable workers who are at risk of negative outcomes such as persistent poverty, labour market exclusion and limited participation in community life. Such groups may lack the skills and education to function effectively in the fast changing work environment and may be permanently and involuntarily trapped in low-quality precarious jobs. However, in this context, the identification of those people is challenging. In a recent document on inclusive labour markets, the Council of the European Union (2019, p. 3), however, provided guidance by making a clarifying statement regarding the identification of vulnerable groups in the labour market.

> *'Some specific groups of people continue to be in a vulnerable position in the labour market. There are particular challenges related to the participation and inclusion of, for example, persons with disabilities, older workers, low-skilled and long-term unemployed people, young people, especially including those not in employment, education or training (NEETs), people with caring responsibilities, Roma and people with a migrant background, in particular legally residing third country nationals. There are also particular challenges related to the persisting gender gap in the labour market and the difficulties faced by vulnerable people living in rural areas.'*

Following the above list of identified vulnerable groups in employment, we focus on nine vulnerable groups in this report: age, gender, sexual orientation, single parenthood, disability, religion, ethnicity, nationality and migration status (see Section 3) which can be seen a reoccurring groups – in political reports as well as scientific articles.

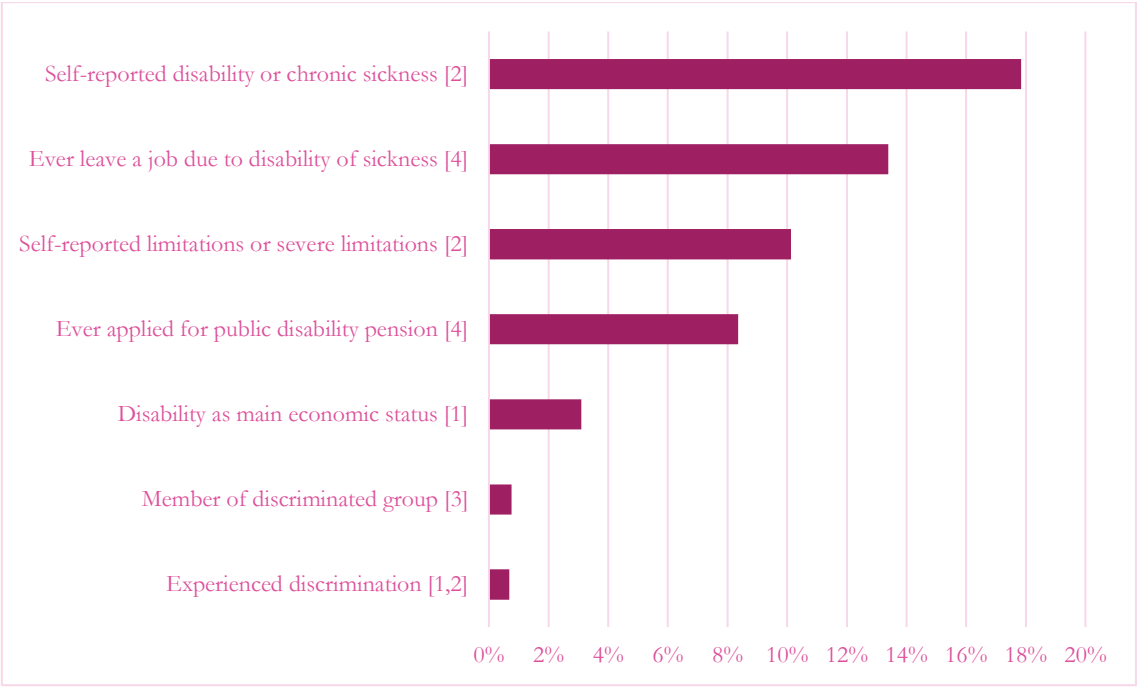
For those groups, plenty of research has demonstrated that they face severe labour market challenges with serious and often long-lasting consequences. For instance, Europe's ageing population

raises many challenges for policymakers in relation to employment, working conditions, living standards and welfare. It has led to concerns over the sustainability of pension systems and the supply of labour (Eurofound, 2017). With respect to gender inequalities, research has constantly shown the existence of the gender wage gap (Bishu & Alkadry, 2017; Triventi, 2013; Weichselbaumer & Winter-Ebner, 2005) and that women have fewer career chances and worse working conditions (Booth, 2006; Young, 2010) and are exposed to various forms of workplace harassment (Stainback et al., 2011). With respect to sexual orientation, extensive evidence exists that sexual minorities face various forms of discrimination in the workplace (OECD, 2019b, Eurofound, 2016; Valfort, 2017; Fric, 2017). Single parenthood has also become a major concern for politicians in recent years, as single–parent families, the majority of whom are headed by women (Maldonado & Nieuwenhuis, 2015), face greater risks of poverty, material deprivation, and other forms of impaired well-being (such as poor self-reported health, less work-family balance among working single parents, and impaired emotional well-being and cognitive development of children growing up with a single parent), compared to various other common types of families (Gornick & Jäntti, 2010; Brady & Burroway, 2012). Disabled persons have been shown to suffer from both employment and wage gaps, some of which have been clearly linked to labour market discrimination (Jones, 2008; Kruse et al., 2018; Mann & Wittenburg, 2015). And finally, there is a substantial amount of research showing that belonging to an ethnic or religious minority as well as to the non-native population can lead to labour market disadvantages and even discrimination across Europe (DiStatiso, 2019; Kogan, 2007; Lancee, 2019).

1.3 Data challenges with respect to identifying vulnerable groups

However, the focus on particular vulnerable groups in the labour market creates challenges with regard to their in-depth analysis based on quantitative data sources. A core question is whether and how these groups can be identified in cross-national European surveys, and whether the measures included in those surveys can be harmonised across them. For instance, a problem might be related to the fact that surveys do not include direct questions which would allow the identification of such groups (like in the case of sexual minorities). A further problem might be that a variety of questions might allow for the identification of a vulnerable group, but depending on which measure is used, the identified group might vary in size and other characteristics (depending on the underlying selectivity of the question). For example, in case of the disability measure (see for more detail Section 3.5) the following Figure 1 shows that identification strategies for disability status strongly affect the proportion of the respondents that will report having a disability. Just 1% of the respondents in the ESS, ISSP and EWCS report having been discriminated against based on their disability or being a member of a group that is discriminated against based on disability. About 3% of ISSP respondents report their main economic status as inactive due to a chronic illness or disability. Over 8% of SHARE respondents applied for disability pension at least once in their life time. Ten per cent of respondents in the EWCS report having a disability or chronic illness that limits or severely limits their activities. Up to 13% of SHARE respondents have ever left a job due to a disability or illness. Finally, almost 18% of respondents in the EWCS report having some kind of disability or illness that they expect to last over a year.

Figure 1. Proportion of sampled disabled workers (in %) across four surveys



Source [1] ISSP, [2] EWCS, [3] ESS, [4] SHARE unweighted

Despite the achievements of the EU and the research community in setting up comparative micro-level data sets in areas of working conditions and job quality, one important obstacle concerning most of the common European social surveys is the lack of inclusion and/or coverage of some of the above-mentioned vulnerable groups (such as disabled individuals, sexual minorities, migrants). However, in order to assist countries in setting national targets for inclusion of vulnerable groups, there is a need for more and better frameworks for cross-country data collection and usage.

1.4 Aims and structure of this working paper

Against this background, the aim of this working paper is threefold: first, it delivers a comprehensive overview of how different vulnerable groups in European labour markets are measured across 27 data sets covering the European area. Second, it provides an overview of the extent to which the identified measures can be harmonised. Third, it delivers an accompanying inventory on vulnerable groups, which can serve as an orientation point for researcher interested in studying those groups quantitatively.

The structure of the main report is as follows: in the next section we will motivate the selection of the nine vulnerable groups as well as of the 27 data sets. In Section 3 we will present how those vulnerable groups can be identified across the different databases and how they can be further harmonised. We end this working paper with a brief summary of our main findings, a discussion of the harmonisation proposals as well as some recommendations regarding the identified data gaps.

2. Selection of data sets and indicators

2.1 Selection of Indicators

In accordance with theoretical indications and previous work on vulnerability in Europe, as described in Section 1, nine vulnerable groups were identified and further explored: age, gender, sexual orientation, single parenthood, disability, religion, ethnicity, nationality and migration status (Table 1). A tenth potential source of vulnerability in the labour market, low educational achievement, was considered but excluded from this inventory. Low educational achievement can be both a source and an outcome of vulnerability. In this review, we focus on vulnerabilities that are difficult or impossible to change. Education will be considered in another inventory developed in the InGRID-2 project, which studies comparative outcome variables for specified vulnerable groups.[1]

1 Deliverable 11.4.

Table 1. List of identified vulnerable groups (and their intersections) in existing European micro data sets

Vulnerable group	Operationalisation
Age	- Measured continuously, but will be used to identify relevant vulnerable age groups: - Youth - people aged 15 - 24 - Older workers - people aged 55-64 - Elderly population - people aged 65 and over
Gender	Man/Woman
Sexual orientation*	'Which of the options best describes how you think of yourself?' - Heterosexual/Straight - Gay/Lesbian - Bisexual - Other
Single parent	- Identified through a series of questions: - Has children - Matrix: Living with one or more children - Matrix: Living with partner - How many household members - Has children and not living with a partner
Disability	Unable to work due to long-term illness or disability
Religion*	Country-specific options in the survey
Ethnicity	Ethnic group
Nationality	Country of citizenship
Migrant background	Identified through a series of questions: - Country of residence - Country of work - Country of education - Country of birth Born in the same region as the current region - if born in the country of survey - Mother born in the same country as the respondent - In which country was your mother born? - Father born in the same country as the respondent - In which country was your father born? - Year of arrival in the country of survey - Reason for coming to the country of survey - Born in the country of survey - Parents born in the same country as respondent

* Those questions have been added to the WageIndicator in the framework of the InGRID-2 project, the inclusion of those additional question will be closely monitored with respect to response and dropout rates.

2.2 Selection of data sets

In order to examine to what extent vulnerable groups can be identified in European data sets, twenty-seven data sets covering the European area were reviewed. We included cross-sectional as well as longitudinal data sets that met the following conditions:

1. Must cover multiple countries in the European area to allow for the creation of country-level indicators in the next steps of the InGRID-2 project, thus excluding single-country studies like the German Socio-Economic Panel.
2. Must measure concepts related to at least one of the selected vulnerable groups as well as core socio-demographic characteristics.
3. Must cover topics in the labour market and social realm (e.g. incomes, attitudes, trust, social well-being, working conditions) in order to be able to study the effects of membership of vulnerable groups on inclusion in societies and labour markets.
4. Must have been recently conducted and/or part of an ongoing data collection. An exception was made for the ECHP, which was terminated in 2001, because of its close relation to the ongoing EU-SILC data collection.

On the basis of these criteria, three data sets were rejected. The Programme for International Student Assessment (PISA) was excluded because of a lack of data on adult labour market performance and because the sample was not representative for parents. The European Company Survey (ECS) was rejected because it did not include a connection between the breakdown of employee categories and the breakdown of outcome categories (e.g. the survey measures the number of women in the firm and the share of employees on temporary contracts, but not the share of women on permanent and temporary contracts). The Microdata survey on Industry Wages was rejected because it did not contain individual-level data.

The remaining 24 data sets contain both pre- and post-harmonised surveys. The former are fielded in different countries using the same questionnaires and agreed protocols for sampling and interviewing modes, including surveys like the European Social Survey or the Eurostat surveys. Post-harmonisation projects harmonise data from surveys whose implementation was not, or not always coordinated. Harmonisation projects included in this study are the Luxembourg Income Study (LIS) and the Integrated European Public Microdata (IEPM). A list of all data sets that were reviewed for the inventory is included in Table 2; the accompanying inventory (excel sheet) contains a tab on metadata, which details the sampling strategies and interview modes for all surveys.

Of the 24 included surveys, 22 are probability samples (the two WIS surveys are non-probability samples). Eighteen sample respondents in private households, using different age cut-offs. The Survey on Health, Ageing, and Retirement in Europe (SHARE) samples from households with at least one person over the age of 50 and continues to follow respondents if they move into institutionalised dwellings. The Structure of Earnings Survey (SES), samples enterprises with at least 10 employees, including a proxy-sample to cover the public sector. Regarding the mode of the different surveys, nine surveys are implemented using face-to-face interviews (predominantly computer-assisted) and thirteen surveys utilise different interviewing modes in different countries. The two WIS surveys are predominantly based on online self-completion interviews.[2] An overview of all surveys' sampling frames and interview modes is provided in Appendix 1.

To avoid misunderstandings over the changing phrasing of questions or measurements items in the long-running surveys, this inventory focuses on the last available waves of the above-mentioned surveys, or the last available wave of the relevant thematic module when appropriate. Exceptions were made in two cases: we selected the 2015 wave of the ISSP instead of 2016 because the former has the theme 'work orientation', which is more fitting than 'role of the government' that was surveyed in 2016. We select the last Eurobarometer 88 covering the topic of economic conditions, which is an annually recurrent topic in the EB and therefore offers both the topical association and the opportunity to investigate trends. The LIS and IEPM include both harmonised and unharmonised variables, the latter being variables where response sets are different across countries. Only harmonised variables were included in this inventory. Variables that were only available for one country, regardless of inclusion in the harmonised variable list, were dropped from our selection.

SHARE is the most complicated survey in the overview. It is a longitudinal survey with changing regular and special modules, as well as a retrospective survey on respondents' life. We choose the last available wave because it contains both the retrospective SHARELIFE module and a condensed longitudinal questionnaire (for respondents that did not complete this module before) as well as most of the regular longitudinal modules (for respondents that completed the SHARELIFE module in wave 3). Together, these two versions of the SHARE questionnaire capture all labour market, socio-economic and socio-demographic items that SHARE employs.

2 In some countries the WageIndicator also employs face to face interviews parallel to the online self-completion.

Table 2. List of reviewed data sets

Data set	Acronym	Wave
WageIndicator Salary Survey	WIS	2017
WageIndicator Salary checker	WI-Minisurvey	2017
EU Statistics on Income and Living Conditions	EU-SILC	2016
EU Statistics on Income and Living Conditions public microdata	EU-SILC-PM	2016
EU Labour Force Survey	EU-LFS	2016
EU Labout Force Survey public microdata	EU-LFS-PM	2016
Structure of Earnings Survey	SES	2014
European Community Household Panel	ECHP	2001
Adult Education Survey	AES	2016
European Health Interview Survey	EHIS	2015
Community Statistics on Information Society	CSIS	2016
Household Budget Survey	HBS	2010
European Company Survey	ECS	Excluded
European Working Conditions Survey	EWCS	2015
European Quality of Life Survey	EQLS	2016
Integrated European Population Microdata	IEPM	2011
Industry wages	IW	Excluded
International Social Survey Programme	ISSP	2015
European Values Study	EVS	2014
World Values Survey	WVS	2016
European Social Survey	ESS	2016
Survey of Adult Skills	PIAAC	2011-2017
Programme for Interational Student Assessment	PISA	Excluded
Luxembourg Income Study	LIS	2012-2016
Generations and Gender Programme	GGP	2006-2015
Eurobarometer	EB	2017
Survey of Health, Ageing and Retirement in Europe	SHARE	2017

3. Identification of vulnerable groups in European data sets

3.1 Age

All surveys in the inventory, except the WIS Salary checker, identify at least the age of the respondent. Table 3 provides an overview of the available measures per dataset. In general, age reflects the age in years at the time of the interview; occasionally the variable is recoded into one or more sets of age brackets before being released to users. All surveys provide at least a measure of age in ten-year bands, allowing researchers to harmonise data across surveys on this level.

Additionally, three surveys introduced items that measure the extent to which respondents experience age as a relevant concept to themselves or society: the European Working Conditions Survey and International Social Survey Programme ask whether respondents have experienced any discrimination based on their age in the last 12 months; the European Quality of Life Survey asks respondents whether they believe societal tensions exist between age cohorts.

Table 1. Overview of availability of age measures in European data sets

Data set	Available measures
WageIndicator full survey	Age in years *(r)*, year of birth *(i)*
WageIndicator Salary checker	n/a
EU-SILC	Year of birth *(i)*, Age in five-year bands *(o)*
EU-SILC public microdata	Year of birth *(i)*, Age in five-year bands *(o)*
EU-LFS	Year of birth *(i)*, Age in five-year bands *(o)*
EU-LFS public microdata	Year of birth *(i)*, Age in five-year bands *(o)*
Structure of Earnings Survey	Age in ten-year bands *(o)*
ECHP	Age in years *(r)*, Year and month of birth *(i)*
Adult education survey	Year and month of birth *(i)*
European Health survey	Age in five-year bands *(o)*
Community Statistics on Information Society	Age in ten-year bands *(o)*
Household budget survey	Age in five-year bands *(o)*
European Working conditions survey	Age in years *(r)*, respondent experienced age discrimination (mentioned/not mentioned, *(n)*)
European Quality of life survey	Age in years *(r)*, Age as a source of societal tension according to the respondent (mentioned/not mentioned, *(o)*)
IEPM	Age in years *(r)*,
ISSP	Age in years *(r)*, Year of birth *(i)*, respondent experienced age discrimination (yes/no, *(n)*)
European Values Survey	Age in years *(r)*, Age in ten-year bands *(o)*, Age in three groups *(o)*
World Values Survey	Age in years *(r)*, Age in ten-year bands *(o)*, Age in three groups *(o)*
European social survey	Age in years *(r)*, Year of birth *(i)*
PIAAC survey of adult skills	Age in years *(r)*, Age in ten-year bands *(o)*
Luxembourg income study	Age in years *(r)*
Gender and generation survey	Age in years *(r)*, Year of birth *(i)*
Eurobarometer	Age in years *(r)*
SHARE	Age in each year *(r)*, Age in years at the time of interview *(r)*

Note: (R) is ratio, (O) ordinal, (I) interval, (N) nominal measurement level.

Harmonisation of data on age is relatively straightforward since measurement instruments coincide. Because the level of measurement does vary, more surveys can be harmonised into ten-year age bands than into continuous age variable. Harmonisation into higher levels of aggregation is facilitated by age bands being standardised across surveys. This is to say that the five-year age bands are generally constructed to fit into the ten-year bands (for example, 20-24 and 25-29 years olds can be aggregated to 20-29-year-olds). An exception to this rule is the PISA study, which formulates its ten-year age bands differently (between 25 and 34, etc.).

A second note of caution concerns the tails of the distribution: sampling frames regularly exclude persons under 18 or above 65 and a number of surveys will top-code the variable. It is this exclusion and grouping of respondents at old age that makes the SHARE survey hard to compare to the other 23 data sets since it samples respondents aged 50 and over.

As a result, the inventory suggests it is possible to harmonised age as a continuous variable in 19 out of 24 data sets (see Table 4). Except for SHARE, all surveys include the population from at least 18 years of age onwards, with coverage below being spotty. The lowest age cut-off is found in AES

and PIAAC, at 65 years of age. Harmonising age data into five-year or ten-year age bands brings relatively little advantage since only three data sets can be added as a result.

Table 3. Proposals for harmonisation of data on respondents' age

Ratio-level	WIS, EU-SILC, EU-LFS, ECHP, AES, EWCS, EQLS, IEPM, ISSP, EVS, WVS, ESS, PIAAC [1], LIS [2], GGP, EB, SHARE [3]
5-year age bands	All data sets above + EHIS
10-year age bands	All data sets above + SES, CSIS

[1] The continuous age variable included in PIAAC (AGE_R) has almost 30% missing values.
[2] Not all country data sets provide a continuous variable for age. Those containing intervals have been coded at the lowest level of the age band.
[3] SHARE samples the population aged 50 and over.

3.2 Gender

All surveys in the inventory identify respondents by sex. Table 5 shows that there is no variation in the way the surveys measure gender, which effectively is a measure of sex and not gender (identity). The WIS Survey has an answer category for transgender in some countries, but not in any of the EU member state. Gender is this included in all surveys and operationalised in the same way. For the purpose of harmonisation, this uniformity of measurement is helpful. On the other hand, we are forced to conclude that none of the major data infrastructures in the EU is currently equipped to study discrimination against transgender people or respondents with a non-binary sexual identity.

Table 4. Overview of availability of gender measures in European data sets

Data set	Available measures
WageIndicator full survey	Sex (woman/man)
WageIndicator Salary checker	Sex (male/female)
EU-SILC	Sex (male/female)
EU-SILC public microdata	Sex (male/female)
EU-LFS	Sex (male/female)
EU-LFS public microdata	Sex (male/female)
Structure of Earnings Survey	Sex (male/female)
ECHP	Sex (male/female/missing/not applicable)
Adult education survey	Sex (male/female)
European Health survey	Sex (male/female)
Community Statistics on Information Society	Sex (male/female/don't know, refusal)
Household budget survey	Sex (male/female/not specified)
European Working conditions survey	Sex (male/female/refusal), respondent experienced discrimination on the basis of sex (mentioned/not mentioned)
European Quality of life survey	Sex (male/female/refusal)
IEPM	Sex (male/female/unknown)
ISSP	Sex (male/female/no answer), respondent experienced discrimination on the basis of sex (mentioned/not mentioned)
European Values Survey	Sex (male/female/missing, unknown/not asked/not applicable/no answer/don't know)
World Values Survey	Sex (male/female/missing, unknown/not asked/not applicable/no answer/don't know)
European social survey	Sex (male/female/no answer), respondent experienced discrimination on the basis of sex (mentioned/not mentioned)
PIAAC survey of adult skills	Sex (male/female/valid skip/don't know/refused/not stated or inferred)
Luxembourg Income Study	Sex (male/female/missing)
Gender and generation survey	Sex (male/female/unknown)
Eurobarometer	Sex (woman/man)
SHARE	Sex (male/female)

Note: (R) is ratio, (O) ordinal, (I) interval, (N) nominal measurement level. All measures are nominal unless otherwise indicated

The only potential source of variation in the way the surveys detect respondents' gender is the interview mode: while self-completion studies allow respondents to choose, most face-to-face and telephone surveys instruct the interviewer to complete the question without asking the respondent. This is a potential source of measurement variance since interviewers are likely to assign gender on the basis of biological sex, whereas respondent might select an answer on the basis of their identity. Given the fact that all surveys force respondents to choose between binary identifications, this interview mode may affect the number of missing values or the share of respondents classified into 'other' categories where they are available.

Table 5. Proposals for the harmonisation of gender measures in European data sets

Harmonisation of gender identity measures across European data sets is thus technically straightforward, while effects of interview modes on item non-response and classification into the response category of 'other' require further study.

3.3 Sexual orientation

Sexual orientation is rarely explicitly measured, but can occasionally be inferred indirectly from household grids (combining the information of relationship status, sex of the respondent, and sex of the respondent's partner). Table 7 shows that out of the 24 surveys, eleven offer no possibility to identify respondents' sexual orientation, while in nine surveys an indirect identification via the household grid is possible. However, household grids are problematic for several reasons: they cannot identify bisexual respondents and they have been shown to underestimate the share of homosexual respondents since they do not identify homosexual couples that do not co-reside (Fischer, 2016). Moreover, on top of providing information on only a subset of LGBT (homosexuals who live in a partnership), this approach introduces sizeable household specialisation bias between same and opposite-sex couples. Furthermore, it has been documented that this way of classifying same-sex couples can lead to measurement error (Fischer, 2016; DeMaio & Bates, 2013). While a measurement error (such as recording one partner's gender wrong and hence misclassifying the couple) might be less problematic in a numerically big group, it can cause distorted findings in the numerically small group (Banens and Le Penven, 2016; Regnier-Loilier, 2018).

The Generations and Gender Programme asks respondents who do not live with their partner about the sex of the non-resident partner (to complement information on the sex of the co-resident spouse collected through the household grid). Secondly, the GGP includes a question asking whether the respondent was in same-sex relationships at any time in the last three years, which is asked to respondents who reported having a new partner in that time frame. In the context of the InGRID-2 project, a pilot question about respondents' sexual orientation the WIS Survey was included in a number of countries and will be further examined. A potential advantage of a (volunteer) web survey might be that the web mode foster participants' sense of confidentiality or anonymity which lead to higher rates of disclosure (Valfort, 2017).

The European Working Conditions Survey, European Social Survey and SHARE ask respondents whether they have experienced discrimination based on their sexual orientation. The SHARE survey additionally includes a matrix question in which respondents report the situations in which they were discriminated against (e.g. promotions, hiring decisions). While the experience of discrimination is likely a very restrictive identifying variable, heteronormative standards in all EU countries do make it probable that respondents who report having suffered discrimination based on their sexual orientation are non-heterosexual. Such assumptions cannot be made regarding the item in the European Quality of Life Survey, in which respondents are asked whether they believe sexual orientation to be a source of societal tension in their country.

Table 6. Overview of availability of sexual orientation measures in European data sets

Data set	Available measures
WageIndicator Full Survey	Self-reported sexual orientation (heterosexual, gay/lesbian, bisexual, other)
WageIndicator Salary checker	n/a
EU-SILC	Identifiable through the sex of members of the household grid in combination with their relation to the respondent
EU-SILC public microdata	Identifiable through the sex of members of the household grid in combination with their relation to the respondent
EU-LFS	n/a
EU-LFS public microdata	n/a
Structure of Earnings Survey	n/a
ECHP	Identifiable through the sex of members of the household grid in combination with their relation to the respondent
Adult Education Survey	n/a
European Health Survey	n/a
Community Statistics on Information Society	n/a
Household Budget Survey	Identifiable through the sex of members of the household grid in combination with their relation to the respondent
European Working Conditions Survey	- Identifiable through the sex of members of the household grid in combination with their relation to the respondent - Respondent experienced discrimination on the basis of sexual orientation (mentioned/not mentioned)
European Quality of Life Survey	- Identifiable through the sex of members of the household grid in combination with their relation to the respondent - Sexual orientation as a source of societal tension according to the respondent *(o)*
IEPM	n/a
ISSP	n/a
European Values Survey	n/a
World Values Survey	n/a
European Social Survey	- Identifiable through the sex of members of the household grid in combination with their relation to the respondent - Respondent experienced discrimination on the basis of sexual orientation (mentioned/not mentioned)
PIAAC Survey of Adult Skills	n/a
Luxembourg Income Study	Identifiable through the sex of members of the household grid in combination with their relation to the respondent
Generations and Gender Programme	- Identifiable through the sex of members of the household grid in combination with their relation to the respondent - Self-reported sex of non-resident partner - Self-reported same-sex relationship in the last three years
Eurobarometer	n/a
SHARE	Identifiable through the sex of members of the household grid in combination with their relation to the respondent - Respondent experienced discrimination on the basis of sexual orientation - Matrix of experienced forms of discrimination based on sexual orientation

Note: (R) is ratio, (O) ordinal, (I) interval, (N) nominal measurement level. All measures are nominal unless otherwise indicated.

Table 7. Proposals for the harmonisation of sexual orientation measures in European data sets

The harmonisation of sexual orientation across existing European surveys can only be done among those surveys which identify **same-sex couples via the household grid**. However, as elaborated above this comes with serious drawbacks. Overall, the overview for the sexual orientation measure shows a substantial data gap which makes it rather difficult to draw any conclusions for sexual minorities on the basis of existing European data sets.

3.4 Single parenthood

Like sexual orientation, single parenthood is a characteristic that is most often derived from the household grid. Table 8 provides an overview of the availability of measuring single parenthood in the selected surveys. As can be seen, the WIS Checker and SES do not provide enough information to identify single-parent households. Most of the data sets released by Eurostat include one or multiple classifications of household types (EU-SILC, EU-LFS, ECHP, EAS, EHS, HBS, and EB); IEPM, LIS and GGP do so as well. These household types have been post-coded by the data provider, except in the case of the EB, which includes a question answered by respondents. In the remaining surveys, single parenthood can be identified with varying accuracy, using either the household grid or a battery of questions on household composition. Household composition questions, e.g. how many adults and children live in the household, are asked in combination with at least one item on marital or cohabitation status in the WIS Survey, EU-SILC, ECHP, AES, EHS, CSIS, HBS, IEPM, ISSP, EVS, WVS, LIS, GGP and the EB. Exactly because these measures of household size do not specify the relation between the respondent and other adults and children, marital or cohabitation status is essential to estimate whether the respondent is a single parent; the age of the children in the household is necessary to identify dependent children. Household grids, including a question identifying each member's relation to the respondent, are provided in the EU-LFS, EWCS, EQLS, ESS, SHARE.

The SHARE survey, notably, allows for the identification of the single-parent status of respondents' children, although the sample is not representative of those households. In addition, the SHARE retrospective data provide more than usual detail on past relationships, including any offspring from those relationships. The GGP includes items regarding the residency status of children from previous relationships. However, none of these measures can be replicated using data from other surveys.

Table 8. Overview of availability of single parenthood measures in European data sets

Data set	Available measures
WageIndicator Full Survey	- Presence of spouse and children in the household - Marital status - Age of youngest and oldest child
WageIndicator Salary checker	n/a
EU-SILC	- Marital status and/or consensual union - Presence of spouse and children in the household - Household type classification
EU-SILC public microdata	- Marital status and/or consensual union - Presence of spouse and children in the household - Household type classification
EU-LFS	- Household type classification - Marital status - Presence of spouse, parents, children in the household - Age of youngest child in the household
EU-LFS public microdata	- Household type classification - Marital status Presence of spouse, parents, children in the household - Age of youngest child in the household
Structure of Earnings Survey	n/a

Data set	Available measures
ECHP	- Household type classification; - Presence of adults and children in the household - Marital status, cohabitation status and consensual union
Adult Education Survey	- Household type classification - Cohabitation status - Number of adults and children in the household
European Health Survey	Marital status and cohabitation status - Number of adults and children in the household - Household type classification
Community Statistics on Information Society	- Cohabitation status - Number of adults and children in the household
Household Budget Survey	- Number of adults and children in the household - Household type classification - Marital status and consensual union
European Working Conditions Survey	Presence of spouse and own/step-children in the household (household grid)
European Quality of Life Survey	- Presence of spouse and own/step-children in the household (household grid) - Non-resident children under/above 18yrs - Marital status
IEPM	- Household type classification - Number of own children in the household - Marital status - Total number of born and/or surviving children
ISSP	- Age youngest co-residing child - Co-residing and non-resident spouse - Number of children in the household (school-age and pre-school age) - Marital status
European Values Survey	- In a steady relationship - Marital status - Previous relationship - Number of adults and children in the household (in age groups) - Age firstborn **child (independent of co-residence)**
World Values Survey	- In a steady relationship - Marital status - Previous relationship - Number of adults and children in the household (in age groups) - Age firstborn child (independent of co-residence)
European Social Survey	- Presence of spouse and children in the household (household grid; no distinction between own and step/foster children) - Marital status - Co-residence status of children
PIAAC Survey of Adult Skills	- Co-residing spouse - Children ever had, regardless of co-residence - Age oldest and youngest child
Luxembourg Income Study	- Household type classification - Cohabitation status - Number of children in the household (age groups) - Marital status
Generations and Gender Programme	- Household type classification - Partner status (incl. non-resident spouse) - Marital status - Number of children ever born and in household - Residency status of children from a previous union (incl co-parenting options)
Eurobarometer	- Self-reported household type - Presence of children in the household (in age groups)
SHARE	- Marital status - Partner outside household - Children in the household and outside of the household, including ages - Single parent status of respondents' children
SHARE	- Marital status - Partner outside household - Children in the household and outside of the household, including ages - Single parent status of respondents' children

In summary, there are three operationalisations that allow for considerable harmonisation of single parenthood status across surveys. The first, available in by far the largest number of surveys, is to identify single-parent households as those households with one adult, whose marital status is not married and who does not cohabit with a partner, and with at least one child under the age of 18. This operationalisation may underestimate the number of single-parent families, since single parents may live with another adult, who is either not their spouse or not the parent of the co-residing children. The use of a household grid, as proposed in the second harmonisation strategy, partially circumvents this problem by identifying the relation of other household members to the respondent. This option, however, is available for fewer surveys.

Finally, ten surveys include constructed household type measures with at least one category for single-parent families. However, no uniform classification for household types is used across surveys (classifications included in Appendix 2). Four surveys include a single, unspecified category for single parents (EU-SILC, ECHP, HBS, IEPM); three further surveys specify the child has to be under 25 years of age to classify the household as a single parent home (AES, EHIS, HBS). The other surveys provide further break downs of single-parent families, either based on the children in the household or the adults. The EU-LFS distinguishes between single parents with own children under age 15, own children above age 15 and other children under age 15; the ECHP distinguishes between single-parent households where all children are under 16 and those where at least one child is 16 or over. The EB asks re-partnered respondents to indicate whether the co-resident children are from the current or a previous union (or both), resulting in a classification of never-married single parents, divorces single parents, re-married single parents and re-partnered single parents. Notably, children from previous unions that do not reside in the household are not identified. Finally, two surveys distinguish between different kinds of single-parent families based on the adults in the household. In the LIS survey, single parents are divided into those that live with children only, with another adult who is a relative, another adult who is not a relative, or both relatives and non-relatives. The GGP breaks single-parent households down into those that live with children only and single parents who live with their parents (i.e. three-generation households).

As such, the household-type classifications provided by the surveys examined for this inventory are not easily harmonised (Table 9). We suggest harmonisation based on household composition indicators and household grids will be methodologically more responsible.

Table 9. Proposals for harmonisation of single parenthood measures in European data sets

Operationalisation	Available data sets
Single parent as non-married/divorced or non-cohabiting respondents with dependent children in the household	WIS, EU-SILC, EU-LFS, ECHP, AES, EHIS, CSIS, HBS, ISSP, EVS, WVS, LIS, GGP, SHARE
Single parents as respondents with co-residing own children but without a co-residing spouse	EU-SILC*, EU-LFS, EWCS, EQLS, ESS
Single parents as a household-type classification	EU-SILC, EU-LFS, ECHP, AES, EHIS, HBS, IEPM, LIS, GGP, EB

* EU-SILC is included in this group because its spouse identified variable offers the same possibilities as a household grid.

3.5 Disability

The identification of people with disabilities in European data sets is complicated by the myriad of definitions used across surveys. The inventory shows that data sets rely on wildly different identification strategies when it comes to measuring disability status (Table 10). The most common instruments for the identification of disabled respondents include:

- people who are unable to work through a survey question about respondents' main economic status (WIS, EU-SILC, EU-LFS, AES, EHIS, HBS, ISSP);
- individuals' or households' income from sickness or invalidity benefits (EU-SILC, ECHP, SHARE);
- sickness, injury or incapacity as a motive for not seeking paid employment or further education or training (ECHP, AES);
- respondents' self-reported chronic mental health problems or physical disabilities (ECHP, EHIS, EWCS, EQLS, GGP);
- respondents' self-reported limitations in daily or work activities (EU-SILC, ECHP, EHIS, EWCS, EQLS, ESS, SHARE);
- respondents' self-reported experiences of discrimination based on their disability (EWCS, ISSP, ESS);
- respondents' self-reported inability to continue performing their job at all or at the previous intensity (SHARE).

The identification is further complicated by sampling strategies. For example, the HBS interviews the household's reference person, defined in most countries as the person (above the age of 16) who contributes most to the household income. The HBS is therefore unlikely to include many disabled persons. The SHARE survey, on the other hand, interviews the population aged 50 and over and includes retrospective data on spells of disability-related absence from work/unemployment in both the SHARELIFE employment module and the baseline DQ module.

Table 10. Overview of availability of disability measures in European data sets

Data set	Available measures
WageIndicator Full Survey	Respondent's main economic status
WageIndicator Salary checker	n/a
EU-SILC	- Respondent's main economic status - Self-reported reason for working <30 hrs/week - Number of months out of work due to disability in last year *(r)* - Income from disability benefits *(r)* - Limitations in daily activities *(o)*
EU-SILC public microdata	- Respondent's main economic status - Self-reported reason for working <30 hrs/week - Number of months out of work due to disability in last year *(r)* - Income from disability benefits *(r)* - Limitations in daily activities *(o)*
EU-LFS	Respondent's main economic status
EU-LFS public microdata	Respondent's main economic status
Structure of Earnings Survey	n/a
ECHP	- Person and household income from disability benefits *(r)* - Disability as a reason for not seeking work - Self-reported disability or health problem (yes/no) - Limitations in daily activities *(o)*
Adult Education Survey	- Respondent's main economic status - Disability as a reason for pursuing or not pursuing further formal/non-formal education
European Health Survey	- Respondent's main economic status - Self-reported disability or chronic illness - Limitations in daily activities *(o)* - Absence from work due to health in last year
Community Statistics on Information Society	n/a
Household Budget Survey	Respondent's main socioeconomic status
European Working Conditions Survey	- Respondent experienced discrimination on the basis of disability (mentioned/not mentioned) - Self-reported disability or health problem (yes/no) - Limitations in daily activities *(o)*
European Quality of Life Survey	- Self-reported disability or health problem (yes/no) - Limitations in daily activities *(o)*
IEPM	- Harmonised indicator for having a disability (Ireland, Poland, Portugal) - Harmonised indicator for having an employment disability (Ireland, Portugal, Spain, UK)
ISSP	- Respondent experienced discrimination on the basis of disability (mentioned/not mentioned) - Respondent's main economic status
European Values Survey	n/a
World Values Survey	n/a
European Social Survey	- Respondent experienced discrimination on the basis of disability (mentioned/not mentioned) - Respondent's main economic status in the last seven days - Limitations in daily activities *(o)*
PIAAC Survey of Adult Skills	n/a
Luxembourg Income Study	Harmonised indicator for having a disability
Generations and Gender Programme	Disability of respondent and other household members
Eurobarometer	n/a
SHARE	- Ever leave a job due to disability (for each job) - Limitations in daily activities *(o)* - Limited in work activities due to disability (for each job) - Ever received and/or applied for disability benefits - Number of chronic conditions - IADL scale of limitations

Identification strategies for disability status strongly affect the proportion of the respondents that will report having a disability. Just 1% of the respondents in the ESS, ISSP and EWCS report having been discriminated against based on their disability or being a member of a group that is discriminated against based on disability. About 3% of ISSP respondents report their main economic status as inactive due to a chronic illness or disability. Over 8% of SHARE respondents applied for disability pension at least once in their lifetime. Ten per cent of respondents in the EWCS report having a disability or chronic illness that limits or severely limits their activities. Up to 13% of SHARE respondents have ever left a job due to a disability or illness. Finally, almost 18% of respondents in the EWCS report having some kind of disability or illness that they expect to last over a year.

Table 11. Proposals for the harmonisation of measures of disability in European data sets

In order to harmonise disability status across European surveys, we, therefore, recommend first exploring the optimal operationalisation of the concept in relation to its effect on vulnerable labour market outcomes. Since most surveys include more than one item on this subject, there is a possibility to test whether multi-dimensional indicators of disability provide more reliable measures than those based on a single item.

3.6 Religion

Religion is potentially linked to vulnerability in two ways: first, through membership of religious minorities that face discrimination as a group; second, through expressions of religiosity as such, regardless of the denomination to which an actor belongs. The identification of respondents from religious groups or minorities in European data sets is complicated due to its limited availability. None of the Eurostat surveys includes any indicators in this field. In the remaining surveys, three different kinds of indicators for religion can be found (see also Table 12):

- Measures of religious denominations to which respondents belong. These usually include a trigger question about belonging to or identifying with a religious denomination, followed by a list of religious denominations. As such, these kinds of indicators can identify specific religious minorities, but they do not measure whether respondents effectively practice their religion. These measures are included in the following surveys: WIS Survey, IEPM, ISSP, EVS, WVS, ESS.
- Measures of respondents' religiosity. These measures include questions regarding the importance of religion in respondents' lives, their attendance of services, activities in religious organisations and how often they pray. Measures of religiosity can identify respondents who actively practice their religion, but do not give information about specific religious groups. These measures are included in the following surveys: EQLS, ISSP, EVS, WVS, ESS, SHARE.
- Measures of experiences of discrimination. Experiences of discrimination are included in five surveys and are self-reported in each case. As far as identification goes, this is a very rough proxy, since it neither identifies religious people who do not feel discriminated against or specific religious groups. These measures are included in the following surveys: EWCS, EQLS, ISSP, ESS, SHARE.

Table 12. Overview of availability of measures of religious groups in European data sets

Data set	Available measures
WageIndicator Full Survey	- Self-reported belonging to religious denomination - Religious denomination (country-specific dictionaries)
WageIndicator Salary checker	n/a
EU-SILC	n/a
EU-SILC public microdata	n/a
EU-LFS	n/a
EU-LFS public microdata	n/a
Structure of Earnings Survey	n/a
ECHP	n/a
Adult Education Survey	n/a
European Health Survey	n/a
Community Statistics on Information Society	n/a
Household Budget Survey	n/a
European Working Conditions Survey	Respondent experienced discrimination on the basis of their religion (mentioned/not mentioned)
European Quality of Life Survey	- Frequency of attending religious services *(o)* - Religion as a source of societal tension according to the respondent *(o)*
IEPM	- Self-reported belonging to religious denomination - Religious denomination (5 denominations)
ISSP	- Respondent experienced discrimination on the basis of their religion (mentioned/not mentioned) - Self-reported belonging to religious denomination - Religious denomination (9 denominations) - Frequency of attending religious services *(o)*
European Values Survey	- Importance of religion in the respondent's life *(o)* - Membership and volunteering at religious organisations - Self-reported belonging to religious denomination - Religious denomination (9 denominations + country specific dictionary) - Frequency of attending religious services *(o)* - Previous religious denomination - Brought up with religion - Self-reported religiosity
World Values Survey	- Importance of religion in the respondent's life *(o)* - Membership and volunteering at religious organisations - Self-reported belonging to religious denomination - Religious denomination (9 denominations + country specific dictionary) - Frequency of attending religious services *(o)* - Previous religious denomination - Brought up with religion - Self-reported religiosity
European Social Survey	- Self-reported belonging to religious denomination - Religious denomination (8 denominations + country-specific dictionary) - Self-reported religiosity *(r)* - Frequency of attending religious services *(o)* - Frequency of praying *(o)* - Membership of group discriminated against on the basis of religion
PIAAC Survey of Adult Skills	n/a
Luxembourg Income Study	n/a
Generations and Gender Programme	n/a
Eurobarometer	n/a
SHARE	- Importance of religion growing up *(o)* - Respondent experienced discrimination on the basis of their religion (including work-related effects); - Frequency of praying *(o)*

Table 13. Proposals for the harmonisation of measures of religion in European data sets

The harmonisation of religious indicators across the three types of operationalisations is unlikely to yield robust indicators. Belonging to a religious denomination can be harmonised at higher levels of aggregation, such as distinguishing between Christians, Muslims, and Buddhists. For the harmonisation of religiosity, items measuring the frequency of attending religious services is most often included. It may be worthwhile to explore the extent to which other common items like frequency of praying, self-rated religiosity or the importance of religion in a respondent's life measure related constructs.

3.7 Ethnicity

Ethnicity is a relatively under-identified dimension of vulnerability, at least when understood strictly as measuring the ethnic group respondents belong to. Related measures that are sometimes used as proxies, such as nationality and religion, are discussed in Sections 4.6 and 4.8 and are therefore ignored here. Questions related to race, though rarely used separately from ethnicity in European surveys, are included in this overview (Table 14).

None of the surveys released by Eurostat includes measures of ethnicity. The methodological note of the Structure of Earnings Survey shows that a number of (undisclosed) countries do measure citizenship and residence, but this item is optional and not included in the harmonised dataset (Eurostat 2014). Eight surveys do include measures regarding respondents' ethnicity. These measures include membership of ethnic groups (ISSP, EVS, WVS, ESS, LIS) and experiences of discrimination (EWCS, EQLS, ISSP, ESS, SHARE). The GGP does not include measures of ethnicity. Researchers interested in working with this dataset specifically, do have the opportunity to use its second wave, which added a Turkish sub-sample in the German study and the Netherlands had a Polish module that can be linked to the Dutch-Dutch and the Polish-Polish samples.

Table 14. Overview of availability of measures of ethnic groups in European data sets

Data set	Available measures
WageIndicator Full Survey	n/a
WageIndicator Salary checker	n/a
EU-SILC	n/a
EU-SILC public microdata	n/a
EU-LFS	n/a
EU-LFS public microdata	n/a
Structure of Earnings Survey	n/a
ECHP	n/a
Adult Education Survey	n/a
European Health Survey	n/a
Community Statistics on Information Society	n/a
Household Budget Survey	n/a
European Working Conditions Survey	Respondent experienced discrimination on the basis of their racial or ethnic background (mentioned/not mentioned);
European Quality of Life Survey	Race or ethnicity as a source of societal tension according to the respondent *(0)*
IEPM	n/a
ISSP	- Respondent experienced discrimination on the basis of their race or ethnicity (mentioned/not mentioned) - Respondent's self-reported ethnicity (maximum 2 responses, country-specific dictionaries)
European Values Survey	Respondent's self-reported ethnicity (12 groups)
World Values Survey	Respondent's self-reported ethnicity (271 main groups; 438 groups in country-specific dictionaries)
European Social Survey	- Membership of an ethnic minority (yes/no) - Ancestry (maximum 2 responses; European standard classification of cultural and ethnic groups) - The language spoken at home (max 2 responses) - Membership of a group that is discriminated against on the basis of their colour or race/language/ethnicity
PIAAC Survey of Adult Skills	n/a
Luxembourg Income Study	Un-harmonised information about cultural, racial, religious or linguistic characteristics, origins, or classification
Generations and Gender Programme	n/a
Eurobarometer	n/a
SHARE	Respondent experienced discrimination on the basis of their ethnicity or nationality (including work-related effects)

Harmonisation of indicators on ethnicity in European data sets is possible for two clusters of five surveys measuring either membership of ethnic groups or discrimination based on ethnicity, with the ISSP and ESS belonging to both and six others in one of the two. Only just over one per cent of respondents of those two surveys report having experienced discrimination based on their ethnicity, making it a poor variable for the identification of ethnic minorities. The harmonisation of membership of ethnic groups is dependent on the level of aggregation. Whereas both social surveys use the European Standard Classification of Cultural and Ethnic groups, which is a detailed classification containing both national (e.g. Serbian) and sub-national (e.g. Swedish speaking Finnish) groups. While the World Values Survey contains a detailed classification of 271 harmonised groups (based on 438 groups in country-specific dictionaries), the LIS survey did not harmonise data on ethnic groups and the European Values Survey recognises only 12 groups.

Table 15. Proposals for the harmonisation of measures of ethnicity in European data sets

Harmonisation of data on ethnicity is most viable using items measuring which ethnic groups respondents belong to. To keep all five surveys, this should be aggregated towards the EVS 12-group classification.

3.8 Nationality

Nationality contains two different concepts: respondents' citizenship status in the country of the survey, or their nationality/country of citizenship. The former allows researchers to potentially identify respondents with less than full access to social rights. While the latter often amounts to the same thing, some surveys make data on the actual country of citizenship available, allowing researchers to study the differences between respondents who are citizens of different groups of countries. No surveys included data on statuses like permanent residency in their scientific use files.

Of all the studied surveys, eight include a highly aggregated variable referring to respondents holding citizenship of the country of the survey, another EU country or a non-EU country (EU-SILC, AES, EHS, CSIS, HBS, EWCS, SHARE, EB). Eight surveys include more extensive country lists (EU-LFS, ECHP, IEPM, ISSP, EVS, WVS, ESS, LIS). SHARE and IEPM allow for the identification of naturalised citizens. Finally, four surveys include a question of whether respondents experienced discrimination based on their nationality (EWCS, ISSP, SHARE, ESS).

Table 16. Overview of availability of nationality measures in European data sets

Data set	Available measures
WageIndicator Full Survey	n/a
WageIndicator Salary checker	n/a
EU-SILC	Citizenship (country of residence/other EU country/other country)
EU-SILC public microdata	Citizenship (country of residence/other EU country/other country)
EU-LFS	Country of citizenship (23 categories)
EU-LFS public microdata	Country of citizenship (23 categories)
Structure of Earnings Survey	Not available in scientific use file.
ECHP	- Citizenship (national, EU, other) - Country of foreign citizenship (11, 7, and 2 category classifications) - Second citizenship (yes/no) and country (EU/non-EU)
Adult Education Survey	Citizenship (national/EU/non-EU)
European Health Survey	Citizenship (national/EU/non-EU)
Community Statistics on Information Society	Citizenship (national/EU/non-EU)
Household Budget Survey	Citizenship (national/EU/non-EU)
European Working Conditions Survey	- Respondent born in the country of survey - Respondents' parents born in the country of survey - Respondent experienced discrimination on the basis of their nationality (mentioned/not mentioned);
European Quality of Life Survey	n/a
IEPM	- Citizenship status (by birth/naturalised/not citizen/stateless) - Country of citizenship
ISSP	- Respondent experienced discrimination on the basis of their nationality; - Respondent's self-reported ethnic group (maximum 2 responses, country-specific dictionaries sometimes include nationalities)
European Values Survey	- National of the country of survey (yes/no) - Foreign country of nationality (ISO3166 list of countries)
World Values Survey	- National of the country of survey (yes/no) - Foreign country of nationality (ISO3166 list of countries)
European Social Survey	- Membership of a group that is discriminated against on the basis of their nationality - Citizenship of country of survey (yes/no) - Foreign country of citizenship
PIAAC Survey of Adult Skills	n/a
Luxembourg Income Study	Country of citizenship (13 categories and ISO3166)
Generations and Gender Programme	n/a
Eurobarometer	Country of nationality (34 countries, multiple answers possible)
SHARE	- Citizen of the country of survey (yes/no) - Citizenship acquired during the lifetime, if so when - Country of citizenship - Respondent experienced discrimination on the basis of their ethnicity or nationality (including work-related effects)

Harmonisation of data on nationality is dependent on the level of aggregation (Table 17). While harmonisation towards a three-category typology (country, other EU, other non-EU) is possible in fifteen surveys, these categories are often too crude for the studies into the extent of disadvantage faced by minority groups. In the EU-LFS and ECHP, information on respondents' nationality can be combined with data on their country of birth, broken down into broad geographical regions, like South America or North Africa. The ESS, LIS, EVS and WVS use the detailed ISO3166 classification, allowing by far the most detailed level of disaggregation. In the IEPM, the level of detail varies by country sample.

Table 17. . Proposals for the harmonisation of measures of nationality in European data sets

Country of nationality	EU-LFS, ECHP, IEPM, ISSP, EVS, WVS, ESS, LIS
Three classes	All data sets above + EU-SILC, AES, EHIS, CSIS, HBS, EWCS, SHARE, EB

3.9 Migration status

Migration status is available at different levels of detail and varying historical data availability. The most commonly included measures refer to the identification of migrants per se. At the most basic level, a survey can measure whether a respondent was born in the country they currently reside in. This is the most detailed measure available in the EWCS, IEPM, and PIAAC. More surveys, however, include information on the actual country of birth of the respondent, sometimes complemented with data on the region of birth and sometimes recoded into country groups. This is done in the following surveys: WIS Survey, EU-SILC, EU-LFS, ECHP, AES, EHS, CSIS, HBS, EQLS, EVS, WVS, ESS, LIS, SHARE. Country of birth of family members, primarily parents, allows researchers to identify second-generation migrants in the following surveys: WIS Survey, AES, EWCS, EQLS, ISSP, EVS, WVS, ESS, PIAAC, SHARE.

A number of surveys include further information regarding respondents who indicated having been born abroad. Most commonly, these surveys measure:
- the years of residence in the host country or year of arrival (WIS Survey, EU-LFS, ECHP, AES, IEPM, EVS, WVS, ESS, LIS);
- previous countries/regions of residence (EU-LFS, ECHP, IEPM).

The WageIndicator Salary survey identifies respondents who work and live in two different countries, as well as those who completed their education abroad. The ECHP constructed a variable classifying all respondents' national and international migration trajectories, ranging from never having moved out of the region of birth to having moved across countries repeatedly. The SHARE survey records whether respondents who lived in Germany before 1989 lived in East of West Germany.

Table 18. Overview of availability of measures of migration status in European data sets

Data set	Available measures
WageIndicator Full Survey	- Country of birth, work, education and residence - Born in the region of residence (yes/no) - Year of arrival in the country of residence - Migration motive (economic, family, asylum, other) - Mother's and father's country of birth
WageIndicator Salary checker	
EU-SILC	Country of birth (country/other EU/other non-EU)
EU-SILC public microdata	Country of birth (country/other EU/other non-EU)
EU-LFS	- Years of residence in the country (since birth/0-10/five-year bands up to 95-99 years) - Age at time of establishing residence (five-year age bands) - Country of residence year before the interview (138 countries) - Region of residence year before the interview (NUTS II) - Country of birth (21 categories)
EU-LFS public microdata	- Years of residence in the country (since birth/0-10/five-year bands up to 95-99 years) - Age at time of establishing residence (five-year age bands) - Country of residence year before the interview (138 countries) - Region of residence year before the interview (NUTS II) - Country of birth (21 categories)
Structure of Earnings Survey	n/a

Data set	Available measures
ECHP	- Migration trajectory classification from immobility in country and region to having lived in multiple countries - Year of arrival in the region - The previous country of residence (13, 7, and 2 categories) - Year of arrival in the country - Foreign country of birth (13, 7, and 2 categories)
Adult Education Survey	- Country of birth (country/other EU/other non-EU) - Years of residence (one year and less/2-10 years/over ten years) - Father's and mother's country of birth (country/other EU/other non-EU)
European Health Survey	Country of birth (country/other EU/other non-EU)
Community Statistics on Information Society	Country of birth (country/other EU/other non-EU)
Household Budget Survey	Country of birth (country/other EU/other non-EU)
European Working Conditions Survey	- Respondent born in the country of survey - Respondents' parents born in the country of survey
European Quality of Life Survey	- Respondent's country of birth (49 countries) - Father's and mother's country of birth (49 countries)
IEPM	- Nativity status (native-born/foreign-born) - Country of birth - Year of immigration and years since immigration (available for France, Greece, Spain, Italy) - Country of previous residence (available for Belarus, Greece, Ireland, Italy, Poland, Slovenia, Spain, Ukraine) - Country of residence one year ago (available for Greece, Ireland, Italy, Poland, Portugal, Spain)
ISSP	Father's and mother's country of birth
European Values Survey	- Country of birth (ISO3166) - Father's, mother's and spouse's country of birth (ISO3166) - Year of establishing residence
World Values Survey	- Country of birth (ISO3166) - Father's, mother's and spouse's country of birth (ISO3166) - Year of establishing residence
European Social Survey	- Country of birth - Year of establishing residence - Father's, mother's and spouse's country of birth
PIAAC Survey of Adult Skills	- Born in the country of residence (yes/no) - Mother and father born in the country of residence (yes/no; 2 variables)
Luxembourg Income Study	- Immigration status (immigrant/non-immigrant) - Country of birth (13 categories and ISO3166) - Cumulative number of years in residence
Generations and Gender Programme	- Spouse's country of birth - The year that spouse established residence in the country
Eurobarometer	n/a
SHARE	- Country of birth - Residence in East or West Germany before 1/11/1989 (available for respondents living in Germany in the relevant time period) - Father's and mother's country of birth

Regarding the comparability of data on migration status in European data sets (see Table 19), identification of migrants could be harmonised at three levels: (1) people who have migrated internationally in their lifetime, (2) the countries they come from, and (3) migration background including the offspring of migrants. In 17 of the 24 data sets, respondents who were born in foreign countries can be identified. While this measure does not capture native-born respondents with migration experiences, this operationalisation does capture the migration experience relevant to the study of vulnerability in the labour market. However, a binary measure of migration status does not allow us to distinguish between migrants from different countries of origin, which is a factor in interest in most academic research in this field.

Table 19. Proposals for the harmonisation of measures of migration status in European data sets

Migrant (1st generation incl. country of origin)	
>100 countries	WIS Survey, EU-LFS, IEPM, EVS, WVS, ESS, LIS, SHARE
16-50 countries	All data sets above + EQLS
4-15 countries	All data sets above + ECHP
3-class origin	All data sets above + EU-SILC, EHIS, CSIS, HBS
Binary	All data sets above + EWCS, PIAAC
Migrant (2nd generation)	
Migrant background (2nd generation)	WIS Survey, AES, EWCS. EQS, ISSP, EVS, WVS, ESS, PIAAC, GGP, SHARE

4. Discussion and harmonisation proposals

This working paper set out to study the extent to which different vulnerable groups in European labour markets are measured across data sets covering the European area. We selected nine actor characteristics that have been associated with labour market vulnerability: age, gender, sexual orientation, single parenthood, disability, religion, ethnicity, nationality and migration status.

We examined 27 data sets and selected 24, which met our criteria for inclusion: they provide microdata access to surveys that were recently fielded in multiple European countries and covering at least core socio-demographic characteristic, labour market outcomes and at least some vulnerability characteristics. Each of these data sets was checked for the inclusion of items measuring the abovementioned vulnerability characteristics. The outcomes of this study are included in this Inventory on Vulnerable Groups and were summarised in Section 3.

The second aim of this working paper was to provide an overview of the extent to which the measures used in the 24 survey projects can be harmonised. Sections 3.1 through 3.9 include proposals for each of the examined characteristics. The inventory identified a number of measures that are relatively straightforward in regard to harmonisation. These include age groups and gender (binary), as well as migrations status and nationality on higher levels of aggregation (distinguishing between the country of the survey, EU and non-EU).

A second set of vulnerable groups is identified indirectly, through questions on household composition and household grids. These are sexual orientation and single parenthood. The indirect measure combining the information of relationship status, sex of the respondent, and sex of the respondent's partner is so far the only way in which sexual minorities can be identified so far in cross-national European surveys. The drawback of such a measure is their restricted focus on same-sex couples living together in a household. As a consequence, only part of the sexual minority group can actually be identified and examined with respect to their vulnerability status. Single parents are often identifiable by the presence of adults and children, sometimes defined in their relation to the respondent, in the household. These measures are imperfect, for example, because they rarely identify coparenting divorcees or classify complex family relations that have become common in the 21st century. They are, however, still preferable to the post-coded classifications of household types provided by the surveys, because these use of these household types has not been standardised across surveys.

A number of vulnerability characteristics have proven hard to harmonise because the selected surveys operationalised the concept in different ways. Most prominently, this applies to the identification of disabled respondents. Instruments vary drastically in regards to the size of the vulnerable group and rare distinguish between disabilities and illnesses. Before being able to propose harmonised indicators in this field, one- and multidimensional solutions for identification should be explored, specifically including an exploration of operationalisation that best predicts labour market vulnerability.

There is relatively little data on respondents' ethnicity, nationality, migration status and religion. These variables are often excluded from studies or included only at very high levels of aggregation. In combination with the low share of respondents from these social groups in surveys, both the identification of these groups and analyses of their effective labour market vulnerability face major challenges. In practice, however, membership of these different minority groups might overlap: a respondent might indicate both that she is a Muslim, has a second (e.g. Moroccan) nationality, has Moroccan ancestry and that her parents were born in Morocco. Future harmonisation projects should explore the extent to which these items can be reduced to a single dimension of vulnerability.

Finally, the inventory revealed three data gaps. First, no survey in the infrastructure measures levels of citizenship rights. While data regarding citizenship and the country of citizenship (if not the host country) are regularly available, no surveys provide information on things like temporary and permanent residency status. This lack of data is worrying, given the considerable differentiation in social rights according to citizenship and residency status that was explored in the InGRID-2 project (InGRID, 2017).[3]

Second, there is no survey in the infrastructure that measures gender from a non-binary perspective. This means that both academics and policymakers with an interest in gender identity, and issue that has generated debates from 'preferred pronouns' to gender-neutral bathrooms, are forced to rely on single-country or qualitative data sources. In this context, it would be advisable to consider or at least engage in a discussion whether the inclusion of a more nuanced gender (identity) measure would be a possibility. To obtain the most accurate measure of gender identity, several researchers have shown that the so-called 'two-step' method is advisable in particular to correctly identify transgender populations (Lombardi & Banik, 2016; Reisner, et al., 2014; Williams Institute, 2014).

Finally, we identified a serious data gap for the measurement of sexual orientation. As indicated, so far European surveys do not allow a clear identification of this population. As a result, we have no systematic and coherent knowledge of how big this group is and which opportunities and challenges sexual minorities are facing on European labour markets. While the sexual orientation encompasses three main dimensions: sexual attraction, sexual behaviour, and sexual identity, for the study of labour outcomes among LGBT populations, it would be already sufficient to concentrate on the measure of sexual identity (how a person self-identifies with a given sexual orientation - gay, lesbian, bisexual and heterosexual/straight). A source of inspiration could be the sexual identity question currently used in the US National Crime Victimization Survey and National Health Interview Surveys or the question previously fielded in the UK Integrated Household Survey (IHS) and Annual Population Survey (APS). Both have undergone rigorous cognitive pre-testing and successfully been fielded in in-person production surveys (Ridolfo et al., 2010; Dahlhamer et al., 2014; ONS, 2017).

3 Milestone 102.

appendix 1 Selected databases

Table a1. . List of sampling frames and interviewing modes per survey

Data set	Sampling frame	Mode of interviewing
WageIndicator full survey	Volunteer	Web-based self-interview
WageIndicator Salary checker	Volunteer	Web-based self-interview
EU-SILC	All private households and all persons aged 16 and over within the household residing in the territory of the Member States; nationally representative probability sample of the population residing in private households within the country	Mixed; five modes are possible (PAPI, CAPI, CATI, self-administered, proxy)
EU-SILC public microdata	Synthetic universe	n/a
EU-LFS	Residents in private households 15+, sampling units depend on the country (dwellings, households, individuals)	Mixed (four modes: personal visits, telephone interviews, web interviews and self-administered questionnaires)
EU-LFS public microdata	Synthetic universe	n/a
Structure of Earnings Survey	Enterprise 10+ employees	Mixed
ECHP	Population	Face to face
Adult education survey	Population 25-64. Most countries use multi-staged stratified random sample design	Mixed (variable INTMETHOD)
European Health survey	Population 15+ in private households	Mixed (variable INTMETHOD)
Community Statistics on Information Society	Households with at least one person btw 16 and 74	Mixed
Household budget survey	Mixed	Mixed
European Working conditions survey	Working population	CAPI
European Quality of life survey	Population 18+	CAPI
IEPM	Census	Mixed
ISSP	Population 18+	Mixed
European Values Survey	Population 18+	Face to face
World Values Survey	Population 18+	Mainly f2f, mixed
European social survey	Population 15+	Face to face
PIAAC survey of adult skills	Age 16-65	CAPI
Luxembourg income study	Variable	Mixed
Gender and generation survey	Population 18-79	Face to face
Eurobarometer	Multi-stage sampling for area frames or stratified samples	Face to face
SHARE	Households with at least one person aged 50 or over	CAPI

a1.1 Wage and salary surveys

a1.1.1 WageIndicator Salary Survey

The WageIndicator Salary Survey is a continuous online volunteer survey that has collected wage date in the Netherlands since 2000 and in European countries since 2004. It is currently run in 96 countries. Each country has at least one website with web-tools, content, and a web-survey. Multilingual countries employ two or more websites. In addition, many countries have websites for particular target groups, such as women, youth or healthcare workers. All websites offer country-adapted content and presentation, but the web-tools and web-survey are mainstreamed across countries. The websites attract large numbers of visitors (2017: 34 million unique visitors). Teasers invite visitors to complete a web survey with a lottery incentive. This multilingual web-survey is comparable across all countries, although it is adapted to country-specific issues and phrasing, where needed. The survey has detailed questions about earnings, benefits, working conditions, employment contracts and training, as well as questions about education, occupation, industry, and household characteristics.

The WageIndicator Salary Survey is one of the research infrastructures of the InGRID-2 project. WageIndicator data can be accessed on-site via two project partners: the University of Amsterdam (for visits, contact J.Besamusca@uva.nl) and the Central European Labour Studies Institute (CELSI, email). The International Data Service Center (ISDC) of IZA is the exclusive outlet for off-site access to the WageIndicator data for the academic community (idsc@iza.org).

Website: https://wageindicator.org/

Access and Codebooks:
https://wageindicator.org/Wageindicatorfoundation/researchlab/datapolicy
https://wageindicator.org/Wageindicatorfoundation/researchlab/wageindicator-survey-and-data#the-wageindicator-questionnaire

a1.1.2 WageIndicator Salary Checker (Mini-Survey)

The WageIndicator Salary Checker is the short version of the WageIndicator Salary Survey. The Salary Checker contains all variables needed to compare visitors' wages with the average wages of people in the same occupation. Web visitors share their occupation, tenure, age, sex, location and wages. After filling in the Salary Checker, users immediately receive the results of the comparison at the lowest level of aggregation possible.

Website: https://wageindicator.org/

Access: The WageIndicator Salary Survey is one of the research infrastructures of the InGRID-2 project. WageIndicator data can be accessed on-site via two project partners: the University of Amsterdam (for visits, J.Besamusca@uva.nl) and the Central European Labour Studies Institute (CELSI, email). The International Data Service Center (ISDC) of IZA is the exclusive outlet for off-site access to the WageIndicator data for the academic community (idsc@iza.org).

a1.1.3 Luxembourg Income Study

The Luxembourg Income Study (LIS), provided by the Cross-National data centre in Luxembourg, is a global income database of harmonised microdata in around 50 countries. Having started in Europe and the Anglo-Saxon countries, the LIS now covers a number of middle-income countries in Latin America, Africa and Asia too. Repeated cross-sections are available from the 1980s until 2016. The LIS national samples contain data on household and person characteristics, socio-demographic characteristics, wage incomes and labour market variables. Data are accessible remotely using

the LISSY interface and detailed variable descriptions are made available on the website and in METIS.

Website: https://www.lisdatacenter.org/

Data access can be gained using the LISSY interface: https://www.lisdatacenter.org/data-access/lissy/

a1.2 EU Surveys

a1.2.1 European Union Statistics on Income and Living Conditions

The European Union Statistics on Income and Living Conditions (EU-SILC) is a longitudinal panel study of income, poverty, social exclusion and living conditions in EU member states. The main concepts measured in the EU-SILC include household membership, various sources of individual and household income, self-employment, social benefits, taxes and contributions. The EU-SILC is collected by the European Statistical System (ESS) and contains both cross-sectionally and longitudinally comparable data. Annual EU-SILC waves are available from 2003 for 7 countries and cover the full EU-28 plus Norway, Iceland, Switzerland and Turkey from 2010 onwards; North Macedonia, Serbia and Montenegro were added more recently. The EU-SILC data is representative of the population aged 16 and above; the cross-sectional samples in EU member states contain between 3,000 and 8,250 households and the longitudinal sample between 2,250 and 6,000 households. Eurostat also provides synthetic public use samples, which contain simulated microdata based on the statistical distributions of the original data; while these data are not for scientific use, they do provide samples for training purposes and have identical structures and variable names allowing researchers to develop coding to be used on the scientific use files or research applications.

Website: https://ec.europa.eu/eurostat/web/microdata/european-union-statistics-on-income-and-living-conditions

Detailed variable descriptions: https://www.gesis.org/en/missy/metadata/EU-SILC/

Microdata access for scientific use must be requested following Eurostat application procedures: https://ec.europa.eu/eurostat/documents/203647/771732/How_to_apply_for_microdata_access.pdf/82d98876-75e5-49f3-950a-d56cec15b896

The non-representative synthetic public use samples can be downloaded at https://ec.europa.eu/eurostat/web/microdata/statistics-on-income-and-living-conditions

a1.2.2 European Community and Household Panel

The European Community and Household Panel (ECHP) is a longitudinal panel survey on living conditions that was conducted annually between 1994 and 2001 in Belgium, Denmark, Germany, Ireland, Greece, Spain, France, Italy, Luxembourg, the Netherlands, Austria, Portugal, Sweden and the United Kingdom. The survey measures concepts of individuals' and households' income, financial situation, working life, housing, social relations, health and demographic variables. After the termination of the ECHP, most of these concepts were included in the EU-SILC, described in Appendix a1.2.1..

Website: https://ec.europa.eu/eurostat/web/microdata/european-community-household-panel

Microdata access for scientific use must be requested following Eurostat application procedures: https://ec.europa.eu/eurostat/documents/203647/771732/How_to_apply_for_microdata_access.pdf/82d98876-75e5-49f3-950a-d56cec15b896

a1.2.3 European Union Labour Force Survey

The European Union Labour Force Survey (EU-LFS) provides quarterly microdata on the labour participation of people aged 15 and over as well as persons outside the labour force. The LFS includes modules on core demographics, nationality and migration, labour and employment, education and training, income and household structure. It is complemented by ad hoc modules aimed to cover specific labour-market related topics, like self-employment, in more detail. The EU-LFS samples the population living in private households and covers all sectors of the economy, except military or community service. The European Union Labour Force Survey (EU-LFS) is conducted in the 28 Member States of the European Union, 4 candidate countries and 3 countries of the European Free Trade Association (EFTA). Data are available from 1983 onwards, or from the date of accession of the relevant EU member state.

Website: https://ec.europa.eu/eurostat/web/microdata/european-union-labour-force-survey

Detailed variable descriptions: https://www.gesis.org/en/missy/metadata/EU-LFS/

Microdata access for scientific use must be requested following Eurostat application procedures: https://ec.europa.eu/eurostat/documents/203647/771732/How_to_apply_for_microdata_access.pdf/82d98876-75e5-49f3-950a-d56cec15b896

a1.2.4 Structure of Earnings Survey

The Structure of Earnings Survey (SES) is a repeated cross-sectional survey aiming to measure actual earnings of employees in the EU member states in a harmonised way. The SES is an enterprise sample survey and covers enterprises employing 10 or more people in all areas of the economy except public administration. Employee data cover only those workers who are in dependent employment and received actual remuneration in the reference month and refer only to income from one job. The SES measures employees' remuneration in the surveyed enterprise as well as a number of demographic, socio-economic, and work-related characteristics. The available microdata includes Norway and all EU member states except Austria, Denmark and Ireland, with Germany and Greece participating in select waves. Four waves are currently available (2002, 2006, 2010 and 2014) as well as a six-country wave from 1995.

Website: https://ec.europa.eu/eurostat/web/microdata/structure-of-earnings-survey

Detailed variable descriptions: https://www.gesis.org/en/missy/metadata/SES/

Microdata access for scientific use must be requested following Eurostat application procedures: https://ec.europa.eu/eurostat/documents/203647/771732/How_to_apply_for_microdata_access.pdf/82d98876-75e5-49f3-950a-d56cec15b896

a1.2.5 Adult Education Survey

The Adult Education Survey (AES) is a repeated cross-sectional survey on adults' participation in formal and non-formal education and training as well as informal learning in the EU. The AES is a representative sample of EU residents in private households aged 25-64 that was conducted in 2007 (pilot), 2011 and 2016; the fourth wave is expected in 2022. The AES is one of the EU's main data

resources on lifelong learning. It includes a limited number in indicators on individuals' and households' demographic characteristics and labour market outcomes, as well as a range of variables on the frequency, volume, motivation and finances of participation and non-participation in various types of formal and non-formal education and training.

Website: https://ec.europa.eu/eurostat/web/microdata/adult-education-survey **Error! Hyperlink reference not valid.**

Detailed variable descriptions: https://www.gesis.org/en/missy/metadata/AES/

Microdata access for scientific use must be requested following Eurostat application procedures: https://ec.europa.eu/eurostat/documents/203647/771732/How_to_apply_for_microdata_access.pdf/82d98876-75e5-49f3-950a-d56cec15b896

a1.2.6 European Health Interview Survey

The European Health Interview Survey is a five-yearly survey on health status, health care use, health determinants and socio-economic background. Two waves have been conducted. The first was implemented between 2006 and 2009 in 17 member states; the second between 2013 and 2015 in all EU member states, Iceland and Norway. The survey is representative of the population aged 15 and over living in private households.

Website: https://ec.europa.eu/eurostat/web/microdata/european-health-interview-survey

Microdata access for scientific use must be requested following Eurostat application procedures: https://ec.europa.eu/eurostat/documents/203647/771732/How_to_apply_for_microdata_access.pdf/82d98876-75e5-49f3-950a-d56cec15b896

a1.2.7 Community Statistics on Information Society

The Community survey concerning statistics on the Information Society (CSIS) is gathered annually by the EU member states and Norway (and Iceland in 2014). The survey started in 2008 and is available for all member states from 2011 onwards (previous waves include only member states that released the microdata voluntarily); the last available wave is 2016. The CSIS samples households with at least one member in the age between 16 and 74. CSIS contains information on household access to ICT and individuals' use of these technologies. Episodic modules cover additional technology-related topics in specific years, including questions on e-government (2006, 2013) and privacy (2016). Socio-economic background variables include household composition, income, age, gender, educational attainment and employment status.

Website: https://ec.europa.eu/eurostat/web/microdata/european-health-interview-survey

Microdata access for scientific use must be requested following Eurostat application procedures: https://ec.europa.eu/eurostat/documents/203647/771732/How_to_apply_for_microdata_access.pdf/82d98876-75e5-49f3-950a-d56cec15b896

a1.2.8 Household budget survey

The household budget surveys (HBS) available from Eurostat are a collection of national surveys on household expenditure. In the absence of a legal basis for data collection, the survey is shared with Eurostat after the fact and methodologies vary between member states. The surveys have been collected by Eurostat every five years since 1988. The only available wave of microdata is from 2010; provisional macro indicators based on data from the 2015 round are available on the Eurostat website. The HBS microdata contains indicators on the household level (demographic characteristics,

type of household, economic status, household size, consumption expenditure, consumption quantities), the individual level (demographic characteristics, education, employment status and income). The data are representative on the household level and the interviewed reference person in each household is selected as the person above the age of 16 who contributes most to the household income (in most countries).

Website: https://ec.europa.eu/eurostat/web/household-budget-surveys/overview

Microdata access for scientific use must be requested following Eurostat application procedures: https://ec.europa.eu/eurostat/documents/203647/771732/How_to_apply_for_microdata_access.pdf/82d98876-75e5-49f3-950a-d56cec15b896

a1.3 Eurofound surveys

a1.3.1 European Working Conditions Surveys

Since 1990, the European Foundation for the Improvement of Living and Working Conditions (Eurofound) has conducted the European Working Conditions Surveys (EWCS). Themes covered include employment status, working time duration and organisation, work organisation, learning and training, physical and psychosocial risk factors, health and safety, work-life balance, worker participation, earnings and financial security, as well as work and health. The EWCS is a face-to-face survey of employees and self-employed workers that aims to analyse (trends in) working conditions and to identify vulnerable groups. Six waves of the EWCS are currently available (1990, 1995, 2000, 2005, 2010, 2015). Multi-stage, stratified, random samples of the working population aged 15 and older are drawn in each country; target samples in the 2015 waves were 1,000 respondents; with larger samples in the European countries with the largest workforce.

Website: https://www.eurofound.europa.eu/surveys/european-working-conditions-surveys

Data access can be requested at: https://www.ukdataservice.ac.uk/

a1.3.2 European Quality of Life Surveys

The European Foundation for the Improvement of Living and Working Conditions (Eurofound) has conducted the European Quality of Life Surveys (EQLS) every four to five years since 2003. The EQLS aims to measure trends in the subjective and objective quality of life, society and public services in European countries. Measured concepts include employment, income, education, housing, family, health, work-life balance, life satisfaction and attitudes. Four cross-sectional waves are currently available (2003. 2007-2008, 2011-2012, 2016) and cover the EU member states, with the ad hoc inclusion of candidate member state and EFTA states. The survey is conducted face-to-face through computer-assisted personal interviews and is representative of the adult population (18+). Country samples are around 1,000 observations with larger samples in countries with larger populations.

Website: https://www.eurofound.europa.eu/surveys/european-quality-of-life-surveys

Data access can be requested at: https://www.ukdataservice.ac.uk/

a1.4 Demographic surveys

a1.4.1 IEPM

The Integrated European Population Microdata (IEPM) database (previously Integrated European Census Microdata-IECM) provides access to 66 integrated census samples for 17 European countries from 1962 to 2011. At the time of writing, the IEPM represents over one-half billion Europeans, with 58 million sampled households and 135 million individual registers. The dataset provides a broad set of harmonised indicators relating to households, demographics and work; the online tool contains variable and harmonisation descriptions for all indicators. Integration and full documentation of the data are being organised by the Integrated Public Use Microdata Series (IPUMS) at the Minnesota Population Center. The Centre d'Estudis Demogràfics enhances, harmonises and disseminates the integrated European microdata and metadata as well as coordinating tasks based in Europe. The IEPM is one of the research infrastructures of the InGRID-2 project. IEPM data can be accessed on-site via the Centre d'Estudis Demogràphics (CED) in Barcelona.

Website: http://www.iepm-project.org/

Users need to register for data access at:
https://uma.pop.umn.edu/ipumsi/user/new?return_url=https://international.ipums.org

a1.4.2 Generations and Gender Programme

The Gender and Generations Programme (GGP) combines longitudinal surveys into family changes with country-level indicators for family policy. The survey contains data about relationships, families and children, supplemented with information on the household dwellings, work histories, care tasks, and education. Participating countries choose between applying a multi-stage sampling for area frames or stratified samples (by age, sex, region) for list frames. The longitudinal sample is representative of the population that was between 18 and 79 in 2005 (Wave 1), optional top-up samples of younger age groups ensure the cross-section samples in subsequent waves are representative of the same population ages.

Website: https://www.ggp-i.org/

Data access can be requested online: https://www.ggp-i.org/form/accounts/register/

a1.4.3 Survey of Health, Ageing and Retirement in Europe

The survey of health, ageing and retirement in Europe (SHARE) is a harmonised longitudinal survey implemented in the European area and Israel by SHARE ERIC. The survey targets respondents aged 50 and over, as well as their current partners regardless of age. Interviews are conducted face to face (CAPI). The first wave was conducted in 2004 and has been complemented longitudinally with six additional waves that include either an additional retrospective survey (SHARELIFE – waves 3 and 7) or a refreshment sample to correct for panel attrition (waves 2, 4, 5, and 6). In 2019, SHARE released the 7th wave, as well as updated and improved 7.0.0 releases of all previous waves. The seventh wave also includes a data file called easySHARE, which contains a long formed panel data set of reduced complexity for a limited set of variables. The longitudinal survey contains modules on demographics, physical and mental health, behavioural risks, cognitive function, health care, employment, pensions, fertility, social support, incomes and assets, housing, consumption, activities, and expectations. The SHARELIFE module includes retrospective questions about respondents' children, partners, accommodation, childhood circumstances, work history, work quality, disability, finances, health, health care use and life satisfaction.

Website: http://www.share-project.org/home0.html

Data access can be requested online:
http://www.share-project.org/data-access/user-registration.html

a1.5 Social surveys

a1.5.1 European Social Survey (ESS)

The European Social Survey is a cross-national survey that is conducted and maintained by the ESS ERIC consortium. The ESS is a probability sample representative of the population of all persons aged 15 and over. Interviews are conducted face-to-face by the National Coordination Teams. The survey measures a range of personal and household-level background characteristics, behaviour, attitudes and beliefs. Currently, 32 countries have participated in at least of the eight waves of the survey, covering the years between 2002 and 2016.

Website: https://www.europeansocialsurvey.org/

Data can be retrieved from: https://www.europeansocialsurvey.org/data/

a1.5.2 International Social Survey Program (ISSP)

The International Social Survey Programme is an international collaboration programme. The survey is cross-sectional in nature but the rotating thematic modules do repeat, allowing for repeated cross-sectional comparisons across time. The data are representative of the population aged 18 and over; sampling procedures and interview modes differ across countries. The first survey was fielded in 1985. Data is available until 2016, with the modules from 2017 onwards being under development. The rotating thematic modules have included the role of the government, social networks, social inequality, family and changing gender roles, work orientations, religion, environment, national identity, citizenship, leisure time and sports, and health and health care.

Website: www.issp.org/menu-top/home/

Data can be retrieved from the GESIS Data Archive for the Social Sciences:
https://www.gesis.org/en/institute/departments/data-archive-for-the-social-sciences/

a1.6 Value surveys

a1.6.1 European Values Study (EVS)

The European Values Study, originally established by the European Value System Study Group (UVSSG) is a cross-sectional survey covering the European region. The survey measures a broad topic of values, preferences, and opinions. Topics covered include perceptions of life, leisure, work, religion, family and marriage, politics and society, moral attitudes, national identity, environment, life experiences, spousal and parental characteristics. The survey, based on multi-stage and stratified random samples of 1,500 respondents per country, is representative of the population aged 18 and above; interviews are conducted face-to-face.

A longitudinal data file is available containing four waves of data, fielded in 1981, 1990, 1999, and 2008 in a total of 48 countries and regions as a repeated cross-section. The fifth wave, for which fieldwork started in 2017, is not available at the time of writing but is expected to be released in 2019.

a1.6.2 World Values Survey (WVS)

The WVS Association has conducted the World Values Survey in more than 100 countries since 1981. The survey contains sub-sections measuring social values, attitudes and stereotypes, societal wellbeing, social capital, trust and organisational membership, economic values, corruption, migration, post-materialism, science & technology, religious values, security, ethical norms and values, political interest and participation, political cultures and regimes, and demography. It is closely related to the European Values Survey, but has a global scope and is conducted in both industrialised and developing countries. The national surveys are based on full probability samples or multi-stage territorial stratified samples and surveys are predominantly conducted face-to-face, although national exceptions do exist. The desired minimum size of national samples varies from 1,000 respondents (countries with fewer than 2 million inhabitants) to 1,500 for large countries. The World Values Survey provides a pooled sample of the six existing waves (covering the period from 1981 to 2014), which can be merged with the equivalent EVS longitudinal file.

Website: http://www.worldvaluessurvey.org/wvs.jsp

Data can be accessed on the website: http://www.worldvaluessurvey.org/WVSContents.jsp

a1.6.3 Eurobarometer

The Eurobarometer survey is the public opinion monitor of the European Union. Surveyed topics include consumer behaviour, economic issues, employment, education, family, gender roles, living conditions and so on. It covers the member and candidate countries of the EU and uses a multi-stage sampling design. Surveys are run in two main waves per year, each containing three or four individual surveys.

Website: https://www.gesis.org/eurobarometer-data-service/home

Data can be accessed via GESIS: https://www.gesis.org/eurobarometer-data-service/search-data-access/data-access

a1.7 Skills and education surveys

a1.7.1 PIAAC

The Programme for the International Assessment of Adult Competencies (PIAAC) of the OECD conducts the Survey of Adult Skills. The survey covers OECD member states, currently being conducted in 40 countries. The PIAAC survey measures cognitive and workplace skills, including literacy and numeracy skills, use of skills and competences at home and at work, and involvement in skill development. The survey is representative of the population between 16 and 65 years of age; both single and multi-stage sampling frames were used depending on the country. Per country, at least 5,000 respondents were interviewed through computer-assisted personal interviews between 2008 and 2019.

Website: http://www.oecd.org/skills/piaac/

The PIAAC provides access to its public use files on its website:
http://www.oecd.org/skills/piaac/publicdataandanalysis/#d.en.408927

appendix 2 Household type classifications in EU data sets

EU-SILC (HX060)
One person household
2 adults, no dependent children, both adults under 65 years
2 adults, no dependent children, at least one adult >=65 years
Other households without dependent children
Single-parent household, one or more dependent children
2 adults, one dependent child
2 adults, two dependent children
2 adults, three or more dependent children
Other households with dependent children
Other (these household are excluded from Laeken indicators calculation)
EU-LFS (HHCOMP)
One adult without children
One adult with at least an own son or daughter aged less than 15
One adult with at least an own child aged 15 to 24
One adult with at least another child aged less than 15
One couple without children
One couple with at least an own son or daughter aged less than 15
One couple with at least an own child aged 15 to 24
One couple with at least another child aged less than 15 least
Two adults (not a couple) or more without children
Two adults (not a couple) or more with at least an own son or daughter aged less than 15
Two adults (not a couple) or more with at least an own child aged 15 to 24
Two adults (not a couple) or more with at least another child aged less than 15
No adult household members present in the dataset
ECHP (HD006)
One person aged 65 or more
One person aged 30-64
One person aged less than 30
Single parent with one or more children (all children aged less than 16)
Single parent with one or more children (at least one child aged 16 or more)
Couple without children (at least one person aged 65 or more)
Couple without children (both persons aged less than 65)
Couple with one child (child aged less than 16)
Couple with two children (all children aged less than 16)
Couple with three children or more (all children aged less than 16)
Couple with one or more children (at least one child aged 16 or more)
Other households

ECHP (HD006A)
1-person household: Male under 30
1-person household: Male aged 30-64
1-person household: Male aged 65 or more
1-person household: Female under 30
1-person household: Female aged 30-64
1-person household: Female aged 65 or more
2 adults without dependent child with at least one person aged 65 or more
2 adults without dependent child with both under 65
Other household without dependent children
Single parents with 1+ dependent child
2 adults with 1 dependent child
2 adults with 2 dependent children
2 adults with 3 or more dependent children
Other household with dependent children
AES (HHTYPE), EHIS (HHTYPE), HBS (HB075)
One-person household
Lone parent with child(ren) aged less than 25
Couple without child(ren) aged less than 25
Couple with child(ren) aged less than 25
Couple or lone parent with child(ren) aged less than 25 and other persons living in household
Other
HBS (HB074)
One adult
Two adults
More than 2 adults
One adult with dependent children
Two adults with dependent children
More than 2 adults with dependent children
IEPM (HHTYPE)
Vacant household
One-person household
Married/cohab couple, no children
Married/cohab couple, with children
Single-parent family
Polygamous family
Extended family, relatives only
Composite household, family and non-relatives
Non-family household
Unclassified subfamily
Other relative or non-relative household
Group quarters
Unclassifiable
LIS (hhtype)
One person household

Couple without children
Couple with children
One parent with children
Couple without children and relatives
Couple with children and relatives
One parent with children and relatives
Relatives living together (no family nucleus)
Couple without children and nonrelatives
Couple with children and nonrelatives
One parent with children and nonrelatives
Couple without children and relatives and nonrelatives
Couple with children and relatives and nonrelatives
One parent with children and relatives and nonrelatives
Relatives and nonrelatives living together (no family nucleus)
Nonrelatives living together
Head and other
Couple without children and other
Couple with children and other
One parent with children and other
GGP (bhhtype)
Living alone
Single parent
Living with parents
Single parent living with parents
Couple with no children
Couple with children
Couple with parents
Couple with parents and children
Other types
Eurobarometer (d7; self-reported)
(Re-)Married: without children
(Re-)Married: children this marriage
(Re-)Married: children prev marriage
(Re-)Married: children this/prev marriage
Single liv w partner: without children
Single liv w partner: children this union
Single liv w partner: children prev union
Single liv w partner: children this/prev
Single: without children
Single: with children
Divorced/Separated: without children
Divorced/Separated: with children
Widow: without children
Widow: with children
Other (SPONT.)

References

Banens, M. and E. Le Penven. 2016. Sex miscoding in the census and its effects on the enumeration of same-sex couples. *Population* 71(1), 131–143.

Bishu, S. G., and M. Alkadry (2017). A Systematic Review of the Gender Pay Gap and Factors That Predict It. *Administration & Society*, 49(1), 65–104.

Booth, A. (2006). The Glass Ceiling in Europe: Why Are Women Doing Badly in the Labour Market?, CEPR Discussion Papers 542, Centre for Economic Policy Research, Research School of Economics, Australian National University.

Brady, D., and R. Burroway (2012). Targeting, Universalism, and Single-Mother Poverty: A Multilevel Analysis Across 18 Affluent Democracies. *Demography*, 49(2), 719–746.

Burgess, J., Connell, J., and J. Winterton (2013). Vulnerable workers, precarious work and the role of trade unions and HRM. *The International Journal of Human Resource Management*, 24(22), 4083-4093.

Council of the European Union (2019). Council conclusions on inclusive labour markets: Improving the employment of people in a vulnerable position in the labour market. Available at https://www.consilium.europa.eu/en/press/press-releases/2019/12/10/better-access-of-people-in-a-vulnerable-position-to-the-labour-market-the-council-adopts-conclusions/

Dahlhlamer J., A. Galinsky, S. Joestl, and B. Ward (2014). 'Sexual Orientation in the 2013 Health Interview Survey: A Quality Assessment.' Vital and Health Statistics. Series 2. *Data Evaluation and Methods Research* 169, 1-32.

DeMaio, T., N. Bates, and M. O'Connell (2013). Exploring measurement error issues in reporting same-sex couples. *Public Opinion Quarterly* 77(Special Issue), 45-158.

Di Stasio, V., B. Lancee, S. Veit, and R. Yemane (2019, online only). Muslim by Default or Religious Discrimination? Results from a Cross-national Field Experiment on Hiring Discrimination.' Journal of Ethnic and Migration Studies.

European Commission (2010). A strategy for smart, sustainable and inclusive growth 2020. Brussels, 3.3.2010COM(2010). https://ec.europa.eu/eu2020/pdf/COMPLET%20EN%20BARROSO%20%20%20007%20-%20Europe%202020%20-%20EN%20version.pdf

European Commission (2017). European Pillar of Social Rights. https://ec.europa.eu/commission/sites/beta-political/files/social-summit-european-pillar-social-rights-booklet_en.pdf

Eurofound (2017). Working conditions of workers of different ages. Dublin. Available at: https://www.eurofound.europa.eu/sites/default/files/ef_publication/field_ef_document/ef1747en.pdf

Eurofound (2016). Working life experiences of LGBT people and initiatives to tackle discrimination. Dublin. Available at https ://www.eurofound.europ a.eu/observatories/eurwork/articles/working-conditions-labour-market-law-and-regulation/working-life-experiences-of-lgbt-people-and-initiative s-to-tackle-discrimination

Eurofund, (2015). Convergence and divergence of job quality in Europe 1995-2010. Luxembourg; Publications Office of the European Union.

Fischer, M. (2016). Identifying same-sex couples in cross-national survey data: A comparison of same-sex couples' demographic and socio-economic traits in six European countries. In Nederland in context: verschillen en overeenkomsten, edited by R. Meuleman, G. Kraaykamp, and M. Wittenberg, 50–79. Den Haag: DANS.

Fineman, M. (2008). The vulnerable subject: Anchoring equality in the human condition. *Yale Journal of Law and Feminism* 20 (1), 1-23.

Fric, K.. (2017). Access to the labour market for gays and lesbians-research review. *J. Gay Lesbian Soc. Serv.* 29(4), 319–361.

Gornick, J. and M. Jäntti (2010): Women, poverty, and social policy regimes: A cross-national analysis, LIS Working Paper Series, No. 534.

Greenan N. and M. Seghir (2017). Measuring vulnerability to adverse working conditions: evidence from European countries, Working paper, M21.14, Leuven, PF7 InGRID project.

Hanappi, D., Bernardi, L., and D. Spini (2015). Vulnerability as a heuristic for interdisciplinary research: Assessing the thematic and methodological structure of empirical life-course studies. *Longitudinal Life Course Studies,* 6(1), 59–87.

InGRID (2017). InGRID-2, Data inventory of immigrants' social rights. Zenodo. http://doi.org/10.5281/zenodo.2551205

Jones, M.(2008). Disability and the labour market: a review of the empirical evidence. *Journal of Economic Studies*, 35(5), 405-424.

Kruse, D., Schur, L., Rogers, S., and M. Ameri (2018). Why Do Workers with Disabilities Earn Less? Occupational Job Requirements and Disability Discrimination. *British Journal of Industrial Relations* 56(4), pp. 798–834.

Kogan, Irena (2007). Working through Barriers: Host country institutions and immigrant labour market performance in Europe. Dordrecht: Springer.

Lancee, B. (2019). Ethnic discrimination in hiring: Comparing groups across contexts. Results from a cross-national field experiment. Journal of Ethnic and Migration Studies, DOI: 10.1080/1369183X.2019.1622744

Lombardi, E., and S. Banik (2016). The utility of the two-step gender measure within trans and cis populations. *Sexuality Research and Social Policy* 13(3), 288-296.

Maldonado, L. and R. Nieuwenhuis (2015). Family policies and single parent poverty in 18 OECD countries, 1978–2008. *Community, Work & Family, 18*(4).,395-415.

Mann, D. and D. Wittenburg (2015). Starting behind. Wage and Employment Differentials Between Young Adults With and Without Disabilities. *Journal of Disability Policy Studies* 23(2), 89-99.

Misztal, B. (2011). The Challenges of Vulnerability. In Search of Strategies for a Less Vulnerable Social Life. Palgrave Macmillan UK.

OECD (2019a). Employment Outlook 2019: The Future of Work. OECD, Paris.

OEDC (2019b). Society at a Glance 2019: OECD Social Indicators, A Spotlight on LGBT People. OECD Publishing, Paris. https://doi.org/10.1787/soc_glance-2019-en

Office of National Statistics (2017) Sexual orientation and Gender identity: Update on research and testing. Presentation at the International Census Forum, U.S. Census Bureau, Washington, DC, USA.

Patterson, M. (2013). Vulnerability: A short review(ICR Working Paper No. 3). Retrieved from Vancouver Island University website: www2.viu.ca/icr/files/2012/06/Vulnerability-Literature-review-SSHRC-partnership-grant.pdf

Pollert, A., and Charlwood, A. (2009). The vulnerable worker in Britain and problems at work. *Work, Employment & Society*, 23(2), 343-362.

Regnier-Loilier, A. (2018). Are the Generations and Gender Surveys well suited for studying same-sex couples? *European Journal of Population* 34(4), 567–578.

Reisner, S., K. Conron, L. Tardiff, S. Jarvi, A. Gordon, and S.Austin (2014). Monitoring the health of transgender and other gender minority populations: Validity of natal sex and gender identity in a U.S. national cohort of young adults. *BMC Public Health* 14, 1224.

Ridolfo, H., K. Miller and A. Maitland (2012). Measuring Sexual Identity using Survey Questionnaires: How Valid are our Measures? *Sexuality Research and Social Policy* 9(2), 113-124.

Sparreboom, T. and M. P.F. de Gier (2008). Assessing vulnerable employment: the role of status and sector indicators in Pakistan, Namibia and Brazil. *Employment Sector Working Paper n° 13*, International Labour Organisation.

Stainback, K.; Ratliff, T. and V. Roscigno (2011). The Context of Workplace Sex Discrimination: Sex Composition, Workplace Culture and Relative Power. *Social Forces*, 89(4), 1165-1188.

Thévenot, C. (2017). Labour market structure and wages: policies to reduce inequality in OECD countries. OECD Jobs and Incomes Division United Nations, Expert meeting on policies to tackle inequality, 25-27th June 2017. https://www.un.org/development/desa/dspd/wp-content/uploads/sites/22/2018/06/celine-paper.pdf)

Triventi, M. (2013). The gender wage gap and its institutional context: A comparative analysis of European graduates. *Work, Employment & Society*, 27(4), 563–580.

TUC Commission on Vulnerable Employment (2008) Hard work, hidden lives: the short report of the Commission on vulnerable employment. London: TUC Commission on Vulnerable Employment

Valfort, M.-A. (2017). LGBTI in OECD Countries. OECD Publishing, Paris. Available at https ://doi.org/10.1787/d5d49 711-en

Weichselbaumer, D. and R. Winter-Ebner (2005). A meta-analysis of the International gender wage gap. *Journal of Economic Surveys, 19*(3), 479-511.

Williams Institute (2014). Best Practices for Asking Questions to Identify Transgender and Other Gender Minority Respondents on Population-Based Surveys, https://williamsinstitute.law.ucla.edu/research/census-lgbt-demographics-studies/geniuss-report-sept-2014/ (accessed on August 21, 2019).

Worldbank (2001). Vulnerability: a view from different disciplines. Social protection discussion paper series. Available at: http://documents.worldbank.org/curated/en/636921468765021121/pdf/multi0page.pdf

Young, M. (2010). Gender Differences in Precarious Work Settings. *Industrial Relations*, 65(1), 74-97.

Zimmermann, A. (2017). Social vulnerability as an analytical perspective. Munich: Max Planck Institute, Population Europe, Discussion Paper 4.

InGRID-2
Integrating Research Infrastructure for European expertise on Inclusive Growth from data to policy

Referring to the increasingly challenging EU2020-ambitions of Inclusive Growth, the objectives of the InGRID-2 project are to advance the integration and innovation of distributed social sciences research infrastructures (RI) on 'poverty, living conditions and social policies' as well as on 'working conditions, vulnerability and labour policies'. InGRID-2 will extend transnational on-site and virtual access, organise mutual learning and discussions of innovations, and improve data services and facilities of comparative research. The focus areas are (a) integrated and harmonised data, (b) links between policy and practice, and (c) indicator-building tools.
Lead users are social scientist involved in comparative research to provide new evidence for European policy innovations. Key science actors and their stakeholders are coupled in the consortium to provide expert services to users of comparative research infrastructures by investing in collaborative efforts to better integrate microdata, identify new ways of collecting data, establish and improve harmonised classification tools, extend available policy databases, optimise statistical quality, and set-up micro-simulation environments and indicator-building tools as important means of valorisation. Helping scientists to enhance their expertise from data to policy is the advanced mission of InGRID-2. A new research portal will be the gateway to this European science infrastructure.

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More detailed information is available on the website: www.inclusivegrowth.eu

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