

SYSTEMATIC REVIEW

Quantitative Studies on Inequality and Radicalisation



**RENATA FRANC AND
TOMISLAV PAVLOVIĆ**



Systematic Review of Quantitative Studies on Inequality and Radicalisation

Renata Franc and Tomislav Pavlović^{*}

Dialogue About Radicalisation and Equality

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EXECUTIVE SUMMARY

The aim of this report is to provide a methodological evaluation and review of studies that focus on the relationship between inequality and radicalisation.

Studies included in this systematic review were quantitative (or mixed-method) empirical studies published in English between 1 January 2001 and 31 December 2017. The studies concerned different forms of 'radicalisation' (e.g. cognitive and behavioural radicalisation, far-right and religious/Islamist radicalisation) and inequality (e.g. economic and socio-political). They also differed in terms of geographic location and their focus on the individual or the social/macro level. A total of 132 publications meeting inclusion criteria were identified through a search of seven well-known journal databases as well as two highly relevant journals, not listed in these databases, and the body of relevant grey literature. An additional nine publications were identified through cross-referencing. Of the **141 studies finally selected**: 84 focused on a macro-level of investigation; 42 studies were based on survey research related to non-radicalised individuals; and 15 drew on biographical evidence about radicalised individuals.

The **review findings suggest an inconsistent relationship between economic inequality and radicalisation**. At the individual level, data on objective economic indicators were inconsistent regarding their association with cognitive radicalisation although slightly more consistent regarding behavioural radicalisation. The data suggest that behavioural radicalisation is more characteristic for more educated Muslims in dominantly Muslim countries, while, in Western European countries, less educated participants were more likely to demonstrate features of Islamist radicalisation. Data regarding individual-level radicalisation in the USA yielded no consistent outcomes. Similarly, data regarding the relationship between perceived (or subjective) economic inequality and radicalisation provided inconsistent results.

At the social level, there was some evidence that a higher per capita GDP and unemployment, as well as lower education levels, may be related to higher terrorism incidence. In relation to per capita GDP, the majority of studies indicate that countries with both a high and a low, per capita GDP tend to experience less terrorism than countries with an average per capita GDP (indicating a non-linear trend). Although inequality indicators generally showed an inconsistent pattern of relationships with radicalisation, countries with a higher percentage of people living in poverty were more likely to be targets of transnational terrorist attacks, while interregional inequality appears to be related to a higher incidence of domestic terrorism. Other economic inequality indicators (interpersonal inequality, Human Development Index, adult literacy) failed to show consistent results.

At the individual level **more consistent patterns were found between cognitive radicalisation and various measures of perceived social inequality**. Higher perceived inequality was related to more radicalised attitudes in different contexts, regardless of the ideological orientation of radicalisation. This could also be seen at a transnational level, with respect to human rights since where human rights (physical integrity rights) were upheld, incidence of terrorism was consistently lower, while repression was related to higher terrorism incidence. Gender equality was associated with lower incidence of attacks, but incidence of terrorism was higher when Islamist or far-right domestic terrorism was the focus of the study. Data on civil rights and liberties as well as democracy yielded no consistent results; some evidence indicated an underlying non-linear trend.

Although these results do not indicate the irrelevance of economic inequality in the context of radicalisation, they do imply that socio-political rights, in terms of objective estimates at a macro level or subjective perception at an individual level, may play a more important role than economic inequality in the inequality-radicalisation nexus. This suggests – in the absence of any formal causal relationship testing – that **higher socio-political inequality leads to higher probability of radicalisation and terrorism incidence**.

This is important for policy-making because it suggests that given the limited possibility for rapidly reducing economic inequality, a similar, or greater, positive impact on the lowering of terrorism incidence might be achieved by reducing socio-political inequality. Thus, assuming we can imply any causal relationship, future policies should focus on minimising the experience of marginalisation and injustice by individuals and communities. This is because **perceived inequality – sometimes itself an unintended consequence of counter-radicalisation measures – has been shown to be related to radicalisation in its various forms**.

The conclusions of this review should be read in the context of a number of methodological limitations of the studies analysed. These include: the lack of an experimental methodological approach; poor, or inconsistent, operationalisation of variables; and a scarcity of studies including a range of potentially important variables. Some studies were also found to have: employed inappropriate means of analysing or presenting data; omitted to explore the combined (or interactive) effects of different inequality variables on radicalisation; or demonstrated other limitations. This review, therefore, does not provide a definitive answer to the question of the relationship between radicalisation and inequality but serves as a starting point for future research that, through the employment of more sophisticated research designs, might allow more precise conclusions.

1. INTRODUCTION

Although there is no consensus on the definition of ‘radicalisation’ (Neumann, 2013: 874), it is commonly understood as the *process* by which individuals or groups come to embrace attitudes or engage in actions that support violence in the pursuit of extremist causes (Doosje et al., 2016: 79; Alonso et al., 2008). Understanding radicalisation as a process implies the importance of understanding any movement to a more radical position regardless of whether it leads to violence or whether radicalisation is manifest in behaviour or ideas (Sedgwick, 2010).

In line with this, the DARE project understands radicalisation as a relative concept, adopting the position that ‘radical or extremist ideologies matter, whether accompanied or not by violent action, while what causes individuals to cross the threshold into violence remains important’ (DARE, 2016: 17). Understanding radicalisation as a relative concept additionally implies that radicalisation is a context-bound phenomenon (Alonso et al., 2008). Consequently, studying radicalisation cross-nationally needs to recognise that shifts may be from different starting points and to different end points depending on the context and the type of radicalisation. In addition, radical attitudes and behaviours can be driven by distinct and different motives (Khalil, 2014; Sedgwick, 2010).

Thus, in this systematic review, radicalisation is understood as a relative process displaying different manifestations, sources and trajectories in different contexts. Manifestations of radicalisation can range from general ideological beliefs through specific attitudes and justifications of violence to one’s own violent actions. Moreover, beliefs and attitudes can, but do not necessarily, lead to violence and violent extremism/terrorism. This corresponds to the distinction between ‘cognitive’ radicalisation, focusing on extremist beliefs, and ‘behavioural’ radicalisation, which focuses on extremist behaviour (Neumann, 2013). This distinction between beliefs and actions is found also in some contemporary theories of radicalisation such as the two-pyramid approach of Moskalenko and McCauley (2017), as well as some recent syntheses of radicalisation literature (Dzhekova et al., 2017; PROTON, 2017).

A strong presumption that inequality is positively related to radicalisation and terrorism is characteristic of a broad range of actors; from policy makers and experts to the public. For example, the policy statement of the UK Department for International Development (DFID) ‘Fighting Poverty to Build a Safer World’ argues that ‘poverty and lack of access to basic services contribute to perceptions of injustice that can motivate people to violence’ (DFID 2005, cited in Blair et al., 2013: 30). Similarly, economic, social, socio-spatial and cultural inequality are identified as important elements contributing to radicalisation by experts interviewed as part of the DARE project (DARE,

2018). Regarding public opinion, data from an Afrobarometer showed that citizens in African countries considered inequality to drive people to join extremist groups. When asked to name the main reason some individuals from their country might leave to join the Islamic State of Iraq and the Levant (ISIL), respondents cited the following main cause: poverty - 25%; unemployment - 15%; lack of education - 10%; religious beliefs - 15% (Bentley et al., 2016: 9-10). Moreover, a survey conducted among 406 inhabitants of the Molenbeek district in Brussels revealed that 'a lack of opportunities and social isolation are perceived as the main drivers that permitted the emergence of violent radicalisation in Molenbeek' (Coolsaet, 2017: 11).

However, the findings of quantitative empirical studies do not confirm the presumption that inequality is positively related to radicalisation and terrorism. The results of such studies are frequently inconsistent and inconclusive. The same is true of existing syntheses of published work on the inequality-radicalisation relationship. Meierrieks (2014) noted inconclusive results regarding the economic determinants of terrorism; some studies found that economic conditions matter to terrorism while others suggested that non-economic factors are more important. Indeed, based on a review on determinants of transnational terrorism, Krieger and Meierrieks (2011) concluded that there is little evidence to indicate that poor economic conditions alone cause terrorism. Thus, a review of the literature leads some authors to conclude that economic inequality at the individual (e.g. low socio-economic status) or social level (e.g. country poverty) and involvement in terrorism (Hardy, 2018) are not necessarily related. Others, however, isolate particular aspects of inequality - e.g. un(der)employment – rather than individual poverty as playing a role (Schmid, 2013: 20). At the same time, and as we would anticipate from 'relative deprivation' theory, objective inequality may be positively causally related to radicalisation when filtered through subjective or perceived inequality (objective socio-economic disadvantage may aggravate perceptions of injustice, for example). This suggests the significance for radicalisation outcomes of the combination of objective (e.g. economic disparity) and subjective (e.g. personal experience of discrimination) individual inequality (Hardy, 2018).

Until recently, systematic reviews¹ (SRs) in the field of radicalisation and terrorism were relatively rare (Bouhana and Wikstrom, 2011; Campana and Lapointe, 2012; Christmann, 2012; Munton et al., 2011). However, their number has grown in the last few years (ICPC, 2015; McGilloway et al., 2015; Grossman et al., 2016; Scarcella et al., 2016; Desmarais et al., 2017; Hassan et al., 2018; Lösel et al., 2018). Some reviews have a broad focus, covering different radicalisation risk or protective factors or correlates (Christmann, 2012; Desmarais et al., 2017; Lösel et al., 2018; Munton et al., 2011), while a smaller number concentrate on a specific group of factors, such as social cohesion (Grossman et al.,

¹ As well as other types of synthesis employing a more systematic approach than classical literature reviews (e.g. scoping reviews or rapid evidence assessments).

2016), Internet or social media (Hassan et al., 2018) or on particular macro factors as covariates of non-suicide terrorism (Scarcella et al., 2016).

Although none of the above-mentioned reviews specifically focus on inequality, several contain findings of relevance to this SR (Christmann, 2012; Desmarais et al., 2017; Lösel et al., 2018) and generally identify inconsistent conclusions regarding the role of inequality in the development of radicalisation or terrorism. For example, Christmann (2012: 26) concluded that relative deprivation and failed integration are likely to be ‘only, at best, a background or distal factor (the cause of the causes) in any process of radicalisation, and then not a necessary one’. Munton et al., (2011: 13) investigated Al Q’aeda-influenced radicalisation and concluded that, in terms of individual characteristics related to inequality (e.g. educational achievement and socio-economic status), radicalised individuals tend to be similar to the broader population in which they live, with some evidence that they displayed lower skill sets than education levels. On the other hand, perceived inequality (grievance, frustration with reduced socio-economic opportunities) was found to be a consistent driver of engagement in Al Q’aeda influenced violent extremism (ibid.).

Only two reviews focused on terrorism and violence (Desmarais et al., 2017; Scarcella et al., 2016). Scarcella’s et al.’s (2016) review of potential drivers of non-suicide terrorism failed to establish any consistent conclusions in relation to a number of socio-economic inequality indicators at an individual level (socioeconomic condition, level of education) or country level (economic development, socioeconomic conditions, economic inequality, level of education), or political inequality indicators at a country level (political freedom, civil liberties, democracy, dictatorship, state repression). Desmarais et al., (2017) also concluded that there is insufficient evidence to regard any of the analysed variables as an empirically demonstrated risk factor for terrorism. However, Desmarais et al.’s (2017) review identified nine variables whose association with terrorism had some empirical support. Four of these variables referred to inequality at the individual level (socioeconomic status, education, employment, having a grievance). Income inequality at the social level was identified as one of six additional factors meriting further evaluation.

Given the inconclusiveness of these reviews, and the absence to date of any systematic review focusing specifically on the role of inequality in radicalisation, the DARE project aims to contribute to a better understanding of the relationship between inequality and radicalisation. To this end two parallel syntheses of existing empirical work were conducted:

- a systematic review of quantitative empirical findings on the inequality-radicalisation relationship;
- a meta-ethnographic synthesis of qualitative empirical findings on the inequality-radicalisation relationship (Deliverable 4.2).

By conducting two separate syntheses we acknowledge the distinct strengths and limitations of studies of a qualitative and quantitative approach while allowing for the subsequent integration of findings. Such an integration is made possible by adopting from the start similar, and complex, conceptualisations of radicalisation – as a relative process shaped by context and ideological orientation – and of inequality – as manifest at both individual and social level, as existing objectively and subjectively and taking economic and social-political forms.

Aims and research questions

General aim

This systematic review aims to **enhance understanding of the role of inequality in radicalisation**. It has five specific objectives:

1. To examine the relationship between inequality and radicalisation at the individual level;
2. To examine the relationship between inequality and radicalisation at the social level;
3. To investigate whether there are mediating and moderating factors involved;
4. To describe the methodological aspects of existing studies;
5. To detect evidence gaps, best practice methodology and action points for other work packages (WPs) and future studies in general.

To achieve the overall aim and specific objectives, the main review questions were formulated as follows:

Is inequality associated with radicalisation?

If so, how (positively or negatively), when, where and what can explain this association?

This formulation of the questions to guide the review reflected the recognised inconsistencies in existing evidence on the association of inequality and radicalisation as well as the anticipated complexity of the relationship between them (should it exist at all). This relationship, it was supposed, was also likely to be conditional on several important factors such as the general social/political/demographic context (e.g. countries), ideological nature of radicalisation (e.g. Islamist or far-right), type of radicalisation (cognitive or behavioural) and level, type and dimension of inequality (see Figure 1).

The objectives and review questions were also designed to capture any inconsistencies in the findings on the inequality-radicalisation relationship that might be attributable to the methodological

characteristics of the studies, their failure to consider the complexity of either or, both phenomena (inequality and radicalisation) or the lack of differentiation between types and dimensions of inequality and radicalisation.

Thus, in this systematic review, we included both, but differentiate between, cognitive and behavioural radicalisation and between radicalisations rooted in different ideologies. We also adopted a broad notion of inequality whilst differentiating economic (e.g. poverty, income inequality) from social-political inequality (exclusion, marginalisation). Moreover, we considered that indicators of inequality can be measured at different levels: individual or micro (e.g. poverty, discrimination); macro or social (e.g. poverty, discrimination, income inequality). Measures of inequality can also be of a more objective nature (e.g. socioeconomic status) or a more subjective and perceived nature (e.g. perceived individual/group injustice). This differentiation is visually represented in Figure 1, while examples of relevant inequality indicators for each level as well as type and aspect of inequality are depicted in Table 1. Figure 1 represents a conceptualisation of the inequality-radicalisation nexus developed solely for the purposes of this review as a heuristic tool that informed analysis of studies and narrative synthesis of findings.

Figure 1 Conceptualising the inequality-radicalisation relationship employing different levels of investigation, types and dimensions of inequality and radicalisation

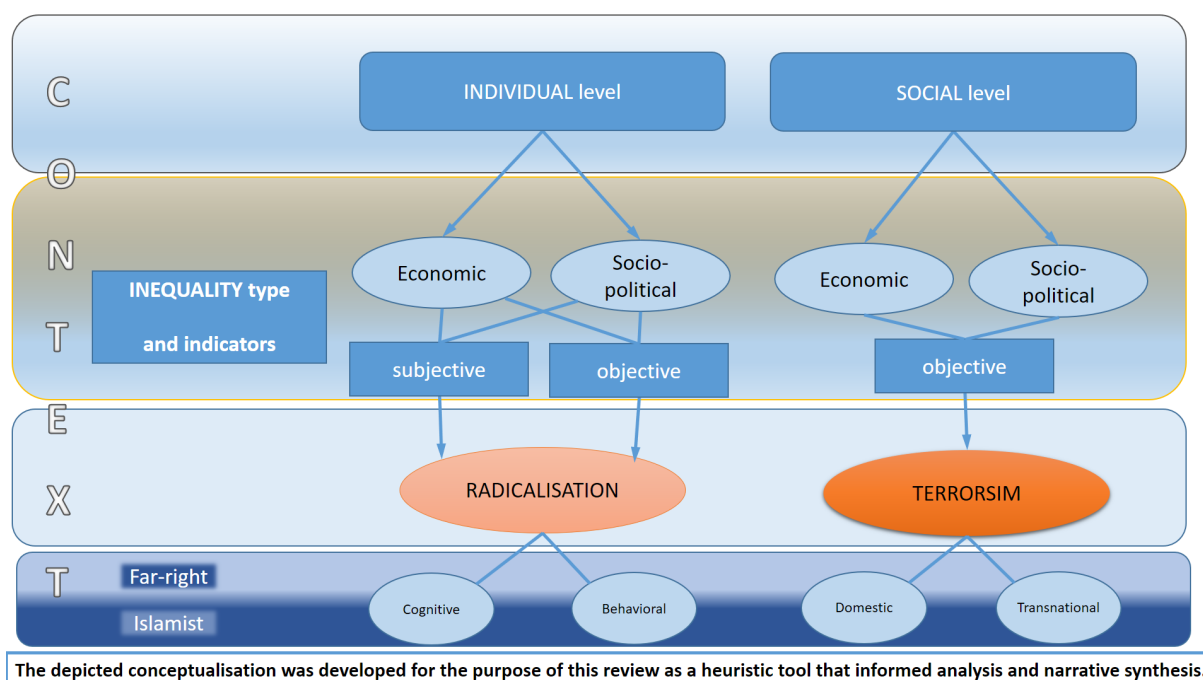


Table 1. Examples of inequality indicators (relevant variables) by level of investigation (individual or social/macro), type of inequality (economic, socio-political) and aspects (objective or subjective/perceived)

| INEQUALITY | | INDIVIDUAL LEVEL | SOCIAL LEVEL |
|-----------------|------------|---|---|
| Economic | objective | <i>education, employment, income</i> | <i>Gross domestic product (GDP), Human Development Index (HDI), GINI coefficient, adult literacy rate, poverty rate</i> |
| | subjective | <i>income dissatisfaction, perceived economic deprivation</i> | |
| Socio-political | objective | <i>discrimination</i> | <i>democracy, physical integrity rights, repression</i> |
| | subjective | <i>perceived discrimination, perceived injustice</i> | |

To enable a better understanding of the inequality-radicalisation relationship, the findings from the studies were analysed separately for each of these categories of inequality and, where possible, for the different forms of radicalisation also. In the course of analysing and synthesising the findings of the studies, moreover, the methodological characteristics and possible limitations of the studies are noted.

2. METHOD

This systematic review focused on *quantitative* studies addressing the relationship between inequality and radicalisation. It was conducted, however, in parallel with a separate meta-ethnographic synthesis (MES) of *qualitative* studies (see Deliverable 4.2). Consequently, the first part of the search process was conducted as a single exercise according to a review protocol designed in advance. Following a pilot search phase, the protocol was amended slightly to reduce the number of databases searched and narrow the concrete search string applied (see below).

Inclusion and exclusion criteria

The main inclusion criteria for the common search process were as follows:

- *the study should be empirical (quantitative, qualitative or mixed method);*
- *the study should be relevant to both key concepts (inequality and radicalisation).*

Publication, in English, as a journal article, book/book chapter² or report between 1 January 2001 and 31 December 2017 were additional inclusion criteria for the common search. The starting date of 2001 reflects the point at which the concept of ‘radicalisation’ started to appear more often in the literature (Neumann and Kleinmann, 2013). An additional common criterion was that the study should investigate Islamist and/or far-right radicalisation. However, in the case of quantitative terrorism studies, this additional inclusion criterion was not applied since quantitative data about terrorism (outcome variable) usually do not differentiate between ideological bases of terrorism.

Empirical studies were included regardless of whether they employed primary or secondary data, their research design, data collection method, applied analyses, geographical scope or context of the data used.

Population

Regarding relevant populations, no restrictions regarding age, gender, ethnicity, nationality and geographical context were introduced, other than the focus on Islamist or far-right radicalisation (see above). Additionally, in line with the objective of the quantitative review to investigate the relationship between inequality and radicalisation at the individual *and* social level, alongside individuals, relevant populations included radicalised or terrorist groups, states or other aggregate units (in the case of quantitative terrorism studies).

² Potentially relevant books/book chapters retrieved by the common databases search were only included in the meta-ethnographic synthesis and were not considered within the systematic review of quantitative studies.

Search strategy

A search strategy was developed based on the key concepts of inequality and radicalisation and how these concepts are understood and interpreted within the DARE project (DARE, 2016). The search strategy was also informed by consideration of the terms frequently found in the literature addressing concepts of inequality or radicalisation (McGilloway et al., 2015) as well as by previous systematic reviews focusing on aspects of inequality and other outcome variables e.g. income inequality and well-being (Ngamaba et al., 2017).

The aim of the search was to identify (as many as possible) quantitative and qualitative studies relevant to understanding the role of inequality in radicalisation at the individual and social level. Thus, in line with DARE's substantive focus, the search was directed towards Islamist and right-wing radicalisation while, based on our starting position that ideational radicalisation must be analytically distinguished from behavioural radicalisation, our operationalisation of the radicalisation concept as an outcome variable was very broad. In selecting search terms, we sought to focus the search on Islamist radicalisation (e.g. *jiḥād*, *salafi*, *Islam*, *Muslim* and *radical*, *violent*, *nonviolent*) and far-right radicalisation (e.g. *far-right*, *alt-right*, *ultra-right*, *identitarian*, *radical right*, *nationalism*, *patriotism* and *extreme*, *violent*, *ultra*). Additionally, we tried to cover radical beliefs and attitudes (e.g. *radical* and *attitude*, *ideology*, *belief*, *discourse*), attitudes towards violence and justification of violence (e.g. *attitude towards violence*, *violence support*, *approval of violence*, *justification of violence*) as well as one's own violence, participation in terrorism, and incidence of terrorism (*radicalisation*, *deradicalisation*, *extremism*, *terrorism*, *lone wolf*, *foreign fighter*). Similarly, we started from an understanding of the concept of inequality as broad in scope and complex, requiring analytic differentiation between levels, types and dimensions/aspects of inequality. Hence, the inequality concept is also operationalised very broadly through search terms, covering economic and social inequality as well as more objective and perceived inequalities at the individual and social level (Table 2). These search terms were applied in database searches for both the SR reported on here and for the meta-ethnographic synthesis (MES) reported on separately (D4.2).

Table 2. Search terms applied for inequality and radicalisation concepts

| INEQUALITY | RADICALISATION |
|--|---|
| inequality, equality, wealth, poverty, unfairness, injustice | radicalisation, deradicalisation, extremism, terrorism, 'lone wolf', 'foreign, fighter' |
| Atkinson index, Hoover index, Robin Hood index, Schutz index, Theil index, GINI coefficient/index | radicals (violent, political, religious, ideological, nonviolent) |
| income gap, salary gap, wage gap, pay gap | violence (radical, religious, political, ideological) milieu (radical, violent, nonviolent) |
| social or socio-economic or economic <ul style="list-style-type: none"> - class - status - stratum - stratification - gradient - determinants | far-right, alt-right, ultra-right, identitarian, radical right, violent right, nationalism (extreme, violent, ultra), patriotism (extreme, violent, ultra) anti-Muslim, anti-Islam, Islamophobia |
| social or socio-economic or economic <ul style="list-style-type: none"> - exclusion - inclusion - integration - deprivation - disadvantage - marginalisation - discrimination | jihad, salafi Islam (radical, violent, nonviolent) Muslim, (radical, violent, nonviolent) attitude towards violence, violence support, approval of violence, justification of violence |
| Grievance (social, economic, political, religious, group, intergroup) | radical attitude, radical ideology, radical belief, radical discourse, violent attitude, violent ideology, violent belief, violent discourse |

Database search

These search terms were combined by using Boolean operators (OR, AND), truncation command (e.g. *) and a wildcard adapted for different databases. The terms were combined in six search strings

for the inequality concept and seven search strings for the radicalisation concept. This resulted in a total of 17 searches (including the final with data limiters for date of publication, type of publication and English language). A search history example for one database is provided in Appendix 1. The search strings used were developed after consultation with a library science expert.

Before the final selection of these search terms and strings, exploratory searches including additional terms (e.g. *fundamentalis**, *xenophob** for right-wing) and different combinations of terms were conducted. Based on the quantity of retrieved search results, some of the initially planned search terms were excluded (e.g. *xenophob** OR *racis** relevant for far-right radicalisation) or were additionally narrowed (e.g. instead of *nationalis**, we used '*extreme nationalis**', '*radical* nationalis**' '*violent nationalis**' and '*ultra nationalis**').

Search process:

The literature search for both the SR and MES encompassed searching electronic databases, hand searching of two journals not indexed in databases and a grey literature search.

The search strings were applied in the following seven databases:

1. Web of Science Core Collection (excluding Chemical Indexes)
2. SCOPUS
3. Current Contents Connect (Social & Behavioral Sciences)
4. SocINDEX with full text
5. PsycINFO
6. EconLit (EBSCO)
7. MEDLINE®

These databases were selected following the testing of the SR protocol and the conducting of a pilot search, which revealed that the target number of databases in the original SR protocol was too high.

A common search for both syntheses (SR and MES) also included hand searching two journals not indexed in databases (*Journal of Deradicalisation* 2014/15 – 2017 and *Perspectives on Terrorism* 2007 – 2017) and a grey literature search. The grey literature search was conducted by two reviewers (the first author and an additional researcher – a team member who conducted the meta-ethnographic synthesis of qualitative literature). This was limited to reports (excluding dissertations and conference abstracts or papers) and based on web sources of relevant institutions, networks and projects (see Appendix 2. List of grey literature sources).

For the SR, nine additional articles were selected for inclusion during the extraction phase based on a cross-reference search.

Search flow and results

Database searches resulted in the identification of 5511 items, which were indexed in a reference manager library. Automated and hand duplicate detection resulted in 2249 duplicates, which were removed leaving 3262 items. An initial screening of titles and abstracts for conformity to the document type inclusion/exclusion criterion, resulted in the removal of a further 120 items (editorials, book reviews, review articles and similar types of documents falling outside of the inclusion criteria). The remaining 3142 items were subjected to a second screening for compliance with the main inclusion criteria, namely that the study should be i) empirical and ii) address inequality *and* radicalisation. This second screening was also based on the title and abstract. However, since abstracts in many cases did not contain all the relevant information, this phase frequently included full text screening. Following this screening, of the 3142 items, 482 were retained as potentially relevant. Of these, 131 items (including 34 books) were based on qualitative studies, 342 were quantitative studies and 9 were mixed-method studies. The final database search was conducted on 20 March 2018.

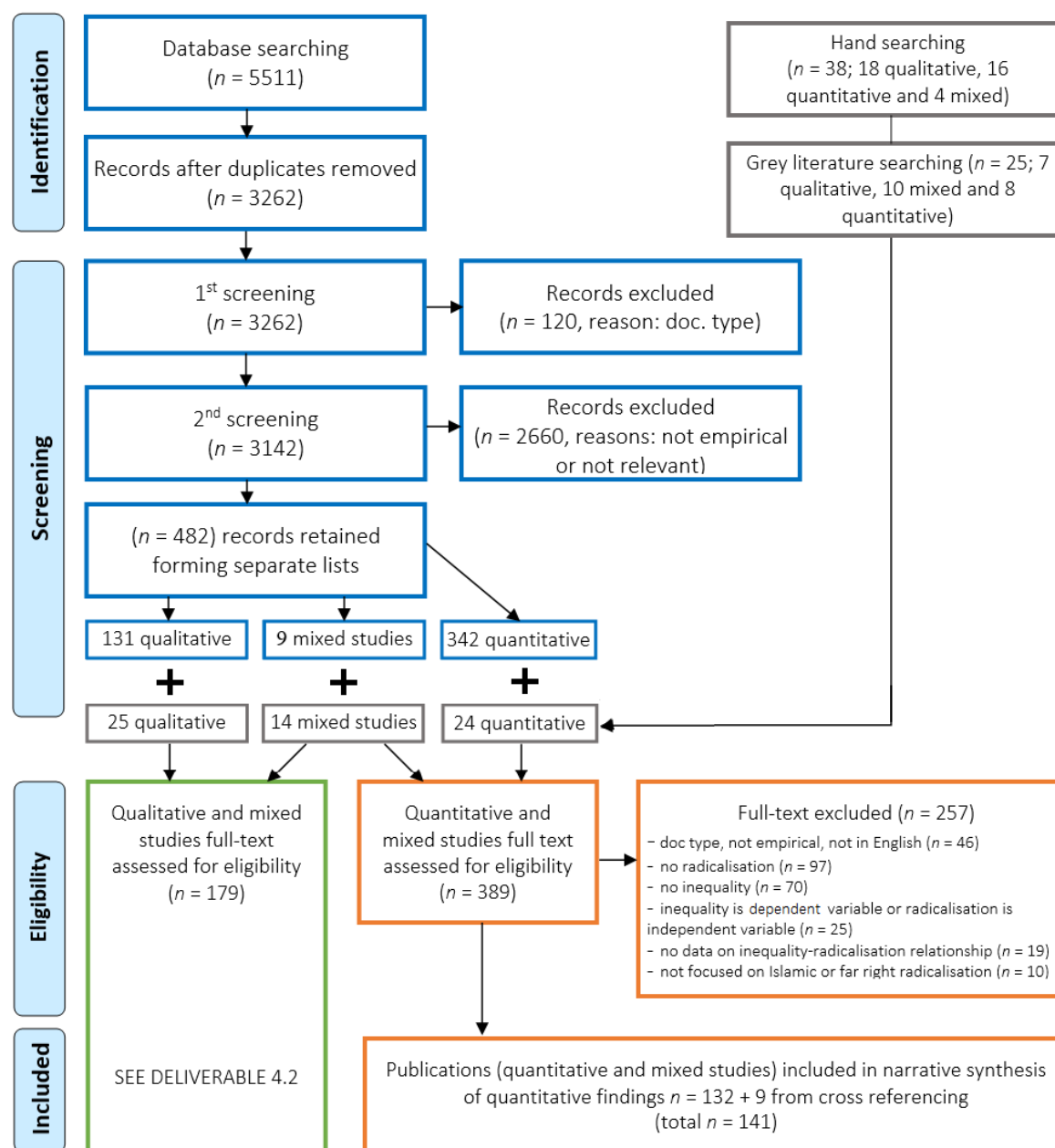
The hand search of two relevant journals resulted in an additional 38 potentially relevant articles (18 qualitative, 16 quantitative and 4 mixed), while the grey literature search resulted in 25 additional, potentially relevant studies (7 qualitative, 8 quantitative and 10 mixed).

Thus, altogether this common search process resulted in two separate lists: one including potentially relevant qualitative and mixed method studies consisting of 179 items for the meta-ethnographic synthesis (see Deliverable 4.2) and a second list consisting of 389 items including potentially relevant quantitative work and the same mixed method studies. A flow diagram of the search and selection process is presented in Figure 2.

At the final stage of selection, the full text of potentially relevant items was read and items not meeting the inclusion criteria were excluded. At this stage, from the 389 items on the quantitative list, 132 publications were selected for final inclusion in the SR of quantitative findings. Nine additional publications were added during the extraction phase based on cross-referencing. Thus, altogether we analysed 141 publications.

This final stage of screening and selection of items for inclusion in the qualitative review (MES) is described in the D4.2 report.

Figure 2. Flow chart of the literature search for both syntheses (systematic review of quantitative findings and meta-ethnographic synthesis)



Adapted from Moher, D. Liberati, A., Tetzlaff, J., Altman, D.G. (2009) 'Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement', *PLoS Med*, 6(6): e1000097.

The extraction process was based on a prepared extraction form common for all analysed quantitative studies, which focused on nine groups of study characteristics:

| | |
|--------------------------|--|
| General | • first author's discipline, geographical context, ideological base/type of radicalisation, level of investigation |
| Type | • type of study and data collection method |
| Radicalisation variables | • concept, operationalisation, sources, strengths, limitations |
| Inequality variables | • concept, operationalisation, sources, strengths, limitations |
| Data analyses | • type, name, strengths, limitations |
| Main results | • main results regarding inequality-radicalisation relationship, type of relationship tested, moderator and mediators |
| Limitations / strengths | • methodological limitations and strengths (regarding design, operationalisations, data analyses, data sources) of the study |
| General quality | • evaluation of general quality of study |
| Additional comments | • additional relevant comments (including additional references based on cross-referencing search) |

Although we sought to apply the same approach to the coding and synthesis of all included studies, their heterogeneity made this difficult. The narrative synthesis presented below is thus as consistent as possible but varies, as necessary, to ensure the key findings of all types of studies are reported.

Limitations and strengths of this Systematic Review

In reflecting on the process of conducting this SR, a number of general and specific limitations must be acknowledged. At the general level, the review was confined to English language publications during a specified period (2001-2017). More specific limitations were encountered at various phases of the SR process and are detailed below.

Firstly, the search process was limited by source. Although a range of sources were used (several databases, grey literature, hand searches and cross-referencing), the use of additional sources (expert knowledge, systematic cross-referencing, Google search) and the inclusion of other potentially relevant document types (e.g. books, dissertations) were beyond the time and resource possibilities of this review.

Secondly, the broad scope of the review posed additional challenges regarding the search terms and eligibility criteria. This became evident when seeking to operationalise the key concepts – inequality and radicalisation – neither of which has a uniformly accepted conceptualisation. It was a challenge also to address the inequality-radicalisation relationship at both the individual and social level.

Due to these limitations, the corpus of analysed quantitative studies does not constitute an exhaustive review of all studies with relevant findings about the inequality-radicalisation relationship.

A third limitation of the SR was that, due to time and resource constraints, the first author conducted the initial rounds of screening and decided on a study's potential relevance alone and each of two authors extracted and coded information for one group of studies; ideally independent double extraction and coding for all analysed studies would have been undertaken. In order to test for the likelihood of any subjectivity arising from this, however, two reviewers independently extracted and synthesised information from a small subset of analysed studies (20%); this revealed a near perfect agreement regarding the main findings about the inequality-radicalisation relationship and coding of the analysed study characteristics.

A fourth complicating factor concerns the disciplinary heterogeneity of the analysed studies. Ideally, a team of researchers of different disciplinary backgrounds and sub-disciplinary fields (e.g. econometrics in the case of many analysed terrorism studies) would have conducted the extraction and coding to ensure a fuller understanding of each study's methodology and findings.³

A fifth possible limitation is the decision not to exclude studies from the SR based on quality criteria. While the practice of excluding studies with a lower general score based on the application of an existing quality assessment instrument or check list before the extraction phase, is widely applied when conducting SRs, we analysed all relevant studies. The rationale for this decision was that the application of methodological quality criteria would have resulted in a much smaller number of included studies and, in practice, these studies and articles are read and cited in the literature and policy documents on radicalisation frequently regardless of their varying methodological quality or specific limitations. Thus, instead of excluding studies, during the extraction phase, we extracted relevant information about each study's method, research design, operationalisations and data analyses. Moreover, in the analyses of studies and synthesis of their findings, we integrated the methodological elements of studies, noting the limitations or strengths of each study relevant for the credibility of their findings and commenting on where methodological similarities/differences between studies or the methodological limitations of particular studies might explain (in)consistencies in their findings. By adopting this approach we were able to more fully achieve two specific objectives of this review, namely: to describe the methodological aspects of existing studies; and to detect evidence gaps and methodological best practice.

³ Although the disciplinary background of both reviewers in this SR is psychology, both have good knowledge of research methodology used in the social sciences and quantitative data analyses.

Sixth, the complexity of many studies included in the SR – which often investigated the relationship between many different potential risk factors or correlates and several radicalisation measures – posed significant challenges during the extraction, coding and synthesis phases. This relates, in particular, to the fact that multiple analyses might be conducted employing multiple dependent variables and/or statistical models and, often, providing inconsistent findings. In these cases, we explicitly mention in the review, the number of dependent variables for which the relationship was established out of a total number of dependent variables. Similarly, in the case of tested multiple models the findings about the inequality-radicalisation relationship were treated as consistently positive or consistently negative only when more than the majority of tested models revealed the same results.

Finally, during the synthesis phase, it was a challenge to organise the included studies and present their findings in the most useful way. As described in the following section, the solution we found was to assign analysed studies to one of three categories. While the studies in any one group are far from homogenous, this categorisation is based on several key study characteristics: main research design; level of investigation and operationalisation of relevant variables; type of individuals investigated; and type of data sources. This categorisation allowed the synthesis of empirical findings of cognate studies in a meaningful way.

Each of the SR phases described above could have been conducted differently and, consequently, might have produced slightly different results. Notwithstanding the challenges of conducting a very broad systematic review and the limitations of the applied approach, however, we believe that the SR reported on here resulted in a meaningful synthesis of findings that reflects the current state of quantitative evidence about the relationship between inequality and radicalisation including the limitations of that evidence base.

3. RESULTS

3.1 General characteristics of analysed studies

The existing quantitative evidence base on the relationship between inequality and radicalisation consists of a diverse range of empirical studies and analyses. Before the process of review and narrative synthesis of study findings could begin, therefore, the selected studies were organised into three categories:

- cross-sectional studies based on survey data about characteristics, attitudes or/and behaviour of non-radicalised individuals;
- descriptive studies based on biographical evidence on radicalised individuals;
- cross-sectional studies or studies with causal design exploring macro level determinants of terrorism.

As noted above, this categorisation does not indicate the complete homogeneity of studies in any one group but employs multiple characteristics to group cognate studies to enable review and synthesis. The main characteristics of the analysed studies employed in the group classification are summarised in Table 3.

Table 3. Selected main characteristics of the analysed publications/studies according to three main study groups

| MAIN CHARACTERISTIC | Determinants of radicalized beliefs and behaviour among non-radicalised individuals | Biographical evidence on radicalised individuals | Macro level determinants of terrorism |
|--|---|--|---------------------------------------|
| <i>Discipline</i> | | | |
| Criminology | 4 | 1 | 2 |
| Economics | 1 | 3 | 39 |
| Political science | 19 | 6 | 33 |
| Psychology | 8 | - | - |
| Sociology | 4 | - | 7 |
| Security | 1 | - | 1 |
| Medicine | 5 | - | - |
| Unknown/other | - | 5 | 2 |
| <i>Study type</i> | | | |
| Descriptive case study | 1 | 15 | 0 |
| Cross-sectional** | 40 | 6 | 84 |
| Survey experiment* | 1 | - | 0 |
| <i>Source of radicalisation data</i> | | | |
| Primary | 20 | 1 | 0 |
| Secondary | 22 | 14 | 84 |
| <i>Type of radicalisation**</i> | | | |
| Islamist | 36 | 14 | 5 |
| Religious | - | - | 3 |
| Far-right | 6 | - | 5 |
| Separatist | - | 1 | 3 |
| General | 1 | - | 72 |
| <i>Inequality level</i> | | | |
| Individual | 39 | 13 | - |
| Social (macro) | 1 | - | 84 |
| Individual and macro | 2 | 2 | - |
| <i>Geographical and social context</i> | | | |
| Dominantly Muslim countries | 24 | 8 | 18 |
| USA | 3 | - | 5 |
| Western Europe | 16 | 7 | 1 |
| Asia/Eurasia | 1 | - | 4 |
| Worldwide | - | - | 56 |
| <i>Total</i> | 42 | 15 | 84 |

*One additional study (Blair et al., 2013) used elements of experiment for operationalisation of radicalisation (i.e. endorsement experiment). However, since inequality as explanatory variables are measured not manipulated we included this study in the cross-sectional type.

**The total number is higher than the total number of analysed studies since one study can cover multiple radicalisation measures (different types of radicalisation or terrorism) or different types of analyses.

As the data in Table 3 show, the dominant disciplines⁴ from which studies of the inequality-radicalisation relationship emanated were political science ($n = 19$) and psychology ($n = 8$) at an individual level, and political science ($n = 33$) and economics ($n = 39$) at the macro level. Such a distribution of scientific disciplines suggests why experimental methodology, crucial for making causal inferences, is so rarely applied. Table 3 also shows that data analyses are often conducted on secondary data and approached cross-sectionally. In relation to type of radicalisation, studies at the individual level focused on Islamist radicalisation ($n = 36$), while at the macro level, studies focused on incidence of terrorism without specifying the underlying ideology ($n = 72$). Thus, Islamist radicalisation was rarely discussed at the macro level while far-right radicalisation appears to be of marginal interest to researchers since there are a relatively low number of studies at both micro and macro level. Regarding geographical and social context, sources of data varied according to country/geo-political region but, generally speaking, research has focused on dominantly Muslim countries or global data.

The dominant type of statistical analysis applied in these studies was multiple regression analyses. Multiple regression tells us about the relationship between multiple predictors or explanatory variables (in our case these are risk factors or correlates of radicalisation) and one outcome variable (this is a single measure of radicalisation e.g. radical belief). Thus, performing multivariable analyses allow us to see if any of the explanatory variables (e.g. inequality indicators) included in the statistical model has an independent contribution (over and above other variables included in the model) to explaining radicalisation. In other words, findings about such a multivariable relationship between concrete inequality indicators and the radicalisation measure are relative and depend on other variables included in the model (especially their intercorrelations, as well as their bivariate correlations with the outcome variable). In contrast, a bivariate relationship indicates association or correlation between one inequality indicator (or variable) and one radicalisation measure. Given this important difference, in reporting our findings on the inequality-radicalisation in this report, we note whether the relationship was established in a multivariable or bivariate context.

⁴ Studies are classified in disciplines based on the available information about first author's discipline in the article or on web pages of the first author.

3.2 Inequality-radicalisation relationships

Non-radicalised individuals

Of the total number of selected studies, 36 investigated the relationship between inequality and beliefs or behavioural measures of radicalisation among *non-radicalised individuals*. Among studies of this kind, the investigated variables⁵ relevant for inequality are listed in Table 4 and classified with respect to: level of measurement (individual or social/macro); type (economic or more social); and nature (objective or perceived⁶). The majority of studies of this kind are concerned with Islamist radicalisation, while only five refer to far-right radicalisation.

⁵ These could be either the main explanatory variable or only a control variable.

⁶ Perceived inequality refers to personal, group or country inequality.

Table 4. Number of studies on the inequality-radicalisation relationship by level and type of inequality*

| | | Islamist radicalisation | | | Far-right radicalisation | |
|-------------------------|---|---------------------------------|-----|----------------|--------------------------|--------|
| | | Pre-dominantly Muslim countries | USA | Western Europe | Western Europe | Israel |
| INDIVIDUAL LEVEL | | | | | | |
| <i>OBJECTIVE</i> | | | | | | |
| | Education, employment status, income, poverty, home ownership, social class/job status | 34 | 5 | 11 | 2 | 4 |
| <i>PERCEIVED</i> | | | | | | |
| Economic | | | | | | |
| | income dissatisfaction | | | | | |
| | economic status, family economic status, poverty, economic expectations, unemployment, worry | 5 | 1 | 2 | 0 | 2 |
| Area/country | | | | | | |
| | country economic situation | 3 | 0 | 0 | 1 | 0 |
| Social/political | | | | | | |
| Personal | | | | | | |
| | interpersonal justice, discrimination, deprivation | 2 | 3 | 5 | 4 | 0 |
| Group | | | | | | |
| | unfair treatment, group discrimination, group injustice, deprivation, disadvantage, political injustice, perceived economic dominance | 3 | 3 | 4 | 2 | 0 |
| MACRO LEVEL | | | | | | |
| District | Poverty/income | 2 | 0 | 0 | 0 | 0 |

*the total number is higher than the total number of analysed studies in this group since one study can have more than one inequality variable as well as more radicalisation measures

Islamist radicalisation

In the review and synthesis of cross-sectional survey findings referring to Islamist radicalisation, we took into account the geographical/socio-political context of the studies and separately reviewed findings based on data collected among Muslims in dominantly Muslim countries, the United States of America (USA) and Western Europe.

Predominantly Muslim country context

Almost all studies in this group investigated the relationship between radicalisation and **individual characteristics** relevant for inequality, such as education or unemployment. The studies are primarily concerned with the multivariable relationship between education and radical beliefs, in particular in establishing whether education has an independent contribution to explaining variability in radical beliefs, over and above other potential risk factors or correlates.

Studies investigating the relationship between **education and cognitive radicalisation** revealed inconsistent results. Three studies based on survey data collected by the Pew Research Center (Pew)⁷ from different years and involving different combinations of predominantly Muslim countries indicated that education does not have an independent contribution (over and above other potential risk factors or correlates) to explaining variability in a number of radical beliefs such as *confidence in bin Laden* (Jo, 2012) or *support for suicide bombing or other forms of violence against civilian targets to defend Islam* (de Mesquita, 2007; Mousseau, 2011). In addition to testing a possible linear relationship between education and radical beliefs⁸, Mousseau (2011) also tested possible non-linear relationships⁹. However, this analysis also yielded insignificant results, confirming the absence of a relationship.

A further four studies, based on other public opinion data sets, also failed to confirm multivariable relationships between education and radicalised beliefs in predominantly Muslim countries (Berger, 2014; Fair et al., 2017b; Muluk et al., 2013; Tessler and Robbins, 2007), despite the fact that two of them used multi-item (thus, generally more reliable) measures of radicalisation (Berger, 2014; Muluk et al., 2013).

Only one of the studies in this category presented data on bivariate relations between education and radicalisation (Muluk et al., 2013). This study found a significant relationship between education and two (out of four¹⁰ investigated) radical beliefs among Muslims in Indonesia. However, the direction of

⁷ The Pew Research Center is an organisation that collects data worldwide and provides information to the public on specific problems, attitudes and trends influencing the world.

⁸ A relationship which, when graphed, appears as a straight line describing that acceptance of radicals beliefs increases or decreases in parallel with the increase or decrease of education level.

⁹ These are relationships which, when graphed, appear more as a curve describing for example that radical beliefs are more accepted among the least and most educated than among those with an intermediate level of education.

¹⁰ The other two were *fundamentalism* and *support for sacred (religious) violence*.

these relationships was different for the two radicalisation beliefs: lower education was related to *more support for Islamic Law*, while higher education was related to *more support for violent jihad*.

Similarly, different directions of multivariable relationship between education and radicalisation were established by two other studies based on two Pew datasets (Cherney and Povey, 2013; Fair et al., 2017a). Multivariable analyses of pooled Pew 2010 sample data from seven Muslim countries (Egypt, Indonesia, Jordan, Lebanon, Nigeria, Pakistan, and Turkey) revealed that Muslims with graduate or post-graduate qualifications were 28 per cent more likely to *support terrorism* than those who had not completed secondary schooling (Cherney and Povey, 2013).

However, in contrast, multivariable analyses of 2012 Pew data using Bangladesh sample data revealed that those with lower education are more likely to *support suicide bombing* (Fair et al., 2017a).

Inconsistent results on the relationship between education and radicalisation were also evident *within* studies. For example, in three additional studies based on Pew data, findings about this multivariable relationship varied both across countries and in relation to specific dependent variables (Chiozza, 2009; Ciftci et al., 2017; Shafiq and Sinno, 2010). Thus, multivariable analyses of 2005 Pew data from six countries (Indonesia, Jordan, Lebanon, Morocco, Pakistan and Turkey) showed that those with higher education are less likely to *support suicide bombing*, compared to those without primary education in Indonesia and Pakistan, while in Jordan respondents with primary education are less likely than those without primary education to *support suicide bombing* (Shafiq and Sinno, 2010). On the other hand, multivariable analyses conducted by Ciftci et al., (2017) revealed that a higher level of education was predictive for the increased likelihood of *a favourable attitude towards al-Qaeda* but only in the case of data from Egypt (and not in Jordan, Tunisia and Turkey or from the pooled sample). Analyses of 2005 Pew data from Jordan and Lebanon using a different statistical procedure (Classification and Regression Tree models) confirmed the importance of the combined effects of education and income. Thus, in Jordan, support for suicide bombing was more likely among poor and middle class people with secondary or university-level education while, in Lebanon, more support was characteristic among less educated individuals and those living in poverty in areas where Hezbollah is strongest (Chiozza, 2009).

Findings on the education-radicalisation relationship were described in four additional studies¹¹ based on three samples from Lebanon (2001 survey, analysed by Haddad and Khashan, 2002; 2002 survey analysed by Khashan, 2003 and Haddad, 2004; 2015 survey analysed by Haddad, 2017), and

¹¹ Lebanese Muslims, $n = 337$, 2001 survey, (Haddad and Khashan, 2002); Palestinian refugees from southern Lebanon, $n = 342$, 2002 survey (Khashan, 2003 and Haddad, 2004); Palestinian Muslims, $n = 553$, 2003 survey (Haddad, 2004); Lebanese Muslims, $n = 302$, adult Sunni Muslim respondents, 2015 (Haddad 2017).

an additional sample of Palestinian Muslims (2003 survey analysed by Haddad, 2004). Analyses of data collected among different samples of Lebanese Muslims did not confirm a multivariable relationship between education and *support for the September 11 attacks* (Haddad and Khashan, 2002, 2001 survey), or two aggregate unidimensional measures of radicalisation (*approval of Palestinian suicide attacks* and *partaking in suicide attacks*) among a random sample of Palestinian refugees from southern Lebanon (Khashan, 2003, 2002 survey) or *support for Palestinian suicide attacks* on the same sample as well as an additional sample of Palestinian Muslims (Haddad, 2004, 2003 survey). However, there was a small significant negative bivariate relationship between education and radicalisation in the Palestinian sample, where the likelihood of supporting Palestinian suicide attacks was more characteristic for less educated Palestinian Muslims ($r = -0.14$). A study based on another sample of Lebanese Muslims (Haddad, 2017, 2015 survey¹²) revealed a significant multivariable education-radicalisation relationship indicating that more educated Sunni Muslims express higher *approval of the Islamic State*. This analysis included sectarianism, political Islam and education into the model and found education and political Islam to be the most important predictors of support for IS.

Only two studies based on samples from predominantly Muslim countries explored the relationship between **employment status** and radicalisation. One of these studies operationalised radicalisation as *support for bin Laden* in Pakistan and Indonesia (Jo, 2012), while the other operationalised it as *support for ISIS* among Lebanese Sunni Muslims (Haddad, 2017). Neither of the studies found any significant relationship between employment and radicalisation, indicating that employed and unemployed people do not differ regarding support for bin Laden or ISIS.

Among the analysed studies, **income** was one of the most frequently investigated individual, objective inequality variables. The majority of these studies either failed to confirm its multivariable relationship with radicalisation or found inconsistent results (findings varied by country and depending upon the particular operationalisation of radicalisation). Analyses of 2005 Pew data from six countries (Indonesia, Jordan, Lebanon, Morocco, Pakistan and Turkey), employing a per capita income variable¹³ (Shafiq and Sinno, 2010), revealed different findings regarding the relationship between income and two radicalisation measures (*support for suicide bombing and other forms of violence against civilian targets* and *support for suicide bombing of Westerners in Iraq*¹⁴) in different countries. A multivariable relationship between income and support for *suicide bombings that target civilians* was only found in Jordan, Morocco and Pakistan. However, in Jordan and Pakistan the

¹² Adult Sunni Muslim respondents, stratified random sample from Sunni concentrated areas

¹³ By converting the mean value of the monthly household income interval in the current currency from the PGAP survey to 2005 USD then dividing it by the number of people in the household quartile1 (poorest), quartile2 (lower-middle income), quartile3 (upper-middle income), and quartile 4 (richest)

¹⁴ The precise question was 'What about suicide bombing carried out against Americans and other Westerners in Iraq?'

richest people were most supportive, while in Morocco the richest were least supportive of such a form of terrorism. The multivariable relationship between income and *support for bombings against Westerners in Iraq* was established in four countries (Jordan, Lebanon, Pakistan and Turkey). In three countries (Jordan, Pakistan, Turkey) a higher income discourages support for bombing, while in one country (Lebanon) a higher income encourages support for suicide bombings against Westerners in Iraq.

Analyses of 2005 Pew data from Jordan and Lebanon using a different statistical procedure (Classification and Regression Tree models) suggest a negative relationship between income and *support for suicide bombing* in both countries (less support was characteristic among richer people). However, a relationship between support for suicide bombing and income was revealed in combination with education; this suggests a possible interaction between poverty (income) and education. Namely, *support for suicide bombing* in Jordan was more likely among poor and middle-class participants who are also more educated. However, in Lebanon, *support for suicide bombing* was more likely among people living in poverty who are less educated, and residing in areas where Hezbollah is strongest, indicating that strength of a radical group in an area is an additional macro level determinant of radical beliefs (Chiozza, 2009). Similarly, an additional study among Muslims in Indonesia ($n = 1144$, 2010 survey by the Indonesian Survey Institute) revealed a bivariate relationship between income and *support for violent jihad*, where lower income was related to more support for violent jihad (Muluk et al., 2013). However, this relationship was established for only one out of the four¹⁵ investigated attitudes and in multivariate analyses (structural modelling) income did not have a direct effect on any of the analysed variables. A possible reason for this is that income and education are positively correlated and education had a negative effect on support for Islamic law.

A multivariable relationship between income and radicalisation was not confirmed in the two analyses of additional Pew data sets from predominantly Muslim countries (Ciftci et al., 2017; Fair et al., 2017a). Fair et al. (2017a) attributed the absence of a multivariable relationship between income and *support for suicide bombing* to the limitations of a self-reported income variable (which used ten income categories instead of exact numerical information about income and allows for the possibility of dishonest responses). However, their model also included measures of poverty (see below), which were significant multivariable predictors. Thus, if income and poverty were interrelated, it is possible that income alone had no independent effect on radicalisation over and above poverty measures. Since bivariate correlations (measures of associations between two variables only e.g. income and radicalisation measure or income and poverty measure) are not presented, it is hard to interpret the absence of a multivariable relationship with income.

¹⁵ The other three were: fundamentalism, support for Islamic law (Sharia) and support for religious violence.
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The relationship between individual income and radicalisation was not confirmed in four data sets collected among Lebanese Muslims or Palestinian samples¹⁶. In a sample of Lebanese Muslims (2001 survey), Haddad and Khashan (2002) did not confirm a multivariable relationship between income¹⁷ and *support for the September 11 attacks*¹⁸. However, as the authors note, the living conditions in refugee camps in southern Lebanon are so appalling that conventional questions on income do not capture the harshness of refugees' lives. Moreover, since support for suicide attacks was widespread among respondents, the value of seeking to establish such correlations may be limited.

In contrast, multivariable analyses of data from a study of Palestinian refugees found a negative relationship between income and *prone to personal involvement in suicide attacks* in both the whole sample ($n = 342$, 2002 survey) and a subsample of urban refugees ($n = 69$ city of Sidon) thus a lower income is related to higher propensity to take part in suicide attacks (Khashan, 2003). However, a relationship between income and radicalisation was *not* established in a subsample from refugee camps ($n = 273$, Khashan, 2003). Moreover, this analysis did not confirm a multivariable relationship between income and *support for suicide attacks* (Khashan, 2003) although additional analyses of the same data confirmed it (Haddad, 2004). This discrepancy can be attributed to a different operationalisation of income: in the first case (Khashan, 2003), income was categorised into three categories; in the latter case (Haddad, 2004), it was categorised into five categories. The latter study also tested the multivariable relationship between income and support for suicide attacks in a model with less other control variables, which might have contributed to establishing the multivariable relationship.

An additional survey in the Pakistani context confirmed a multivariable and robust positive relationship between individual level income and radicalised beliefs, where low income survey participants were less supportive of policies endorsed by militant groups than middle-class respondents (Blair et al., 2013). It is important to note that this study used a more advanced measure of radicalisation attitudes, which were operationalised more indirectly to avoid social desirability concerns among respondents when expressing attitudes about militant groups. The effect of income on radicalised beliefs was confirmed also in another survey in Pakistan (Fair et al, 2017b).

The **poverty**-radicalisation relationship is a subgroup of studies that are rarely investigated. Three studies based on Pew data from predominantly Muslim countries (Fair & Shepherd, 2006; Jo, 2012; Mousseau, 2011) showed partly inconsistent results. These are probably due to methodological

¹⁶ Lebanese Muslims, $n = 337$, 2001 survey, (Haddad and Khashan, 2002); Palestinian refugees from southern Lebanon, $n = 342$, 2002 survey (Khashan, 2003 and Haddad, 2004); Palestinian Muslims, $n = 553$, 2003 survey (Haddad, 2004); Lebanese Muslims, $n = 302$, adult Sunni Muslim respondents, 2015 (Haddad 2017).

¹⁷ On a scale from 1 = high to 3 = low, determined by the interviewers according to agreed criteria (Haddad and Khashan, 2002: 826-827).

¹⁸ This was more characteristic for younger respondents and those who endorse political Islam.

differences in the operationalisation of poverty. A study based on 2002 Pew samples from 14 Muslim countries which operationalised poverty using four one-item questions (did not have enough money to buy food/clothes your family needed¹⁹ and ownership of cell phone/computer²⁰) confirmed a multivariable relationship between all four variables and *support for suicide bombing*, over and above other variables included in the model. Those who reported insufficient funds for food were less likely to support suicide terrorism than those without such problems. In comparison, those who reported inadequate money for clothing, and those who owned a cell phone or computer were more likely to support terrorism. The authors concluded that those who are very poor are less likely to support terrorism while those who are not extremely poor are more likely to support it (Fair and Shepard, 2006: 52). Unfortunately, bivariate correlations were not presented, so it is not clear if these multivariable findings indicate a nonlinear relationship between poverty and radicalisation (that the relationship is different for different levels of poverty), as the authors imply, or are simply statistical consequences of assumed intercorrelations between the four poverty items used. Moreover, two studies which operationalised poverty by a reliable index based on three or six items (e.g. a difficult time buying clothes, medical healthcare, food) did not confirm a multivariable relationship between poverty and *support for suicide bombing* (Mousseau, 2011) or *confidence in Osama bin Laden* (Jo, 2012; Pew 2007 survey in India and Pakistan). However, Mousseau (2011) established that a combination (interaction) of poverty and urban residence is important for explaining support for suicide bombing, not poverty (or urban residence) *per se*, since higher support was only more characteristic for people living in poverty from urban areas. Analyses based on an additional data set from Pakistan confirmed a negative relationship between more sophisticated measures of actual poverty²¹ and radicalisation, where the poorest Pakistani respondents expressed the lowest support for two militant groups (Fair et al., 2016).

Regarding more **subjective inequality indicators**, studies based on Pew data did not establish a significant multivariable relationship between income dissatisfaction (Mousseau, 2011) or perceived economic situation in a country and *support for suicide bombing* (De Mesquita, 2007; Cherney and Povey, 2013) and *confidence in bin Laden* (Jo, 2012). On the other hand, Fair et al., (2017a) confirmed a significant multivariable relationship between **perceived personal economic status** and *support for suicide bombing* in Bangladesh, while Ciftci et al. (2017) confirmed a relationship between **personal**

¹⁹ "Have there been times in the past year when you did not have enough money to buy food your family needed?" and "Have there been times in the past year when you did not have enough money to buy clothes your family needed?" recoded as 1 yes and 0 – no

²⁰ One question was related to ownership of a mobile phone and a second question was related to ownership of a computer.

²¹ Actual poverty was operationalized through monthly household expenditures recoded in upper, middle and lower class by considering province and urban or rural strata (Fair et al., 2016).

and country economic expectations and a favourable attitude to *al-Qaeda*²² based on data from Turkey, Egypt, Jordan and Tunisia analysed together and on data from Turkey alone but not in separately conducted analyses on data from Egypt, Jordan and Tunisia. An additional study in the Pakistani context did not confirm a relation between the **perceived economic situation** at the area level and *support for militant groups in Pakistan* (Blair et al., 2013).

In contrast to these studies – all based on a cross-sectional research design – one study investigated the effect of perceived individual poverty on radicalisation using an experimental method (Fair et al., 2016). Findings revealed that **perceived individual poverty** (induced by experimental manipulation) reduced *support for militant groups* in Pakistan, indicating a negative causal relation between individual poverty and radicalisation. Additionally, participants expressed less support for militant organisations when told that Pakistan is more violent, indicating a negative causal relation between the perceived violence level and radicalisation. Moreover, the experiment established that support for militant groups was lowest among those who were induced to feel poor and simultaneously induced to perceive Pakistan as a relatively violent country. This shows that the perceived level of violence increases the negative effect of perceived individual poverty on radicalisation. In other words, the perceived level of violence moderates the perceived individual poverty-radicalisation relationship (Fair et al., 2016).

Four studies based on survey data collected among Muslims in dominantly Muslim countries analysed the relationship between radicalisation and **perceived social inequality**; this measure refers to Moghaddam's (2006) social deprivation, unfair treatment and injustice concepts (Fischer et al., 2008; Muluk, et al., 2013; Tausch et al., 2011; Victoroff et al., 2010). Despite some differences in the context, sample types and sizes and operationalisations of perceived inequality and radicalisation, findings of these studies generally suggest a positive relationship between perceived social inequality and radicalisation.

A study conducted in the Indonesian context confirmed positive bivariate relationships between the **perception of unfair treatment** and all four radicalisation measures that were used. Thus, perception of unfair treatment was accompanied by higher *support for fundamentalism* and *support for Islamic law (Sharia)* as well as higher *support for sacred*²³ *violence* and *support for violent jihad* (Muluk et al., 2013). Moreover, structural equation modelling demonstrated that perception of unfair treatment was directly and positively related to support for Islamic law, which in turn directly predicted support for violent jihad, which predicted support for religious violence. These results suggest that a

²² Asking the respondents whether they have a very unfavourable, unfavourable, favourable, or very favourable opinion of al-Qaeda.

²³ The authors define 'sacred violence' as violence that is essentially criminal in nature but is claimed to be based on religious ideals and intended to defend what is considered sacred. Elsewhere in this report, this is referred to as 'religious' violence.

multivariable positive relationship between perceived inequality and support for violence is indirect and mediated through radical religious beliefs. Moreover, these findings were established using a relatively big sample and all radicalisation and perceived inequality variables were measured by unidimensional and reliable scales (Muluk et al., 2013).

Another study based on a survey conducted among a student sample in the Iraqi context also revealed bivariate positive relationships between two perceived inequality variables (operationalised by reliable measures): **perceived interpersonal injustice** and **perceived group (procedural) injustice** and *support for violent resistance toward the presence of the United States in Iraq*. Since the two perceived inequality measures were relatively highly correlated²⁴, a multivariable relationship with support for violent resistance is confirmed only for perceived group injustice (Fischer et al., 2008).

An additional study conducted among Muslim students in India revealed a significant, but weak, positive bivariate relationship between perceived Muslim disadvantage (**perceived group discrimination**) and *support for Muslim violence*, as well as for an additional variable indicating support for government policies that would address Muslim disadvantage²⁵. The results of structural modelling suggest that perceived Muslim disadvantage may directly increase support for violence (but also support for government policies that would address Muslim disadvantage). Moreover, the results suggest that perceived Muslim disadvantage may increase contempt as a group emotion, which can increase support for violence; this indicates the indirect positive effect of perceived disadvantage on support for violence through contempt as a group emotion (Tausch et al., 2011, study 2). It should be stressed that this study is one of only two of all those analysed²⁶ to employ a measure of non-radicalised political action beliefs (support for government policies that would address Muslim disadvantage) alongside the radicalisation measure (support for Muslim violence).

Only one study in this subgroup revealed relatively inconsistent findings on the relationship between radicalisation and perceived inequality (perceived political injustice, Victoroff et al., 2010). Based on data from 52 Palestinian boys in Gaza, Victoroff et al., (2010) established that boys who felt their group was treated unjustly reported greater *support for religious political aggression* compared with those who did not. However, as this was a very small sample, bivariate and multivariable correlational analyses did not confirm any significant relationship between perceived group injustice and religious political aggression. Besides, in contrast to the other three studies reviewed in this subgroup, this is the only study which operationalised personal group discrimination by a single item, which is generally accompanied by lower reliability.

²⁴ ($r = 0.45$, $p < 0.01$)

²⁵ ($r = 0.18$, and 0.17 , respectively)

²⁶ The second study is described among studies in the Western European context (Tausch et al., 2011, study 3).

Out of all the analysed survey studies based on data collected in predominantly Muslim countries, only two, both in the Pakistani context, analysed the relationship between radicalisation and more **macro/social level objective measures of economic inequality**: objective poverty at the district level (Zaidi, 2010); and objective income at the district level (Blair et al., 2013). Zaidi (2010) compared six one-item measures of attitudes (e.g. *'Do you support the use of violence by religious groups in Pakistan?'*) among Pakistani survey respondents from poor and more affluent districts in four Pakistan provinces. Only descriptive results (radicalisation attitudes by districts) were presented and suggested a positive relationship between inequality and radicalisation, however there was no systematic testing of the relationship between inequality and radicalisation. In comparison, Blair et al. (2013), whose research was methodologically sounder, did not confirm a relationship between objective income at a district level and *support for policies attributed to radical groups*.

USA context

Only three analysed studies based on survey data collected among Muslims investigated the relationship between inequality and radicalisation in the USA context. These used one or more of four data sets: Pew 2007 (Acevedo and Chaudhary, 2015; McCauley, 2012; Victoroff et al., 2012) or three data sets from Zogby Polls - 2001, 2002 and 2004 surveys (McCauley, 2012). In all three studies, radicalisation variables were operationalised by one-item attitude measures (which are generally less reliable, i.e. they are accompanied by higher measurement error).

In relation to **more objective** indicators relevant in the context of **individual level** inequality, these studies investigated the relationship between cognitive radicalisation and education (Acevedo and Chaudhary, 2015; McCauley, 2012; Victoroff et al., 2012), employment (Acevedo and Chaudhary, 2015), family income (McCauley, 2012) and financial situation (Acevedo and Chaudhary, 2015).

In all three studies, results on the relationship between **education** and cognitive radicalisation are inconsistent, even in cases when the same data set (Pew 2007) and the same radicalisation variable (e.g. *support for suicide bombing*) were used. While Victoroff et al., (2012, study 2) did not establish a bivariate relationship between education and *support for suicide bombing*, McCauley's (2012) findings revealed a negative bivariate relationship²⁷ (where a less educated participants expressed more support for suicide bombing). McCauley (2012) also confirmed that education had a significant multivariable negative relationship with support for suicide bombing.

²⁷ Based on available data in both publications, it is hard to conclude what is the exact source of this inconsistency. However, a different coding of the support for suicide bombing variable may offer an explanation. McCauley (2012) coded responses as 1 = never, 2 = rarely, 2.5 = not sure/don't know/refused, 3 = sometimes, 4 = often; on the other hand, Victoroff et al., (2012, study 2) did not take into account not sure/don't know/refused responses. Thus, instead of a five-point scale, they used a four-point scale 1 = never, 2 = rarely, 3 = sometimes, 4 = often.

On the other hand, Acevedo and Chaudhary (2015) did not establish a significant multivariable relationship between education and support for suicide bombing (over and above the relationships between religiousness variables included in the model). Of the two other radicalised attitudes investigated by McCauley (2012), bivariate and multivariable analyses revealed a negative relationship between education and *attitude towards al-Qaeda* but not with *attitude towards war on terrorism*.

The relationship between radicalisation and **employment status** and **financial situation** were investigated in only one study (Acevedo and Chaudhary, 2015), which did not confirm their relationship with *support for suicide bombing* (Acevedo and Chaudhary, 2015).

Regarding **family income**, analyses of the 2007 Pew data (McCauley, 2012), established a significant bivariate relationship with *attitude towards al-Qaeda*, where a higher family income was related to a less favourable attitude towards *al-Qaeda*²⁸, but not with the two other radicalisation attitudes (*towards suicide bombing* and *war on terror*), while analyses based on three Zogby data sets (2001, 2002, 2004) did not confirm a bivariate relationship with *seeing the war on terrorism as a war on Islam* radicalisation measure (McCauley, 2012).

The relationship between radicalisation and **perceived inequality** at the personal or group level were investigated in two publications based on the same 2007 Pew data set (McCauley, 2012; Victoroff et al., 2012, study 2) where McCauley (2012) additionally analysed three Zogby data sets (2001, 2002, 2004). Victoroff et al., (2012, study 2) established a weak, positive bivariate (but not multivariable) relationship between both perceived inequality measures (**personal discrimination** referring to experiences in the past 12 months and **perceived difficulty** of being Muslim) and *support for suicide bombing*. McCauley's (2012) findings on the relationship between the same radicalisation measure (support for suicide bombing) and the two other perceived inequality measures available in the same 2007 Pew data set (**personal life discrimination**, referring to life time experience, and **perceived group discrimination**) did not confirm a relationship between such operationalised discrimination and support for suicide bombing. It should be noted that Victoroff et al., (2012) and McCauley's (2012) measures of personal discrimination differ not only in terms of the time frame (discrimination experienced last year or during lifetime), but also (probably more importantly in this context) in that Victoroff et al. (2012) used multi-item and probably more reliable measures, while McCauley's measure was based on one question only. McCauley's (2012) findings regarding the other radicalisation measure used in the Pew data sets (*support for al-Qaeda*) also did not confirm a relationship with the two perceived inequality measures. However, a small positive bivariate and multivariable relationship was confirmed between **perceived group discrimination** and the third

²⁸ ($r=-0.22$)

radicalisation measure used - *attitude towards war on terror*. Analyses of three Zogby data sets revealed a positive bivariate and multivariable relationship between **personal** or **group discrimination** (personal discrimination since 9/11 - 2002 and 2004 data sets and perceived group discrimination - 2001 and 2004 data sets) and *seeing the war on terrorism as a war on Islam* (McCauley, 2012).

Western European context

The relationship between inequality and Islamist radicalisation in the context of Western European countries was investigated in a total of ten publications.

Three analyses of 2006 Pew data (collected among Muslims in Germany, France, the UK and Spain) revealed inconsistent findings regarding the relationship between **education** and *support for suicide bombing or other form of violence against civilians to defend Islam* (Berger, 2016; Victoroff et al., 2012, study 1; Zhirkov et al., 2014.). Victoroff et al. (2012, study 1) did not even confirm a bivariate relationship between education and radicalisation in their analysis of the combined data. In comparison, Zhirkov et al. (2014) established a multivariable negative relationship, while Berger (2016) established a multivariable negative relationship only in the sample from Spain. Additionally, Berger (2016) established a multivariable negative relationship between education and *confidence in Osama Bin Laden* but only in data from France and the UK.

Analyses based on additional data collected among Muslims in France, Germany, and the UK²⁹ (Deckard and Jacobson, 2015) established a negative multivariable relationship between **education** and just one of five fundamentalism measures investigated³⁰ (*support for non-secular justice system - Sharia*); support for the non-secular justice system was found to be more characteristic for less educated individuals. Moreover, education was not found to have a multivariable relationship with *justification of violence (in defence of faith)*, over and above fundamentalism. Since bivariate correlations are not provided, it cannot be concluded whether these findings indicate that education has an indirect effect on the justification of violence through fundamentalist beliefs. More consistent findings about the relationship between education and *fundamentalism*, as well as *out-group hostility*, were revealed by multivariable analyses of additional data collected in 2008 among people of Turkish and Moroccan origin in six West European countries (Germany, France, the Netherlands,

²⁹ England and Wales only

³⁰ Additional four were: *negative opinion of the West's moral influence*; *willingness to sacrifice one's life for one's faith*; *conservatism on the role of women* (an aggregate score based on four questions); and *fundamentalism total score* based on all these questions.

Belgium, Austria and Sweden), where a lower level of education was predictive for higher fundamentalism³¹ and out-group hostility (Koopmans, 2015).

Data about the relationship between various, more objective, inequality indicators at an individual level and radicalisation were investigated in four analysed survey studies among Muslims in Western Europe. Based on 2006 Pew data, the relationship between **income** and radicalisation was investigated in one study only; multivariable analyses revealed different findings by countries and specific, one-item radicalisation attitudes (Berger, 2016). In the UK, higher income was related to higher likelihood of *support for suicide terrorism*, while in Germany higher income was related to lower likelihood of *confidence in Osama Bin Laden*. In France and Spain, a multivariable relationship was not confirmed with any of the three radicalisation attitudes.

The relationship between objective **employment status** and radicalisation was investigated in two data sets: one among Muslims in France, Germany, and the UK (Deckard and Jacobson, 2015) and the other among Muslims of Turkish or Moroccan origin in six Western European countries: Germany, France, the Netherlands, Belgium, Austria and Sweden (Koopmans, 2015). Both studies established a significant multivariable relationship between unemployment and *fundamentalism* where unemployed individuals are more likely to support fundamentalist beliefs (Deckard and Jacobson, 2015; Koopmans, 2015). However, Deckard and Jacobson (2015) did not establish that unemployment has a multivariable relationship (over and above the relationship with fundamentalism) with *justification of violence in the name of faith*. In the UK context, the study by Tausch et al. (2009) focused on determinants of *justification of London 2005 terrorist attack* (one-item measure) and found that British Muslims' support for the bombing was slightly more characteristic for respondents of a lower **social class** (bivariate relationship $r = -0.10$).

On the other hand, the only study (Koopmans, 2015) to test **job status** as a predictor, confirmed a multivariable relationship between job status and *fundamentalism*, where those who have a lower job status were more likely to support fundamentalist beliefs. This is the only study (Koopmans, 2015) which also investigated and confirmed a multivariable relationship between **home ownership** and *religious fundamentalism* as well as *out-group hostility*³², where those who live in rented housing expressed significantly higher levels of fundamentalism and out group hostility.

A more subjective inequality measure related to unemployment – **unemployment worry** – was only investigated in one study, based on 2006 Pew data (Berger, 2016). As in results regarding relationships with income, a significant multivariable relationship between unemployment worry and

³¹ Operationalised by three items: *Muslims should return to the roots of Islam; There is only one interpretation of the Quran and every Muslim must stick to that; The rules of the Quran are more important to me than the laws of [survey country]*.

³² Both operationalised by reliable three-item scales.

radicalisation was established with only one of the two investigated radicalised attitudes, and in only one of four countries. This finding indicated that greater worry about unemployment among Muslims in Spain (but not in Germany, the UK and France) was related to greater *support for suicide terrorism* but not to *confidence in Osama Bin Laden*. On the other hand, Deckard and Jacobson (2015) confirmed a multivariable relationship between **perceived family economic status** and all *fundamentalism measures*, where a higher level of self-reported affluence was accompanied with a higher likelihood of *holding fundamentalist beliefs*. It is worth noting that established multivariable relationships between this more subjective inequality measure at a family level and fundamentalism was in a different direction than in the case of education and unemployment established in this study. Namely, higher fundamentalism was characteristic for the unemployed (and less educated), but also for those with perceived better economic family situation (suggesting the potential for a possible interactive relationship between unemployment and family wealth as a worthwhile area of investigation see Section 3.3). However, in a model explaining the radicalisation measure specifically related to violence (*the justification of violence in the name of faith*), which as explanatory variables included perceived family economic status and fundamentalism, only fundamentalism has an important contribution; increase in fundamentalism was accompanied by a higher likelihood of the respondent answering that he or she would be willing to engage in violence.

Studies based on data from Muslims in Western European countries more frequently investigated relationships between **perceived individual or group inequality** and radicalisation than the relationship between radicalisation and more objective inequality indicators. **Perceived discrimination** was investigated in four studies; two based on 2006 Pew data (Berger, 2016; Victoroff et al., 2012 study 1), one based on a survey among Muslims of Turkish and Moroccan origin in six countries (Koopmans, 2015) and one additional study in the UK context only (Bhui et al., 2014a, 2014b, 2016). A study based on 2006 Pew data investigated the relationship between **perceived economic dominance** and radicalisation (Zhirkov et al., 2014). Three further studies investigated relationships between **perceived injustice** and radicalisation in different European contexts - British (Tausch et al., 2011, study 3), Dutch (Doosje et al., 2013), and Belgian (Schils and Pauwels, 2016) - although the study in the Netherlands also investigated relationships between **individual and collective deprivation** (Doosje et al., 2013). In contrast to analyses based on public opinion data or surveys based on large representative samples, these studies are based on smaller and non-representative samples. However, they operationalise inequality as well as radicalisation variables by multi-item reliable scales and use more advanced statistical analyses (structural equation models) for testing complex models, including direct and indirect relationships between inequality variables and different types of radicalisation (radical beliefs or measures more closely related to violence).

Findings from two studies based on 2006 Pew data are inconsistent regarding the relationship between radicalisation and **personal discrimination**; analysis of pooled samples from six countries established a weak, positive bivariate and multivariable relationship between personal discrimination and *support for suicide bombing* (Victoroff et al., 2012). On the other hand, analyses conducted for each country separately did not confirm a multivariable relationship between personal discrimination and any of the four single-item radicalisation measures³³ (Berger, 2016). The other two studies, based on additional samples, failed to confirm a multivariable relationship between personal discrimination and *fundamentalism* or *out-group hostility*, where both were operationalised by a reliable measure (Koopmans, 2015) or with *radicalisation* (in the UK context only) (Bhui et al., 2014a, b, 2016). Zhirkov et al. (2014) analysed pooled 2006 Pew sample data and confirmed a positive multivariable relationship between **perceived economic dominance** (greater perceived economic dominance was accompanied by greater support for suicide bombing) and radicalisation, while analyses by country showed that such a relationship between perceived economic domination and radicalisation was significant in Britain, France and Spain but not in Germany.

Three studies which investigated the relationship between **perceived injustice** and radicalisation revealed more consistent findings, since all three, confirmed a positive relationship between perceived injustice and radicalisation in different European contexts: British (Tausch et al. 2011, study 3), Dutch (Doosje et al., 2013), and Belgian (Schils and Pauwels, 2016). In the UK context Tausch et al., (2011 study 3) established a significant bivariate positive correlation between UK Muslims' **perceived injustice** and *support for violence against military forces in Muslim countries* (and *normative collective action intentions*), but not for *support for violence against civilian targets in Western countries*. By structural modelling, they confirmed an indirect relationship between perceived injustice and both measures of support for violence, where this relationship was mediated by contempt experienced when thinking about British foreign policy towards Muslim countries in the recent past³⁴. In the Dutch context, Doosje et al. (2013) investigated a complex model of determinants of radical beliefs, attitudes towards Islamist violence and own violent intentions in line with the conceptualisation of radicalisation as a continuum from beliefs to approval of violence to own violence. At the level of a bivariate relationship, **procedural injustice**, **individual deprivation** and **collective deprivation (discrimination)** were positively related with one or two (out of four) analysed radical beliefs (*perceived disconnectedness from society*; *perceived illegitimacy of Dutch authorities*, *perceived in-group superiority* and *perceived distance to others*) while collective deprivation was also positively correlated with *support for Muslim violence* but not with *own violent intention*. Multivariate analyses (structural equation modelling) confirmed a positive direct relationship

³³ *Support for suicide bombing, confidence in Osama bin Laden, concern about Muslim women taking on modern roles in society, concern about impact of Western popular culture.*

³⁴ In addition to other findings that are not relevant in this context.

between deprivation (individual and collective) and perceived injustice, positive relationships between perceived injustice and radicalised beliefs, and a positive relationship between radicalised beliefs and measures of violence (attitudes toward Muslim violence and own violence intention). Thus, Doosje et al. (2013) confirmed an indirect positive multivariate relationship between perceived inequality and violence measures, and radical beliefs as mechanisms or mediators underpinning this indirect relation between perceived inequality and violence. Reanalysis of the same data sets with a different focus (Van Bergen et al., 2016), using only collective deprivation as a measure of inequality, resulted in the same findings (a positive bivariate relationship between **collective deprivation** and *in group (Muslim) superiority* and two violence measures (*attitude towards Muslim violence and own violence intention*) and an indirect positive relationship between collective deprivation and two attitudes related to violence measures through in-group (Muslim) superiority, where support for Muslim violence has a direct path to own violence intention. Similarly, in the Belgian context, based on survey data collected among adolescents and youth and using similar measures of **perceived inequality**, Schils and Pauwels (2016) confirmed a direct path from **perceived inequality/injustice** to *violent moral belief* and active exposure to violent extremism³⁵. These are (together with low self-control) confirmed as more proximal determinants of *political/religious violent past behaviour*. Structural equation modelling findings indicated that **perceived injustice** and social integration are important and indirect possible determinants of political/religious violence that influence violent extremist moral beliefs and evoke active exposure to violent extremist moral settings, confirming a positive indirect relationship between subjective inequality and radicalisation.

Far-right radicalisation

Only five of the analysed cross-sectional surveys are related to far-right radicalisation; four of them were conducted in a Western European context (Decker et al., 2013; Doosje et al., 2012; Pauwels and de Waele, 2014; Pauwels and Heylen, 2017) and one in Israel (Pedahzur and Canetti-Nisim, 2004). Two studies (Decker et al., 2013; Pedahzur and Canetti-Nisim, 2004) only investigated the determinants of right-wing extremist beliefs, while the other three studies also explored survey measures of behavioural radicalisation (e.g. self-reported political violence or own violent intention).

Investigating determinants of *right-wing extremism in the German context*, Decker et al. (2013) confirmed a multivariable relationship between the **perceived country economic situation** and right-

³⁵ *Exposure to violent extremist moral settings* is measured by a combined index of active exposure to online violent extremist content entailing online extremist communication ($\alpha = 0.69$) and actively searching for online extremist contact (0 = does not seek contact with violent extremist individuals; 1 = deliberately seeks contact with violent extremist individuals, Schils and Pauwels, 2016:84).

wing extremism, where higher perceived collective economic deprivation was accompanied by a higher right-wing extremism (referred to as a combination of approval of a right-wing dictatorship, chauvinism, xenophobia, anti-Semitism, social Darwinism and downplaying of National Socialism). On the other hand, individual **income** and **experience of unemployment** were not confirmed as significant multivariable predictors of extremism (except in a subsample from Eastern Germany).

A study focused on the determinants of *right-wing extremism in the Israeli context* (Pedahzur and Canetti-Nisim, 2004) examined its relationships with several socio-economic variables; objective measures of **socioeconomic status** (occupational prestige and place of residence), respondent and father's **educational level**, measure of **economic insecurity** (operationalised by unemployment experiences and perceived economic insecurity) and **perceived individual relative income**. Bivariate analyses revealed a statistically significant negative relationship between right-wing extremism and all socio-economic variables (except father's education and economic insecurity), where support for right-wing extremism was more characteristic for less educated respondents, those of lower socioeconomic status and those who perceived their income to be lower than average. Multivariate analyses by structural equation modelling confirmed an indirect relationship between these inequality variables and the radicalisation measure through variables referring to prejudices and social identifications in the Israeli context³⁶, where the perceived relative income also had a direct effect on right-wing extremism.

Among a sample of non-Muslim Dutch youth ($n = 1086$, aged 12- 21) Doosje et al. (2012) investigated the model of *radical beliefs system* (*perceived in-group superiority, perceived illegitimacy of Dutch authorities, perceived distance from others, feeling of being socially disconnected*) as a determinant of *support for right-wing motivated violence and own violent intentions*. Besides, **individual** and **collective relative deprivation, perceived procedural injustice**, perceived group threat, and identification with the Dutch were investigated as direct determinants of these radical beliefs and indirect determinants of two measures related to violence. This study showed that relative deprivation, perceived injustice, perceived group threats and identification with the Dutch are important background determinants of a *radical right-wing belief system* (*perceived in-group superiority, perceived illegitimacy of Dutch authorities, perceived distance towards others, and a feeling of being socially disconnected*). In relation to the analysed radical right-wing beliefs, in-group superiority was positively associated with support for right-wing motivated violence, while support for right-wing motivated violence was confirmed as a determinant of own violent intentions. Regarding the relationship between inequality and radicalisation, the study established a positive

³⁶ These were: social distance, symbolic racism, moral conservatism, authoritarianism, Jewish hawkishness and Jewish ethnicity.

bivariate relationship between **individual** and **collective** relative deprivation³⁷ with all four dimensions of the radical right-wing belief system as well as with both violence measures (correlations were relatively low, ranging from 0.12 to 0.27). Perceived procedural injustice was positively related to three dimensions of radical right-wing beliefs (perceived illegitimacy of Dutch authorities; perceived distance towards others; and feeling of being socially disconnected) but not with violence measures. Multivariate analyses (by structural equation modelling) showed a direct relationship between some of the radical beliefs and perceived procedural injustice as well as collective, but not individual, relative deprivation. However, individual relative deprivation had a direct effect on *own violent intentions*; the more people felt themselves to be treated unfairly compared to other people in the Netherlands, the more violent intentions they had. Moreover, two dimensions of radical beliefs directly predicted own violent intentions. The more participants perceived their Dutch in-group to be superior and the more illegitimate they perceived Dutch authorities, the more violent intentions they reported. Additionally, their own violent intention was positively predicted by attitudes supporting right-wing violence. *Attitude toward right-wing violence by others* was directly predicted by perceived in-group superiority and by perceived threat. The more people perceived the Dutch nation to be superior over other nations and the more people felt that their resources were threatened by Muslims, the more positive was their attitude towards right-wing violence. In sum, Doosje's et al.'s (2012) study confirmed that perceived individual inequality is positively related to right-wing radicalisation; it is directly related to right-wing radical beliefs, and indirectly, through these radical beliefs, with support for right-wing violence by others and with own violent intentions. Additionally, individual deprivation also had a direct multivariate relationship with own violent intentions.

A study by Pauwels and De Waele (2014), based on survey data from 2,879 Flemish adolescents collected in 2012, explored determinants of *self-reported political violence (interpersonal violence and violence toward property – political vandalism)*. This study also included two additional variables relevant to the concept of radicalisation, namely *moral support for right-wing extremism* (support for the use of violence by right-wing extremists for political goals) and *religious authoritarianism*. Regarding inequality, their study investigated **perceived personal** and **group discrimination**, both operationalised by reliable measures. Pauwels and De Waele's (2014) study revealed a positive bivariate relationship between both perceived discrimination measures (personal and group) and all four radicalisation variables (self-reported interpersonal political violence, self-reported violence toward property, support for the use of violence by right-wing extremists for political goals and religious authoritarianism). Multivariate relationships between personal and group discrimination variables were tested in relation to political violence measures only. Only perceived group

³⁷ (intercorrelation $r = 0.62$)

discrimination had a significant multivariate relationship with political violence measures (although two discrimination measures showed high intercorrelations). In an additional study (partially based on the same sample), Pauwels and Heylen (2017) examined the multivariate relationship between **perceived injustice** and two of the four previously mentioned radicalisation variables (*support for the use of violence by right-wing extremists for political goals* and *self-reported political vandalism*). Multivariate analyses indicated that the relationship between perceived injustice and radicalisation variables (*support for the use of violence by right-wing extremists for political goals* and *self-reported political vandalism*) is mediated through perceived group threat, right-wing authoritarianism, ethnocentrism and superiority.

Thus, a small number of studies investigating the relationship between inequality and right-wing radicalisation in the context of Western European countries mostly confirmed a positive relationship between inequality and far-right radicalisation. Additionally, results suggest that this positive relationship between inequality and radicalisation is frequently indirect and probably mediated by several psychological variables including general social attitudes such as authoritarianism, intergroup attitudes such as perceived group threat or social identity variables such as in-group superiority and ethnocentrism. It should be noted that these studies are mainly based on multi-item reliable measures of radicalisation and inequality and frequently use more advanced statistical analyses (structural modelling); this may explain why more consistent results were obtained.

Radicalised individuals and groups

The majority of the 15 analysed studies that explored the relationship between inequality and radicalisation *among radicalised individuals/groups* presented findings regarding objective characteristics that pertain to individual inequality (e.g. education, employment, socioeconomic status). Just two studies presented findings about inequality at the group level based on district of residence.

Regarding the type of radicalisation, all studies except one were related to Islamist radicalisation; that study focused on separatist radicalisation in the Turkish context. The majority of studies referred to individuals or groups in the context of dominantly Muslim countries, while five studies referred to the European context.

Krueger and Malečková (2003) explored **poverty** and **education** as risk factors of *participation in Hezbollah* based on biographical data from 129 members of Hezbollah's military wing (Al-Muqawama Al-Islamiya) who died in action from 1982 to 1994. Firstly, using inequality indicators (50 for poverty

status, 78 for education) they compared the sample of Hezbollah militants with survey data for the general population of Lebanon aged 15 to 38. Data on poverty indicate that 28 per cent of Hezbollah militants could be classified as poor compared to 33 per cent for the Lebanese population. However, these differences were not confirmed by statistical procedures. Regarding education, statistical tests showed that Hezbollah members were more likely to have attended secondary school than the general population sample. However, multivariable analyses did not consistently confirm a significant relationship either with poverty or with education. Kavanagh (2011) reanalysed the same data on Hezbollah members and, as in the study by Krueger and Malečková (2003 Hezbollah data), confirmed that Hezbollah members were no more likely than members of the general population or the Shia subsample to be poor. Regarding education, data indicated that Hezbollah members are more likely to have high levels of education. However, Kavanagh (2011) in contrast to Krueger and Malečková (2003) also tested the combined (interactive) relationship between poverty and education and demonstrated that poverty increases the likelihood of participation in Hezbollah only for those who have at least a high school education.

By comparing the characteristics of 355 *Palestinian terrorists* (from their biographies) and the general Palestinian population (through percentages and logistic regression), Berrebi (2007) identified differences in the significance of **poverty** and **education** (in addition to age and marital status) in the propensity to radicalisation. While poverty was negatively related with the likelihood that someone becomes a Hamas or Palestinian Islamic Jihad (PIJ) terrorist, education was positively related. Similar findings regarding **education** and **illiteracy** were revealed in comparisons of *Palestinian terrorists* ($n = 1625$, members of LeT and HM³⁸ who died in operations, based on biographies) with population data, where Palestinian terrorists were more educated and less illiterate than the general population (Fair, 2014). Additionally, Saeed and Syed (2016), by analysing the **educational background** of 895 *Pakistani terrorists* (based on data from regional police offices of Pakistan), showed that terrorists are relatively more educated and less illiterate than the general population group. However, their analyses indicated an interaction between individual level education and district level inequality, revealing a higher probability that more educated individuals from districts with lower educational profiles will become terrorists. In line with this, additional study findings, based on a survey of 141 Pakistani families of Islamist militants (Fair, 2007), suggested that terrorists are more educated, but more frequently unemployed than the general Pakistani population.

Another study in the context of *Palestinian terrorists* (Pedahzur et al., 2003) investigated the relationship between radicalisation and *poverty or socioeconomic status* at a district level (operationalised by a reliable index based on ten characteristics of a region, e.g. electricity supply,

³⁸ Lashkar-e-Taiba (LeT) and Hizb-ul-Mujahideen (HM)

possession of a car or refrigerator). Multivariable analyses revealed that *suicide terrorists* ($n = 80$) more frequently come from less affluent villages and towns than their non-suicide counterparts ($n = 743$), thus establishing the importance of poverty at a district level.

Kayaoğlu (2011) analysed data on 144 *Turkish Hezbollah terrorists* (operating within Turkey between 1992 and 1996) gathered from internal reports of the terrorist organisation (original hand-written reports by members of the Turkish Hezbollah at the request of their leaders which were obtained in the course of antiterrorist operations by the Turkish National Police in and around Istanbul, Ankara, Diyarbakir and Malatya). Bivariate and multivariable analyses revealed that terrorists who had performed violent acts (63.6 per cent) were statistically significantly less **educated** than terrorists who had not performed violent acts, while descriptive data showed that 52.6 per cent of all analysed terrorists indicated they were **unemployed**, while around 60 per cent perceived **their economic situation** as average or good.

Only seven studies presented data or findings about inequality indicators among individual terrorists in the **European context** (Bakker, 2006; Bakker and de Bont, 2016; Bergema and van San, 2017; Ljujic et al., 2017; PROTON, 2017; Reynolds and Hafez, 2017; Stuart, 2017) and in all cases these data were related to *Islamist radicalisation*. One study (Stuart, 2017) investigated inequality at a social level as well as at an individual level. Studies differ regarding the sample type and size, source of data as well as existence and type of comparison group.

Recent analyses within the PROTON project compared data on *Dutch terrorist suspects* ($n = 279$, in terrorist activities since 2004) with a control sample ($n = 279$) consisting of individuals suspected of non-terrorism related offences and a sample ($n = 279$) from the general population. While both the latter samples were used as comparison groups, they were matched according to age and gender. Descriptive data revealed that those suspected of terrorist activities, in comparison to the general population, are characterised by lower levels of **education**, are more frequently **unemployed** or more likely to still be in education, and more likely to have lost a job in the year before they became suspects. Their economic position is worse than that of even the general offender sample. Additionally, multivariable analyses confirmed that lower educational achievement and losing a job in the year before becoming a terrorism suspect are positively related to involvement in terrorist activities (i.e. it increases the chance of becoming involved) over and above (independently of) relationships between demographic characteristic (ethnicity, age, gender) and criminal offending history (PROTON, 2017: 182-185).

On the other hand, in the *UK context*, Stuart's (2017) analyses of perpetrators ($n = 253$) of Islamism-related offences prosecuted between 1998 and 2015 did not confirm education and employment status as correlates of offending. However, more than three-quarters (76 per cent) of Islamism-

related offences in England were committed by individuals whose place of residence at the time of arrest was in a neighbourhood that is among the 50 per cent of most deprived neighbourhoods in the country, thus indicating the importance of inequality at a social level (Stuart, 2017). Conversely, this may simply have reflected the socioeconomic deprivation of a neighbourhood with a higher percentage of Muslim immigrants.

Three additional studies were based on relatively large samples (Bakker, 2006; Bakker and de Bont, 2016; Bergema and van San, 2017) although in these studies, data about relevant characteristics related to inequality are often only available for smaller subsamples.

Bakker (2006) analysed the characteristics of 242 jihadi terrorists (from 28 terrorist networks) involved in 31 terrorist acts in Europe (2001-2006). Information about individuals/networks and incidents were inferred from the media, websites of governmental institutions, the dataset of the Terrorism Knowledge Base and other available corroborated overviews of terrorist incidents on the Internet. In total data were collated from 350 sources. At a general level, Bakker concluded there is 'no standard jihadi terrorist in Europe'. As a common characteristic, he singled out that they mostly came from the lower strata of society, noting that this may simply have reflected the general socioeconomic character of Muslim immigrant communities in Europe. Data showed that of 72 individuals for whom information about socioeconomic status was available, only three were categorised as upper class, 30 middle class and 39 lower class. On the other hand, data regarding education and employment show that the majority (42 out of 48) finished secondary school, while 47 out of 76 appeared to have had a history of full-time employment. There was no information to draw conclusions about relative deprivation; only partial information was available and for only 23 cases.

Similarly, Bakker and de Bont (2016) analysed characteristics of a relatively large sample of jihadist foreign fighters (Belgium $n = 211$; the Netherlands, $n = 159$). However, data relevant for inequality were only available for a smaller proportion of analysed individuals: socioeconomic background data were available for 30 Dutch and 15 Belgian jihadists; information on occupational status was available for 32 Dutch and 34 Belgian jihadists; there were no available data on education and relative deprivation. These data, which pertained to only small subsets of the total samples, suggested that the Belgian and Dutch jihadists were mostly from the lower and middle strata of society and unemployed.

Bergema and van San (2017) analysed the backgrounds of 217 Dutch jihadist foreign fighters who travelled to Syria and/or Iraq to join jihadist groups since the violent escalation of the 2011 Syrian

conflict. Data were collected from interviews with experienced experts³⁹, (social) media sources, and government and judicial documents. In relation to inequality data, they presented data on occupational status, education, occupation and employment (for between 48 and 58 individuals about whom they were able to gather relevant data) and concluded that the majority of analysed individuals came 'from the lower levels of society, lacking (tertiary) school or vocational qualifications, and are oftentimes unemployed or stuck in unskilled labor' (Bergema and van San, 2017: 21).

Two additional studies, based on smaller samples, indicated the possible importance of individual inequality. Ljuljic et al. (2017) analysed data on 27 European male terrorists and showed that at least 50 per cent of them completed only secondary education or less; while 70 per cent did not have stable employment at the time of the attack. In the German context, Reynolds and Hafez (2017) demonstrated that low educational qualifications and low rates of employment were more characteristic for the analysed 99 German foreign fighters than the Muslim population in Germany as a whole as well as for other residents with migrant and non-migrant backgrounds.

Thus, considering all the obstacles and limitations of these studies, which limit the generalisability of evidence, the analysed studies at a general level indicate that there is a positive relationship between individual level inequality and violent radicalisation in the European context, with the exception of the study in the UK context which indicates the importance of inequality at the social level (Stuart, 2017).

Macro level inequality and terrorism

This section presents the analysis of 84 selected studies investigating the relationship between inequality at the macro level and incidence or consequences of terrorism ($n = 77$) or group activities and radicalisation ($n = 7$). The majority of studies focused on terrorism without differentiating between different ideological bases of terrorism ($n = 72$), while only a minority focused specifically on Islamist ($n = 5$) or religious in general ($n = 3$), right-wing ($n = 5$) or separatist ($n = 3$) terrorism. Additionally, three studies investigated multiple types of radicalisation; Fitzpatrick et al. (2017) in the USA context and Kis-Katos et al. (2014) and Nemeth (2014) worldwide. Similarly, studies usually do not make a distinction between domestic ($n = 27$), or international/transnational terrorism ($n = 13$) but investigate terrorism in general ($n = 32$). However, 15 studies investigated both types of

³⁹ These include family members, friends, social workers and teachers.

terrorism⁴⁰. Regarding the geographical context, most studies were based on data using international samples consisting of dozens of countries worldwide ($n = 55$).

The use of secondary data was one of the common characteristics of all analysed studies in this group. Terrorism was in the majority of cases operationalised by data from one of three well-known databases⁴¹: The Global Terrorism Database (GTD, $n = 50$); International Terrorism: Attributes of Terrorist Events database (ITERATE, $n = 13$); and Terrorism Knowledge Base (RAND-MIPT, $n = 8$). A minority of analysed studies ($n = 11$) used multiple databases (e.g. Enders et al., 2016; Mascarenhas and Sandler, 2014); this might be expected to result in more robust findings.

The analysed studies differed with respect to the number and type of inequality variables investigated (Table 5) and this review includes studies irrespective of whether inequality variables were investigated as the main (or one of the main) determinants of terrorism or only as control variables in multivariable analyses. A general overview of findings on the relationship between inequality and terrorism is divided into two subsections with respect to the type of inequality being discussed: economic inequality and social-political inequality. In relation to economic inequality indicators, we differentiate between macro indicators relating to poverty and income inequality and those related to economic development (Table 5). Within these subsections, specific findings are discussed with respect to the analysed geographical scope of the terrorism measure used. The results of studies using terrorism data without differentiating between domestic and transnational terrorism are presented first, followed by the outcomes of studies which focused on either domestic or transnational terrorism⁴².

⁴⁰ Some authors included combinations of terrorism types, while others used measures of terrorism that could not be specified, so the total sum of the mentioned types of terrorism does not add up to 84 (number of included studies).

⁴¹ There are multiple versions available of each database, as they were updated by adding new data and new variables to provide more useful information to researchers. GTD is an open-source database, currently maintained by researchers at the University of Maryland (START PROJECT) and is updated every year. Significant changes in the database occurred in 1998, 2008 and 2012. Data from 1970 to 2017 is provided. Due to an accident that occurred while moving the data to the new agency, no information for 1993 is available. ITERATE, on the other hand, can be accessed only through the Duke community and focusses on international terrorism from 1968 to 2011. The TKB database is currently a part of the RAND Database of Worldwide Terrorism Incidents (RDWTI), which includes data from 1968 to 2009, and can be publicly accessed without commission for research purposes.

⁴² In domestic terrorism, perpetrators' country is the same as the target country, while this is not the case in transnational terrorist attacks.

Table 5. Inequality variables⁴³ at the macro level investigated as determinants of terrorism

| Inequality variables | General | Domestic | Transnational |
|--------------------------------------|---------|----------|---------------|
| Economic inequality | | | |
| Economic development | | | |
| GDP p.c. and GNI p.c. | 22 | 28 | 22 |
| HDI | 6 | 3 | 1 |
| Education | 4 | 10 | 5 |
| Adult literacy | 5 | 4 | 4 |
| Unemployment | 10 | 7 | 3 |
| Poverty | | | |
| Poverty (in %) | 6 | 4 | 4 |
| Economic (income inequality) | | | |
| GINI (interpersonal inequality) | 10 | 10 | 6 |
| Theil (interregional inequality) | 0 | 3 | 0 |
| Social/political inequality | | | |
| Democracy/political repression | 13 | 22 | 17 |
| Women rights | 3 | 3 | 2 |
| Political rights and civil liberties | 12 | 12 | 6 |
| Physical integrity rights | 3 | 3 | 1 |

⁴³ The total number of included studies was 84, but some included multiple operationalisations of terrorism, which resulted in a total of 101 analysed sections of results.

Economic inequality and terrorism

Economic development and terrorism

Gross domestic product (GDP) and closely related variables⁴⁴ were the most frequently investigated economic inequality variables in the context of analysed terrorism studies. The most inconsistent pattern regarding their relationship with terrorism could be noted within studies that treat *terrorism* without differentiating it with respect to location of the attacks ($n = 22$). Nine studies found a positive relationship between per capita GDP and the incidence of terrorism (Akhmat et al., 2014; Dreher and Kreibbaum, 2016; Elu, 2012; Freytag et al., 2014; Ismail, 2014; Krueger and Laitin, 2008; Piazza, 2012, 2013; Yin, 2017), eight studies noted a negative relationship with terrorism (Abadie, 2006; Bove and Boehmelt, 2016; Caruso and Schneider, 2011; Caruso and Schneider, 2013; de Soysa and Binningsbø, 2005; Nasir et al., 2011; Piazza, 2016; Salman, 2015), while five studies did not confirm a significant relationship with terrorism (Ali and Li, 2016; Estes and Sirgy, 2014; Krieger and Meierrieks, 2016; Piazza, 2006; Shahbaz, 2013).

However, studies that focused on *domestic terrorism* ($n = 28$) demonstrated somewhat more consistent results: 18 studies confirmed a positive relationship (Bandyopadhyay and Younas, 2011; Berrebi and Ostwald, 2013; Danzell et al., 2016; Enders and Hoover 2012; Enders et al., 2016; Ezcurra, 2017; Findley and Young, 2011; Gaibullov et al., 2017; Ghatak, 2016a; Ghatak and Gold, 2017; Ghatak et al., 2017; Helfstein, 2014; Kis-Katos et al., 2011; Kis-Katos et al., 2014; Mascarenhas et al., 2014; Nemeth, 2014; Piazza, 2011, 2013), six showed a negative relationship (Enders and Hoover, 2012⁴⁵; Enders et al., 2016; Ezcurra and Palacios, 2016; Nemeth et al., 2014; Piazza, 2017b; Yildirim and Ocal, 2013), while four found no relationship (Boyd, 2016; Choi and Piazza, 2016a; Derin-Güre, 2011; Feridun, 2016).

Similarly, of 22 studies that focused on *transnational terrorism*, 14 indicated a positive relationship between terrorism incidence and economic inequality (Bandyopadhyay and Younas, 2011; Berrebi and Ostwald, 2013; Blomberg et al., 2004; Campos and Gassebner, 2013; Choi and Luo, 2013; Elbakidze and Jin, 2015; Enders et al., 2016; Gaibullov et al., 2017; Kis-Katos et al., 2011; Kis-Katos et al., 2014; Mascarenhas et al., 2014; Plumper and Neumayer, 2010; Saiya et al., 2017; Salman, 2015), only two found a negative relationship (Azam and Thelen, 2008; Enders et al., 2016), while six studies showed no relationship (Boyd, 2016; Krueger and Malečková, 2003; Meierrieks, 2012; Milton, 2017; Neumayer and Plumper, 2011; Piazza, 2010).

⁴⁴ Change in per capita GDP and the gross national income per capita (per capita GNI)

⁴⁵ The authors split their analyses into high-income and low-income groups of countries, which yielded inverse results.

Thus, although the results of studies of the inequality-terrorism relationship which operationalised economic development by GDP and closely related variables are relatively inconsistent, altogether they suggest a weak, positive relationship between economic development and terrorism. However, it should be stressed that all of these studies only explored a linear relationship with terrorism (i.e. a relationship which when graphed appears as straight line describing that terrorism increases or decreases in parallel with the increase or decrease of economic development indicators).

In contrast, studies ($n = 9$) investigating the quadratic trend between per capita GDP and terrorism⁴⁶ show a more consistent pattern of findings. Squared per capita GDP was confirmed as a negative predictor of terrorism in seven studies, indicating that countries with a high or low per capita GDP tend to experience less terrorist attacks than countries with an average per capita GDP (Enders and Hoover, 2012; Freytag et al., 2011; Ezcurra, 2017; Enders et al., 2016; Ghatak and Gold, 2017; Elbakidze and Jin, 2015; Nemeth et al., 2014). By contrast, two studies focusing on domestic terrorism reported a positive relationship between squared per capita GDP and terrorism indicating that countries with a high or low per capita GDP tend to experience more domestic terrorist attacks than countries with an average GDP. However, in one of those cases, interregional inequality was also included in the multivariable models, which, due to the interrelations between these two inequality measures, could have produced the different direction of relationship (Ezcurra and Palacios, 2017). In the case of countries with a low income per capita, Enders and Hoover (2012) also found a positive quadratic trend between economic development measures and terrorism. In comparison, countries with a higher income showed a negative quadratic trend (Enders and Hoover, 2012). All in all, a negative quadratic trend seemed to better describe the relationship between per capita GDP and terrorism than linear trends, indicating that countries with a high and those with a low, per capita GDP tend to experience fewer terrorist attacks than countries with an average per capita GDP.

An additional source of inconsistency in results can be seen in findings which reveal that the relationship between per capita GDP and terrorism could depend on the percentage of the excluded population (Ghatak and Gold, 2017), the type of government in terms of democracy/autocracy (Nemeth et al., 2014; Piazza, 2013), or country level of income (Enders and Hoover, 2012) (see Section 3.4). These studies indicate that specific – and yet unresearched – circumstances could be a source of inconsistencies in the investigated linear relationship between per capita GDP and terrorism.

⁴⁶ By this we mean that the authors included squared values of per capita GDP in models to test if the relationship resembled a curve. Such a curve might indicate, for example, that countries with a high and low per capita GDP are characterised by more or less terrorist attacks than countries with an average per capita GDP.

In relation to general terrorism, social and economic development, operationalised through the **Human Development Index (HDI, $n = 10$)**, was confirmed as a positive predictor in three of six studies (Choi and Piazza, 2016b, 2017; Henne, 2012). One study found a negative relationship between HDI and general terrorism (Bravo and Dias, 2006) and two found no relationship (Abadie, 2006; Piazza, 2006). In the context of domestic terrorism, two out of three studies failed to find any relationship (Piazza, 2013, 2017), while one study found a positive relationship between HDI and terrorism (Piazza, 2011). Only one study, focused on transnational terrorism, included HDI as a variable (Barros et al., 2008) and yielded no significant relationship.

All in all, results obtained by analysing terrorism in general suggest that a higher HDI might be weakly related to a higher incidence of terrorism. However, once terrorism is differentiated into domestic and transnational components, support for such a claim becomes even weaker.

In the subgroup of studies investigating the relationship between economic development indicators and terrorism, we also included studies which considered **education, adult literacy and unemployment** as potential predictors of terrorism. Studies investigating the relationship between education ($n = 19$) or adult literacy rates ($n = 13$) and terrorism indicate ambiguous results, which is probably attributable to the operationalisation of variables. Elbakidze and Jin (2015), for example, showed that a higher percentage of the population with secondary education was related to higher rates of terrorism, while a higher percentage of the population having completed tertiary education was related to lower rates of terrorism. When considered in detail, out of the four studies which treated *terrorism as a unique phenomenon*, two revealed a negative relationship between education and terrorism (Fitzpatrick et al., 2017; Salman, 2015), where one examined female education and the other focussed on the completion rates of secondary education. An additional study (Caruso and Schneider, 2013), in which education was operationalised via the Education Index (by UNDP), found a positive relationship between education and terrorism, while another found no relationship (Abadie, 2006). When the relationship between education and *domestic terrorism* was the focus of research, four out of ten studies revealed no significant relationship (Helfstein, 2014; Danzell et al., 2016; Enders and Hoover, 2012; Enders et al., 2016), another four found a negative relationship (Akyuz and Armstrong, 2011; Feridun, 2016; Yildirim and Ocal, 2013; Salman, 2015), while two studies found that education is a positive predictor of terrorism (Brockhoff et al., 2015; Syed et al., 2015). In the context of *transnational terrorism*, four out of five studies found a negative relationship between secondary education and terrorism (Azam and Thelen, 2008; Elbakidze and Jin, 2015; Enders et al., 2016; Salman, 2015), while only one study revealed a positive relationship between secondary education and terrorism and a negative relationship between tertiary education and terrorism (Elbakidze and Jin, 2015).

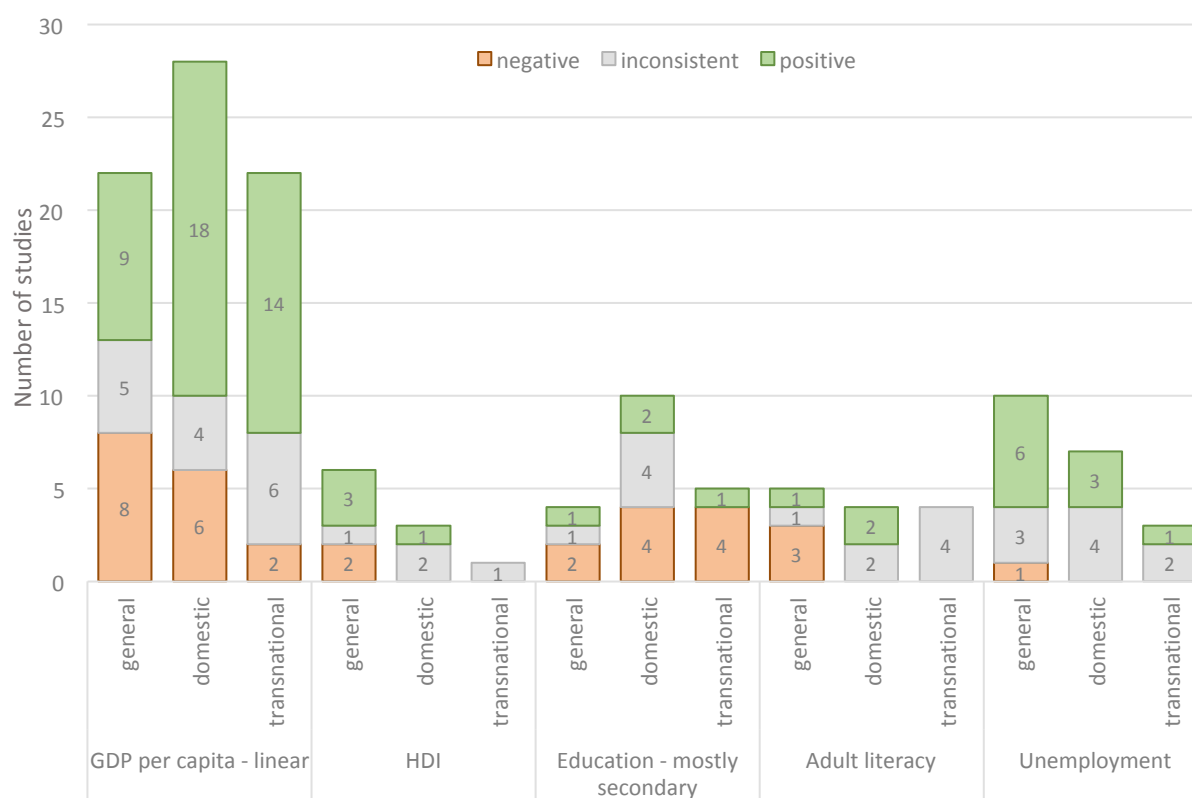
Regarding **adult literacy**, a very similar pattern can be seen. In studies that did not differentiate between a domestic or transnational type of terrorism, three out of five studies found a negative relationship between literacy and terrorism (Bravo and Dias, 2006; Ismail and Amjad, 2014; Krueger and Laitin, 2008), one study found a positive relationship (Nasir et al., 2011) while another found no relationship (Ali and Li, 2016). However, in the context of *domestic terrorism*, two out of four studies found a positive relationship between adult literacy and terrorism (Brockhoff et al., 2015; Meierrieks, 2012), while the other two failed to demonstrate any relationship (Piazza, 2010; Bandyopadhyay and Younas, 2011). Regarding *transnational terrorism* research, none of the four studies which investigated adult literacy found any significant relationships (Elbakidze and Jin, 2015, Krueger and Malečková, 2003, Bandyopadhyay and Younas, 2011, Meierrieks, 2012), indicating that literacy per se does not play an important role in worldwide terrorism. All in all, inconsistencies in the results suggest the need for further research to provide more precise answers.

Regarding relationships between **unemployment rates** and terrorism, findings of different studies are not completely consistent. Studies which do not differentiate between the type of terrorism show slightly more consistent findings than studies investigating domestic or transnational terrorism. Of ten studies which do not distinguish the type of terrorism, a higher unemployment rate was related to a higher incidence of terrorism in six (Akhmat et al., 2014; Benmelech et al., 2012; Fitzpatrick et al., 2017; Freilich and Pridemore, 2005; Sayre, 2009; Yin, 2017). One study found an inverse relationship (Caruso and Schneider, 2011), while three did not confirm a multivariate relationship between unemployment and terrorism (Ali and Li, 2016; Ismail and Amjad, 2014; Piazza, 2006). In the case of *domestic terrorism*, four out of seven studies did not confirm its relationship with unemployment (Akyuz and Armstrong, 2011; Enders et al., 2016; Jenkins et al., 2014; Piazza, 2017b), while three studies revealed that higher unemployment rates were related to a higher incidence of domestic terrorism (Enders and Hoover, 2012; Ghatak, 2016b; Yildirim and Ocal, 2013). Only three studies investigated unemployment in the context of *transnational terrorism* ($n = 3$), two of them did not confirm a relationship (Enders and Hoover, 2012; Enders et al., 2016), while one (Elbakidze and Jin, 2015) revealed a positive relationship between unemployment rates and international attacks.

Due to the relatively small number of studies and the inconsistency of results, every conclusion regarding the relationship between unemployment and terrorism should be considered with caution. With this in mind, we might conclude that unemployment rates have a slight tendency to be related to a higher incidence of terrorism. However, since the observed relationship is not very consistent even if it does exist, it is probably not strong.

Figure 3 depicts the findings regarding the economic development and terrorism relationship discussed above. It reflects: how frequently each indicator is investigated with regard to each type of terrorism (column height indicates the total number of studies which included specific economic development indicators with respect to the type of terrorism); how consistent results are and which findings - positive, negative or inconsistent - are more frequent. Each column is divided into three sections with respect to findings about the relationship between an economic development indicator and type of terrorism: green sections represent the number of studies that revealed a positive relationship; grey sections represent the number of studies with inconsistent findings; and orange sections represent the number of studies that revealed a negative relationship between different economic development indicators and different types of terrorism. The figure additionally highlights the discrepancy in use of variables to operationalise economic development, i.e. how frequently each economic development indicator is investigated regarding each type of terrorism.

Figure 3. Distribution of terrorism studies with respect to consistency and direction of established relationship between economic inequality indicators (related to economic development) and type of terrorism (general, domestic, transnational)



Poverty and income inequality

Of the analysed studies, 14 in total investigated the relationship between **poverty**⁴⁷ and terrorism. Of these, six focused on terrorism in general, four on domestic terrorism and four on transnational terrorism. Of the six studies that focused on *terrorism in general*, three studies (Akhmat et al., 2014; Fitzpatrick et al., 2017; Ismail and Amjad, 2014) found a positive relationship between poverty and terrorism, two (Freilich and Pridemore, 2005; Nasir et al., 2011) failed to find any relationship, while one revealed a negative relationship (Ali and Li, 2016). An inconsistent relationship between poverty and terrorism was found in the case of *domestic terrorism* ($n = 4$) as well. One study showed no relationship (Piazza, 2017b), one showed a positive (Akyuz and Armstrong, 2011) and one (Adamczyk et al., 2014) showed a negative relationship. However, in the context of *transnational terrorism* ($n = 4$), a much clearer picture is seen since higher poverty rates were related to a higher incidence of terrorism in three studies (Barros, 2008; Elbakidze and Jin, 2015; Piazza, 2010). Moreover, an additional study showed that higher rates of urban, but not rural, poverty were related to higher rates of both *domestic* and *transnational* terrorism, indicating an interactive relationship between poverty and urban residence in transnational terrorism (Meierrieiks, 2012). Thus, despite generally inconsistent findings, it seems that the relationship between poverty and transnational terrorism is slightly more robust and stronger than the relationship between poverty and domestic terrorism. An interactive relationship between poverty and other economic as well demographic or political variables has yet to be explored.

The relationship between terrorism and **income inequality**, operationalised by the **Gini coefficient**, was explored in 26 studies. In studies which investigated *terrorism in general*, a positive relationship between income inequality and terrorism was found in five out of ten studies (Akhmat et al., 2014; Ali and Li, 2016; Krieger and Meierrieiks, 2016; Nasir et al., 2011; Piazza, 2013), only one study revealed a negative relationship with terrorism (Choi and Piazza, 2016b) while four revealed no relationship at all (Bove and Bohmelt, 2016; Ismail and Amjad, 2014; Piazza, 2006, 2012). Out of ten studies focused on *domestic terrorism*, a positive relationship between inequality and terrorism was found in four studies (Choi, 2015; Enders et al., 2016; Piazza, 2011, 2013), a negative relationship in three (Boyd, 2016; Enders and Hoover 2012; Meierrieiks, 2012) while three studies did not confirm any statistically significant relationship (Ezcurra and Palacios, 2016; Ghatak, 2016b; Piazza, 2017b). In the context of *transnational terrorism* ($n = 6$), four studies failed to find significant relationships (Boyd, 2016; Elbakidze and Jin, 2015; Enders and Hoover, 2012; Meierrieiks, 2012), while two studies confirmed inequality as a positive predictor (Choi, 2015; Enders et al., 2016).

⁴⁷ Usually, poverty is operationalised as a percentage of the population with an income low enough to be classified as poor according to national (e.g. Akyuz and Armstrong, 2014) or international (e.g. Estes and Sirgy, 2014) data. Different operationalisations of poverty may also be one of the reasons for inconsistent results.

Overall, studies indicated highly inconsistent results regarding the relationship between income inequality and terrorism. However, according to one study, GINI was predictive for the international data on both domestic and international terrorism before 1993, but not after (Enders et al., 2016). This might have contributed to the inconsistency of the results. In addition, one study revealed that countries with a high, and those with a low, GINI tend to experience fewer terrorist attacks than countries with an average GINI (a positive quadratic relationship between the GINI coefficient and terrorism Enders and Hoover, 2012), which might also have contributed to the inconsistency of the results since other studies only tested linear relationships between GINI and terrorism. Indeed, in many of the analysed studies the GINI coefficient was one of several variables included in multivariable models and consequently these multivariable findings about the relationship between income inequality and terrorism depend on other variables included in the models.

Three studies investigated **income inequality** operationalised by **interregional inequality** (using the Theil index or light deviation). Ezcurra and Palacios (2016) identified a positive relationship between the Theil index and domestic terrorism using a cross-country sample, while Ash (2018) also showed a positive relationship between income inequality as light deviation and incidence of terrorist attacks. However, Derin-Güre and Alveren (2014) did not confirm a relationship between inequality and separatist terrorism in Turkey. Such results indicate that higher income inequality may be positively related to a higher incidence of domestic terrorism although this is not applicable to every country. Moreover, the validity of such conclusions is questionable due to the limited literature. Figure 4 depicts the findings discussed above regarding the poverty and income inequality - terrorism relationship.

Figure 4. Distribution of terrorism studies with respect to consistency and direction of established relationship between poverty and income inequality indicators and type of terrorism (general, domestic, transnational)



Social/political inequality and terrorism

In this subgroup, we reviewed studies which investigated the relationship between different variables, more or less directly related to social exclusion, political grievance and repression, such as gender equality or women rights, more general civil rights, liberties and repression and the level of democracy. In particular, democracy is one of the most frequently studied variables related to political (in)equality whilst also being frequently investigated as a determinant of terrorism.

In studies that investigated *terrorism in general* ($n = 13$), higher **democracy**⁴⁸ was related to higher terrorism incidence in six studies (Burgoon, 2006; Freytag et al., 2011; Krieger and Meierrieks, 2016; Krueger and Laitin, 2008; Piazza, 2013; Salman, 2015) and to lower incidence of terrorism in four (Bravo and Dias, 2006; Caruso and Schneider, 2013; de Soysa and Binningsbø, 2005; Piazza, 2016), while no significant relationship was found in three studies (Choi and Piazza, 2017; Dreher and Kreibaum, 2016; Meierrieks and Gries, 2013). Another two studies exhibited a negative quadratic

⁴⁸ Democracy was usually operationalised by the Polity variable of the Polity IV Project (e.g. Marshall and Jaggers, 2007) and in most cases was used as a continuous variable (as in original form), although some authors (e.g. Ghatak and Gold, 2017; Piazza, 2013) tend to divide countries into three groups according to their results – autocracies, anocracies and democracies, while others tend to recode it as a measure of political repression (e.g. Danzell et al., 2016).

trend between democracy and terrorism incidence, indicating that countries with an unstable democracy have the highest probability of terrorist attacks.

Similar trends can be noted in the context of *domestic terrorism* ($n = 22$), where the majority of authors ($n = 11$) found that higher democracy was related to a higher incidence of terrorism (Brockhoff et al., 2015; Choi, 2015; Findley and Young, 2011; Gaibullov et al., 2017; Ghatak, 2016a; Ghatak and Gold, 2017; Ghatak et al., 2017; Kis-Katos et al., 2011; Kis-Katos et al., 2014; Nemeth, 2014; Nemeth et al., 2014), while two studies revealed an inverse relationship (Danzell et al., 2016; Ghatak, 2016b) and others found no consistent relationship (Boyd, 2016; Choi and Piazza, 2016a; Enders and Hoover 2012; Enders et al., 2016; Helfstein, 2014; Meierrieks, 2012; Piazza, 2013; Piazza, 2017a; Salman, 2015). The inconsistency was also found in the context of *transnational terrorism* ($n = 17$); 10 studies indicated a positive relationship between democracy and terrorism (Blomberg et al., 2004; Burgoon, 2006; Campos and Gassebner, 2013; Choi, 2015; Choi and Luo, 2013; Gaibullov et al., 2017; Kis-Katos et al., 2011; Kis-Katos et al., 2014; Milton, 2017; Plumper and Neumayer, 2010), one found a negative relationship (Neumayer and Plumper, 2011), while others found no significant relationship (Boyd, 2016; Enders and Hoover 2012; Enders et al., 2016; Meierrieks, 2012; Saiya et al., 2017; Salman, 2015). Therefore, when terrorism is broken down into domestic and transnational components, a positive relationship between terrorism and democracy becomes clearer, although several studies have indicated that the relationship is negative and quadratic (Freytag et al., 2011; Gaibullov et al., 2017; Piazza, 2016).

As Choi and Piazza (2016a) showed, when considered together in a model, exclusion makes a better predictor of terrorism than the ability to participate, especially in the context of political grievance and repression (Boylan, 2016). This makes it relevant to explore different indices that could be related to exclusion. Freedom House (2014) also offered various indices that were used by authors for the analysis of terrorism data. **Political rights, civil liberties and press freedom indices** were used most often. As with democracy, while some authors used these indices as measures of liberties, others tended to recode them and use as **measures of repression**. The index used most often was related to **political rights and civil liberties**. For instance, Choi and Piazza (2016a) showed that greater political rights were related to higher rates of terrorism, while the opposite was found in three studies (Berrebi and Ostwald, 2013; Enders et al., 2016; Enders and Hoover, 2012). In studies where terrorism was treated as one construct ($n = 7$), a mixed pattern of significance could be observed, as three studies found a positive relationship between civil rights and terrorism in general (Choi and Piazza, 2017; Dreher and Kreibbaum, 2016; Krueger and Laitin, 2008), three studies found no relationship (Estes and Sirgy, 2014; Nasir et al., 2011; Piazza, 2006) and one study found a negative relationship (Abadie, 2006). On the other hand, all five studies which investigated

repression (operationalised by repression indices or an inverse combination of different Freedom House's indices) found a positive relationship with terrorism (Boylan, 2016; Ismail and Amjad, 2014; Nasir et al., 2014; Ortiz, 2007; Piazza, 2006). In studies that focused on *domestic terrorism* ($n = 11$), the majority of studies found no relationship (Bandyopadhyay and Younas, 2011; Berrebi and Ostwald, 2013; Enders and Hoover, 2012; Ezcurra, 2017; Ezcurra and Palacios, 2017; Gaibullov et al., 2017; Ghatak et al., 2017; Helfstein, 2014; Piazza, 2017a) while one (Choi and Piazza, 2016a) found a positive relationship between freedom indices and terrorism and one found a negative relationship (Enders et al., 2016). Regarding repression, Piazza (2017) found a positive relationship between various kinds of repression (labour repression, religious repression, and repression against minorities) and terrorism incidence. Similarly, in the context of *transnational terrorism* research ($n = 6$), the majority of studies did not exhibit any significant relationship (Bandyopadhyay and Younas, 2011; Berrebi and Ostwald, 2013; Enders and Hoover, 2012; Gaibullov et al., 2017), while two studies revealed a negative relationship, where civil liberties were related to a lower incidence of terrorism (Enders et al., 2016; Krueger and Malečková, 2003). All in all, although general observation may suggest the important role of freedom/repression in predicting terrorism, more specific analyses are generally not supportive of the role of freedom but are supportive of repression. This might be the consequence of different operationalisations of repression.

Abadie (2006) has argued that economic variables tend to lose their predictive importance when a number of variables related to fractionalizations⁴⁹ and freedom are included in the models. This might be interpreted as meaning that in models where numerous economic variables are included, civil rights and liberties may be less likely to emerge as important predictors (and at same time in models where numerous civil rights and liberties variables are included, economic variables may be less likely to emerge as important predictors). Since freedom and repression were most often included in models as control variables, it is difficult to estimate their effectiveness in predicting terrorism outside of these specific models or with different operationalisations. Thus, results so far do not consistently confirm the relationship between freedom/repression and terrorism.

Of the seven studies which investigated the relationship between **gender equality** or **women rights** and terrorism, only one (Freilich and Pridemore, 2005) failed to find any significant relationship. According to Salman (2015) and Saiya, Zaihra and Fidler (2017), countries which pay more attention to gender equality and women rights, in terms of female education, participation in parliament and the labour force, generally tend to experience fewer terrorist attacks, both domestic and transnational. These results are consistent with the 'Hillary doctrine'; the claim that the source of terrorism is related to gender inequality (Saiya et al., 2017), which was also confirmed by another

⁴⁹ Indices for linguistic, ethnic, and religious fractionalization which reflects the probability that two individuals chosen at random from the same country belong to different linguistic, ethnic, or religious groups.

study (Asal et al., 2017). Although these findings were supported by two studies, which did not differentiate between various types of radicalisation, Piazza (2017) has shown that women's rights (measured by abortion rates and female participation in the labour market), were related to a higher incidence of right-wing terrorism in the USA, as well as Islamist attacks in Egypt (Jenkins et al., 2014). Additionally, Salman (2015) found a positive relationship between support for female political rights and both national and transnational terrorism. Taken together, these findings indicate the important role of gender equality and women's rights in predicting terrorism and might suggest that improving gender equality may indeed reduce terrorism rates, although such findings probably depend on ideology and type of radical movement in question.

Among the selected studies, six investigated the relationship between **physical integrity rights**⁵⁰ (operationalised by the CIRI variable⁵¹, and terrorism. Three of these studies found a negative relationship between this measure of respect for human rights and terrorism (Choi and Piazza, 2016b; Mascarenhas et al., 2014⁵²; Piazza, 2012) while the other three found a positive relationship between terrorism and abuse of physical integrity rights (Choi and Piazza, 2016a; Piazza, 2016, 2017). This finding was consistent regardless of whether terrorism was observed as a single construct ($n = 3$) or on a domestic ($n = 3$) or transnational ($n = 1$) level. Thus, abuse of human rights might be one of the strongest potential drivers of terrorism. This finding is in line with other studies which found that more effective remediation policies (Piazza, 2011), redistribution (Krieger and Meierrieks, 2016) and spending on welfare (Burgoon, 2006) were related to lower terrorism rates.

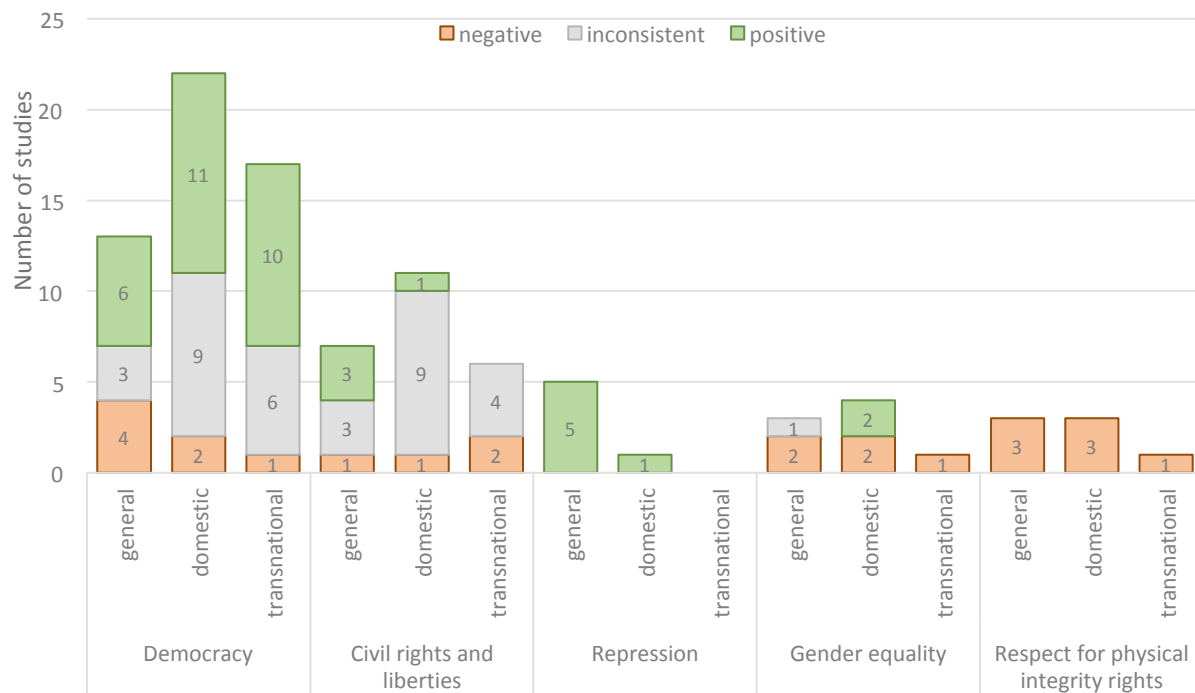
Figure 5 depicts all the findings discussed above regarding social/political inequality indicators and their relationship with terrorism.

⁵⁰ Measures government respect for the freedoms from torture, extrajudicial killing, political imprisonment, and disappearance.

⁵¹ Cingranelli and Richardson, 2010, as cited in Choi and Piazza, 2016a, 2016b and others

⁵² Authors found the relationship both at the domestic and transnational level.

Figure 5. Distribution of terrorism studies with respect to consistency and direction of established relationship between social/political inequality indicators and *type of terrorism (general, domestic transnational)*



Islamist and far-right terrorism

A minority of analysed studies focused on a specific ideological type of terrorism: Islamist ($n = 5$), religious more generally ($n = 4$), separatist ($n = 3$) or right-wing ($n = 6$). Three studies investigated the determinants of multiple terrorism types (Fitzpatrick et al., 2017; Kis-Katos et al., 2014; Nemeth, 2014).

In terms of *religious and Islamist radicalisation*, Fitzpatrick and associates (2017) reported that participation in al-Qaida associated movements (AQAM) could be predicted by a lower percentage of the population with **high-school diplomas**, a higher percentage of **citizens living in poverty** and a more urbanised environment in a community. Benmelech et al. (2012) investigated Islamist terrorism in Israel and found that higher **unemployment rates** (especially group-specific) and lower **income inequality** (in terms of lower interpersonal income variability) were predictors of Islamist suicide bombing. Further, higher income inequality and group-specific unemployment rates were significant predictors of *suicide terrorism* in general. However, Nemeth (2014) failed to reveal any relationship between religious terrorism and per capita GDP or democracy. In terms of Islamist terrorist attacks in

general, Jenkins et al. (2014) did not confirm unemployment and interregional inequality as significant multivariable predictors (over and above a positive relationship between moral economy, measured by contraceptive prevalence rate and higher child mortality). Moreover, Benmelech et al. (2012) suggested that determinants of attacks could be terrorist group-specific. For example, higher unemployment and income inequality predicted Hamas attacks, lower unemployment and income inequality predicted Palestinian Islamist Jihad attacks, while lower unemployment and higher income inequality predicted Fatah attacks. Such a pattern revealed an important finding; although macro level factors may be useful in predicting the incidence of terrorism, their importance seemed to depend on a concrete group, indicating that general terrorism research, even when differentiated into domestic and transnational terrorism, suffered from disturbance stemming from comparisons of 'apples and oranges'. In line with this, Kis-Katos et al. (2014) found that the potential drivers of Islamist domestic terrorism may be greater democracy (2nd, 3rd and 4th quartile of the *Polity* variable) and urbanisation, while a significant positive relationship between the 3rd quartile of per capita GDP (compared to 1st quartile) indicated a potential quadratic trend between the observed phenomena. However, none of these trends were confirmed by Nemeth (2014). In terms of international terrorism targets, the same authors found that countries with a higher per capita GDP were generally more democratic and urbanised and were more likely to experience Islamist terrorist incidents. Similar findings were revealed in analyses of religious terrorism generally, although this was slightly more dependent on per capita GDP (Kis-Katos et al., 2014).

Studies that focused on *right-wing radicalisation* refer to the USA or cross-country context. Fitzpatrick et al. (2017) found that far-right terrorists in the USA often come from communities that were more urbanised with a higher percentage of high-school graduates and higher levels of poverty. Similarly, Freilich and Pridemore (2005) found a significant positive bivariate relationship between poverty, disorganisation, job loss (and proportion of right-wing males) and a number of militia groups. However, multivariable analyses confirmed that only job loss and disorganisation, but not poverty (and proportion of white males) were significant determinants. Kis-Katos et al. (2014) revealed a positive linear relationship between per capita GDP and far-right terrorism, and a quadratic-looking trend between democracy and far-right terrorism. However, Nemeth (2014) failed to find any relationship between right-wing terrorism and per capita GDP while the curve between democracy and terrorism had an inverse shape. Instead of most attacks being attributed to anocracies (Kis-Katos et al., 2014), Nemeth (2014) found that anocracies have a lower rate of attacks than democracies and autocracies. A possible source of this inconsistency may lie in the source of data, as the authors used different versions of the same database, with different time-spans and methodological approaches to operationalise both predictors and domestic terrorism. Piazza (2017) did not establish a significant multivariable relationship between economic variables (federal tax

income, income inequality, unemployment rate) and right-wing terrorism in the USA (after women's rights and abortion rates were included in the model). Similarly, Adamczyk et al. (2014) found that poverty was not predictive for far-right radicalisation when the measure of prevalence of hate groups was included into the analyses. However, as noted by Adamczyk et al. (2014) the real significance of economic inequality in explaining far-right terrorism in the USA might be underestimated since multivariable analyses on the USA data also included the population size of counties (when more populous counties were generally also richer and more urbanised).

Three studies that specifically focused on **separatist terrorism** explored its relationship with interregional inequality (Derin-Güre and Elveren, 2014) or with GDP (Derin-Güre, 2011; Kis-Katos et al., 2015). Two of them found no relationship between interregional inequality or per capita GDP and separatist terrorism in Turkey (Derin-Güre, 2011a; Derin-Güre and Elveren, 2014). The other study, based on cross-country data, revealed a positive, but non-linear relationship between per capita GDP (and democracy) and separatist terrorism (Kis-Katos et al., 2014).

3.3 Where, when and how is inequality related to radicalisation?

Only a few of the studies analysed in this review directly explored whether the inequality-radicalisation relationship is conditional on additional individual or contextual factors. Thus, studies that specifically investigated where and when inequality was related to radicalisation or terrorism remain rare. The inconsistency of existing results regarding whether *inequality is related to radicalisation* detailed in this report, however, demonstrates the necessity of more targeted and specific explorations of a complex relationship.

In this final section of findings, we present the results of those studies that do suggest the possible importance of combined effect (interactions) of two specific inequality indicators or suggest that the inequality-radicalisation relationship may be conditional on some other individual or contextual (macro) factor.

In the context of the inequality-radicalisation relationship, findings which suggest combined (interactive) relationships between **poverty and educational level** on radicalisation are especially relevant. For example, Kavanagh's (2011) study revealed that poverty increases the likelihood of participation in Hezbollah, but only for those who have at least a high school education. In other words, although findings on the relationship between participation in Hezbollah and poverty alone indicate no relationship between poverty and the probability of participation in Hezbollah, poverty seems to be a positive predictor of participation in Hezbollah for highly educated individuals. In the

Pakistani context, Saeed and Syed (2016) also indicated the importance of this combination between poverty and education, but at a social (district) level. Namely, districts with a higher poverty and lower education level have more Pakistani terrorists. Thus, in contrast to participation in Hezbollah, which was more likely for more educated and poor individuals, Pakistani terrorists were more frequently from districts characterised by higher poverty and lower education levels. However, in another study in the Pakistani context (Fair, 2007), it was suggested that Islamist militants were better educated, but more frequently unemployed than the average Pakistani in a general, comparable population. In the context of support for terrorism, survey findings by Chiozza (2009) also indicated the possible importance of combinations of poverty/income, education and a concrete country: in Jordan, support for suicide bombing was more likely among participants living in poverty, middle class and more educated participants, while in Lebanon more support was characteristic among less educated people living in poverty, residing in areas where Hezbollah is strongest (Chiozza, 2009). In this context, findings about the education-terrorism relationship at the social level are also relevant. For example, studies demonstrated that lower education levels were a positive predictor of terrorist attacks in less wealthy countries, while tertiary education in wealthier countries was related to lower incidence of attacks (Brockhoff et al., 2015; Elbakidze et al., 2015).

In summary, these results provide indirect support for the importance of inequality since higher education seems to be related more frequently to radicalisation/terrorism in contexts where educated individuals do not have the opportunity to reach their full potential, regardless of whether this is individual or macro level poverty or lower economic development. Additionally, Nasir et al. (2011) found that repression had a moderating role on the relationship between literacy and terrorism, indicating that literate adults compared to illiterate adults, were more prone to terrorism when being repressed, which they explained in terms of being more aware of their rights.

Some findings also indicated that the poverty-radicalisation relationship could depend on **other macro characteristics such as urban residence/context or violence level**. Survey findings (Mousseau, 2011) revealed that poverty is positively related to Islamist radicalisation (support for Islamist terrorism) especially among the urban population. Additionally, Blair et al. (2013) confirmed a significant interaction between individual level inequality and community level violence. Namely, a negative relationship between poverty (low individual level income) and support for violent groups was much stronger in urban areas that had experienced violence (in the year before the data collection) in comparison to other areas. This indicates that the presence of violence caused by militant organisations is an important contextual factor that changes (moderates) the strength of the relationship between individual-level poverty and support for violent groups. Moreover, Fair et al. (2016) experimentally confirmed that the perceived level of violence increases the negative

relationship between perceived individual poverty and radicalisation (support for militant groups was lowest among those who were induced to feel poor and simultaneously induced to perceive Pakistan to be a relatively violent country). Additionally, these findings could be potentially relevant for explaining the previously mentioned interactive relationship between poverty and urban context (Mousseau, 2011), since violence could be more concentrated in urban areas.

Within the studies that analysed the **macro determinants of terrorism**, some demonstrated that the relationship between economic development (operationalised by per capita GDP) and terrorism might also depend on additional inequality or other contextual factors. For instance, Ghatak and Gold (2017) demonstrated that per capita GDP interacts with the percentage of excluded population in predicting terrorism; only in countries with a high per capita GDP did the rate of an excluded population relate to the rising number of terrorist attacks, while no relationship between an excluded population and terrorism was found in countries with a low per capita GDP. Moreover, Ghatak et al. (2017) demonstrated that a politically excluded population also changes (moderates) the relationship between democracy and terrorism – democracy becomes a positive predictor of terrorism only in the context of a larger segment of the population being politically excluded. However, democracy was not related to the incidence of terrorism when there was no political exclusion. There have been some indications that the relationship between GDP and terrorism depends on the type of government - democratic or autocratic - (Nemeth et al., 2014; Piazza, 2013) or that the relationship might vary (be either positive or negative) in a low or high income group of countries (Enders and Hoover, 2012). Democracy also interacted with heterogeneity costs (operationalised by combining the heterogeneity index of a country and economic discrimination); higher heterogeneity and weakly institutionalised democracy were related to higher rates of terrorism than autocracies and completely developed democracies (Ghatak, 2016a), indicating a non-linear trend. Moreover, Brockhoff and associates (2015) found that a more democratic government was related to a higher incidence of domestic terrorism in less developed countries but experienced a lower incidence of domestic attacks in more developed countries. Further, Ghatak (2016b) demonstrated that a quadratic trend between the rate of excluded population and terrorism incidence can be observed in weak democracies, unlike in other types of government. Similarly, Choi and Piazza (2016a) suggested the relevance of both political rights and political discrimination in predicting terrorism.

Within the context of studies investigating the inequality-radicalisation relationship **at an individual level**, it is worth mentioning the study by Perliger et al. (2016). These findings suggested that socioeconomic attributes were correlated with different functions and characteristics of members of the Islamist terrorist network. Thus, the relationship between inequality and radicalisation at an

individual level could depend on the roles and responsibilities of members of various (Islamist) terrorist networks. For example, while unemployment is more characteristic for individuals involved in the execution of violence, employment is more characteristic for individuals with a higher formal organisational status.

Findings based on cross-sectional survey results also have been interpreted as indicating that determinants of radicalisation could depend on different contextual factors. For example, different findings regarding the determinants of radicalisation evident in separate analyses of various radicalisation measures or data from different countries (e.g. Shafiq and Sinno, 2010; Chiozza, 2009) are sometimes interpreted (Blair et al., 2013) as indicative that the relationships between income and education vary across countries and targets of suicide attacks. However, inconsistent findings with different radicalisation measures and analyses conducted separately on different countries could be consequences of suboptimal operationalisation of radicalisation and/or applied data analyses. Thus, considering the methodological shortcomings of studies, these results can be regarded as no more than weak indications (see Section 3.4).

In the context of this review, an especially important question is ***does the inequality relationship differ between Islamist and far-right radicalisation?*** Unfortunately, such comparative studies are quite rare among the analysed studies. In the group of studies based on cross-sectional survey research, there are two almost identical studies among Dutch youth related to Islamist radicalisation and to right-wing radicalisation (Doosje et al., 2012; 2013). Among the reviewed studies at the macro level, there were only three comparatively investigated determinants of Islamist (and religious) and far-right terrorism (Fitzpatrick et al., 2017; Kis-Katos et al., 2014; Nemeth, 2014).

Interestingly, both types of studies indicated positive relationships between inequality variables and Islamist and right-wing terrorism; studies by Doosje et al. (2012; 2013) indicated a positive relationship between perceived inequality and Islamist and far-right radicalisation and the study by Fitzpatrick et al. (2017) indicated a positive relationship between macro level inequality (lower percentage of the population with a high-school diploma, higher percentage of poor citizens) and participation in 'Al-Qaida associated movements' and far-right radicalisation (number of far-right terrorists). However, some of the terrorism studies literature established differences regarding inequality and terrorism for Islamist and far-right terrorism. Regarding political inequality indicators, Nemeth (2014), for example, found a different relationship between anocracy and far-right or religious terrorism; lower rates of far-right, but not religious, terrorism were found to be present in such political systems. Furthermore, Kis-Katos et al., (2014) showed that lower rates of right-wing terrorism were characteristic for the least and the most democratic countries compared to anocracies. However, in the case of Islamist terrorism the lowest incidence rates were more

characteristic for autocracies, while anocracies and fully developed democracies had higher attack incidence rates.

Regarding the question of *how inequality is related to radicalisation*, only a small number of analysed studies enable findings that are relevant to this question by indicating possible **mediators or mechanisms**, which could explain the relationship between some of the inequality measures and radicalisation. In relation to the analysed surveys, these are studies which used more advanced statistical procedures such as structural modelling. They confirmed primarily an indirect relationship between perceived inequality variables on own violent intentions through different radical beliefs or group emotions (e.g. Doosje et al., 2012; 2013; Tausch et al., 2011).

At the macro-level, two studies investigated possible explanations for the established relationship between terrorism and some of its determinants more specifically. However, they did not explain the relationship between inequality and terrorism but suggest that socio-political inequality e.g. respect for physical integrity rights could at least partially explain the relationship between other factors and terrorism (a country's natural resources and wealth and terrorism, Piazza, 2016; and number of internally displaced populations in a country and rate of suicide terrorism, Choi and Piazza, 2016b)⁵³.

3.4 Methodological limitations and shortcomings of analysed studies

In this section, we primarily focus on the methodological limitations and shortcomings of the reviewed studies. However, since the measurement and methodological aspects of these studies are interconnected with theory and clear conceptualisations, some more theoretical and conceptual issues will be noted.

One of the main methodological shortcomings of the analysed studies relates to the **conceptualisation and operationalisation of radicalisation and inequality**. Although appropriate operationalisation is essential for valid and usable results, operationalising inequality as well as radicalisation/terrorism are substantial tasks, which many authors only partially completed. In other words, the majority of analysed studies fail to consider the complexities of both radicalisation and inequalities as phenomena.

⁵³ In particular, Piazza's (2016) results indicate that the exploitation of oil is associated with a worsening of physical integrity rights and that these are abuses that can lead to popular grievances, which help fuel terrorist campaigns. Choi and Piazza (2016b) also find that the level of internally displaced populations in countries worsens the human rights picture, thereby increasing suicide terrorism.

Regarding the **operationalisation of radicalisation**, since radicalisation represents a process it could be supposed that different points or phases of the radicalisation process could have different determinants. Similarly, in the context of terrorism studies, it was demonstrated that initiation and continuation of terrorism could have different determinants (Ash, 2016). However, in the context of cross-sectional survey research, existing studies focused almost exclusively on measuring attitudes which imply support for terrorism, violence and terrorist organisations. Only a small number of studies used different radicalisation measures that might be considered as the operationalisation of different points of the radicalisation process (e.g. Doosje et al., 2012; 2013; Deckard and Jacobson, 2015). Besides, studies (based on surveys as well as those investigating individual or macro determinants of terrorism) usually only used one type of radicalisation or terrorism measure, although both phenomena are complex and could be differentiated regarding several criteria.

A particular problem was that a relatively large proportion of survey data on the inequality-radicalisation relationship was based on one-item radicalisation measures, which are generally less reliable (that is, they are accompanied by higher measurement error). Moreover, almost all survey research based on Pew studies use a one-item measure of support for terrorism at least as one of the dependent variables ‘Support for suicide and violence against civilians to defend Islam’⁵⁴. However, this operationalisation is not only based on one item, but it is a double-barrelled question. Namely, as de Mesquita (2007: 43) warned, and Berger (2014) re-emphasised, the ‘particular wording of this question makes it impossible to gauge whether respondents are indicating their support for the legitimacy of ‘violence against civilians’, the tactic of ‘suicide bombings’ or the need to ‘defend Islam from its enemies’.

Moreover, all attitudes relevant in the context of radicalisations, such as sympathy for a terrorist group or support for violence or suicide bombings, are probably multidimensional and represent some continuum. However, in the majority of studies, especially those based on public opinion data, these attitudes were operationalised by single-item measures and responses were only coded as support or not support (binary responses). However, such single-item measures cannot capture the multidimensionality of investigated attitudes, while the binary responses cannot adequately represent attitudinal continuums. These limitations are not unknown to researchers as some of them explicitly identified these limitations in their studies. However, although authors themselves (although not always) explicitly mention the limitations of the data sets used and operationalisation of relevant variables, these findings are frequently treated and cited as robust findings in the

⁵⁴ ‘Some people think that suicide bombing and other forms of violence against civilian targets are justified to defend Islam from its enemies. Other people believe that, no matter what the reason, this kind of violence is never justified. Do you personally feel that this kind of violence is often justified to defend Islam, sometimes justified, rarely justified, or never justified?’

literature. In addition, even if radicalisation was measured by multiple questions, total or aggregate results on these questions were sometimes used without empirical evidence (through factor analysis) that all questions could be aggregated and that such an aggregate total result is reliable. Besides, studies based on survey research, even at the level of limitations, rarely discussed the potential bias in survey responses regarding support for specific militant/terrorist groups, for example. Of the analysed survey research, only two studies (Blair et al., 2013; Fair et al., 2016) applied a more advanced approach to lower the risk of socially desirable answers to such questions. In these studies, respondents were not asked to explicitly and directly divulge their beliefs about militants but were asked about some policies attributed to those groups.

Based on the review findings, it is strongly recommended that measures used as operationalisations of cognitive radicalisation (attitudes) should be improved.

Regarding terrorism research, the most common form of underspecification is the treatment of domestic and transnational terrorism as a single phenomenon, despite the existing findings that drivers of domestic terrorism were not necessarily related to transnational terrorism (e.g. Bandyopadhyay and Younas, 2011, Enders et al., 2016). Moreover, Ash (2016) also showed that initiation and continuation of terrorism have different predictors, indicating the complexity of the observed phenomena and potential biases that reflect its underspecification. Another important step in the operationalisation of terrorism is consideration of its ideological background, since terrorism fuelled by different ideologies also appears to have different correlates (e.g. Fitzpatrick et al., 2017; Kis-Katos et al., 2014; Nemeth, 2014). This was also shown for different Palestinian factions involved in suicide terrorism (Benmelech et al., 2012). Another point in case represent the radical activities that failed to meet all the criteria to be classified as terrorist acts (e.g. threats were made but no massacre occurred, or attempts failed) and, therefore, were omitted from analyses. Another source of underspecification is related to the time perspective or the fact that terrorism is a dynamic phenomenon and consequently that the terrorism-inequality relationship may change over time. Thus, the temporal dimension regarding terrorism is most frequently ignored, although some studies (e.g., Enders et al., 2016) showed that variables that were predictive for terrorism before 1990 were not necessarily predictive for terrorism after that year, indicating another potential source of disturbance in the data. For example, Adamczyk et al. (2014) found a bivariate relationship between poverty and presence of far-right motivated homicide attack at the level of USA counties for one period analysed (the 1990s), but not for another (the 2000s). Although multivariable analyses did not confirm an independent relationship between poverty in both analysed periods, this result indicated that correlates of radicalisation and terrorism could be different in different time periods since radicalisation and terrorism and their courses are not static, but dynamic.

Further, although databases used in the reviewed studies were based on different methodologies of data collection and definitions of terrorist attacks, they are in the majority of cases comparable (Enders, Sanders and Gaibullov, 2011). However, as Bauer et al. (2017) discussed, unattributed attacks may be a source of bias in the data. For instance, 95 per cent of the attacks listed in GTD and 65 per cent of attacks listed in the RDWTI were unclaimed, indicating that the perpetrators and motives behind their actions remained unrevealed (Bauer et al., 2017). Therefore, it is questionable if the available data that is usually included into analyses adequately represents the whole sample of data. Moreover, despite the relevance of including multiple databases into the operationalisation of terrorism to obtain more robust results, studies in most cases rely on a single data source for terrorism operationalisation.

Considering the complexities of radicalisation and terrorism as phenomena, it is hard to expect that any measure will be free from flaws. However, application of several measures in a study could bring many benefits for future research.

The operationalisations of **inequality** are another limitation, especially within cross-sectional survey studies. Empirical investigations on the role of inequalities in radicalisation and terrorism are still not fully developed. In this sense, some advancement in terms of more result consistency could be achieved with more nuanced conceptualisations and measurement of inequality. To understand the inequality-radicalisation/terrorism relationship at a conceptual level, as well as to conduct more methodologically sound research, much could be learned from literature focused on other more or less directly related topics such as civil war, interethnic conflicts, receptivity to rebellion or political violence in general and collective movement studies. Additionally, in operationalising inequality some authors use a lagged version of inequality indicators (by using inequality data from the previous year or period) in exploring the relationship with terrorism (e.g. Campos and Gassebner, 2013; Yildirim and Ocal, 2013), while others do not. The logic underlying the application of such lagged variables is that a certain time is needed for (un)favourable circumstances to foster the development of terrorist organisations and planning of attacks. In addition, this was applied as a method to avoid reverse causality – since terrorism may be caused by economic and social disturbances but may also serve as a source of such disturbances. Most of the authors who used lag variables, used data with one-year discrepancy between inequality indicators and terrorism. However, not all the variables were lagged and the choice of a lag interval seemed to be based on intuition and judgement (i.e. the researchers were focused on avoiding reverse causality rather than attempting to evaluate prolonged changes that occurred prior to the terrorist attack) rather than some empirical rationale, which renders the use of their application questionable.

Regarding the possible improvement of **data analyses**, the majority of studies apply some multivariable regression analyses; most frequently logistic or binomial regression. Only a few of the analysed cross-sectional survey studies applied a more advanced statistical procedure such as structural modelling (Hoyle, 1995). More advanced statistical approaches are even more essential given the imperfection of measures in existing surveys. Besides, none of the analysed studies applied multilevel modelling, that is a more advanced type of analysis, especially appropriate in investigating the determinants of terrorism or radicalisation at different levels and terrorism data from different years (see Jonson, 2016).

Additional limitations regarding data analyses refer to the **number of variables investigated** in the same study, as well as the **number of different models** applied within a study. Of all the analysed studies focused on investigating macro determinants of terrorism, only eight tested models with variables of interest that have less than three predictors or demonstrated their bivariate relationships (Akyuz and Armstrong, 2011; Caruso and Schneider, 2011, 2013; Enders and Hoover, 2012; Enders et al., 2016; Estes and Sirgy, 2014; Ezcurra and Palacios, 2016; Yin, 2017). Moreover, analysed studies in general incorporated multiple regression models with multiple predictors (up to 20 per model!). The real number of conducted analyses remains unknown as some authors (e.g. Bove and Bohmelt, 2016; Piazza, 2016) mention additional analyses conducted, but not presented due to reportedly high similarity with the presented analyses. Although testing different models contributes to the validity of the results, a higher number of analyses raises the probability of confirming a relationship when it does not exist (e.g. Field, 2013; Howell, 2009). Thus, some inconsistent results could be merely consequences of testing many models and potential determinants of terrorism. The methodological quality of terrorism research was described in similar terms in an earlier systematic review (Scarcella, Page and Furtado, 2016). It should also be noted that, despite using very large samples (over 1000 in cross survey research or 'big data' samples in the case of macro determinants of terrorism), authors frequently interpreted as important findings those relationships which are significant at the 0.05 level or even at the 0.10.

Incomplete reporting is an additional limitation that applies to most of the analysed studies (in survey and terrorism macro groups). This relates to at least some element of the study methodology: description of inequality or radicalisation variables; and/or incomplete and inadequate reporting of study findings. Although these limitations may seem trivial, they are important since this hampers an assessment of a study's strengths and weaknesses as well as its generalisability. As a result, these limitations hinder valid interpretations of results. A common characteristic of studies based on survey research as well as studies investigating macro determinants of terrorism is **not to present bivariate relationships** among all variables included in the multivariable analyses but only to show

complex final models. However, with findings based on multivariable analyses only (without data on bivariate correlations among all the investigated variables being made available) it is hard to say if a particular inequality indicator is, or is not, related to the radicalisation measure. It is possible that it just does not have a significant multivariable effect because of its correlation with other included predictor variables or it has multivariable effect only because of these intercorrelations (which act as a suppressor). For example, Fair et al. (2017a), investigated three inequality indicators (education, income and perceived personal economic situation) and confirmed a multivariable relationship between education and perceived personal economic situations and support for suicide bombing but not a multivariate relationship between income and support for suicide bombing. Further, income is also possibly related to a radicalisation measure at the bivariate level, but this relationship is confounded by the perceived economic situation variable in the multivariable analysis. Thus, multivariable analysis results cannot be properly interpreted without considering the bivariate relationship across all variables included in the model.

It appears that authors of the reviewed studies sometimes interpret the direction of an established inequality variable's multivariable effect based on the direction (sign) of the regression coefficient only. However, significance as well as direction of established multivariable effects depends on original bivariate correlations. Thus, although multivariable models provide useful information on the relationships between the two variables in the context of other variables, absence of predictive importance of a specific (inequality) variable in one model does not mean it would be insignificant in another model. However, this trade-off is also related to an important scientific benefit. A positive outcome of such praxis is higher generalisability of results if similar patterns of significance can be observed in models with different types of other included variables as predictors. Despite this important benefit, showing the bivariate relationship between all variables could provide additional useful information on the relationship between inequality and radicalisation/terrorism, as well as insights into possible mediator variables or some unwanted consequences in the statistical models, like suppression (MacKinnon et al., 2000).

Multiple statistical procedures, as well as multiple models and multiple operationalisations previously discussed, contribute to robustness of results. However, only a small number of studies employ multiple procedures. As already noted, within the analysed studies (cross-sectional surveys as well as studies investigating macro-level determinants of terrorism) the majority of studies **only explore linear relationships** between inequality variables and radicalisation.

4. CONCLUSIONS

The aim of this review was to enhance understanding of the role of inequality in radicalisation. To do so we looked to the published evidence base to answer the question ***is inequality associated with radicalisation?***

The conclusion we draw from existing data is that inequality, especially socio-political inequality, is most probably related to radicalisation.

We also asked, *if* there is an association between inequality and radicalisation, **how (positively or negatively), when and where is that association manifested, and what explains it?**

Answering these questions, we found, depends on:

- whether we are interested in the relationship between inequality and radicalisation at an individual level or inequality and terrorism at a social level;
- the concrete type, dimensions and indicators of inequality we are concerned with (economic or social-political, objective or subjective inequality);
- context (socio-political, demographic, geographical; predominantly Muslim countries, USA, Western Europe);
- the point in the radicalisation process we are interested in (cognitive radicalisation, behavioural radicalisation).

In summarising the findings of the review, these contingent factors must be taken into account and lead us to conclude also that the complexity of the inequality-radicalisation relationship and the limitations of the evidence base mean **all conclusions must remain provisional.**

Inequality, especially socio-political inequality is most probably related to radicalisation. However, the complexity of inequality-radicalisation relationship and the limitations of the evidence base mean **all conclusions remain provisional.**

Is economic inequality related to radicalisation and terrorism?

Objective economic inequality at the **individual level** is most frequently investigated using data about educational level, individual income or poverty and, less frequently, drawing on individual employment status or social class.

Findings in the context of predominantly Muslim countries did not support any firm conclusion on a relationship between objective economic inequality indicators such as education or income and poverty and cognitive radicalisation. In some studies, those who were less educated showed more support for radicalised attitudes (e.g. *support for suicide bombing* or *confidence in bin Laden*). In other studies or countries, such support is more likely to be found among those who are more

Inequality at the individual level (measured by education level, income and poverty) does not consistently explain radicalisation. Education appears to be important only in combination with other individual characteristics or contextual factors (e.g. country or region).

educated. In some cases, even in the same study, education was related differently to various radicalised beliefs (e.g. lower education was related to more support for Islamic law, while higher education was related to more support for violent jihad). Thus, regarding Islamist radicalisation in predominantly Muslim countries, the relationship between individual education, income and poverty and radicalisation probably depends on a combination of characteristics (for example, a combination of higher education and poverty) or on specific contextual factors (e.g. the country concerned or the

presence of poverty or violence in a particular area). In contrast, studies of **behavioural radicalisation**, although not completely consistent, indicate that participation in an Islamist terrorist group is more likely for more educated individuals. However, some of these findings also indicate that this kind of positive relation between education and individual terrorism could depend on other individual factors such as the role of the individual in the terrorist group, whether or not they directly participate in violence, type of violence and contextual characteristics such as poverty at an individual and district level.

In the context of Western European countries, data generally suggest **that Islamist radicalisation is more likely among those who are less educated and of a lower economic status**. This constitutes a positive relationship between individual economic inequality and cognitive and behavioural radicalisation. However, the number of relevant analysed studies is relatively small and they are characterised by a number of limitations (see Section 3.4.). Considering the USA context, the small number of analysed cross-sectional studies and absence of analysed studies on the characteristics of individual terrorists meant no conclusion could be drawn about the relationship between individual economic inequality and Islamist cognitive or behavioural radicalisation.

At the social level, in relation to the **inequality-terrorism relationship**, **economic inequality** was investigated by indicators related to poverty and income inequality as well as various indicators

related to the country's economic development (e.g. per capita GDP, HDI, adult literacy and education level, unemployment rates).

Economic inequality indicators related to the **country's economic development** have shown an inconsistent pattern of relationships with the incidence of terrorism. In the case of domestic and transnational terrorism, there is an inconsistent tendency for a higher per capita GDP to be related to a higher incidence of attacks. However, more advanced studies indicate that countries with a low and those with a high per capita GDP tend to have lower incidence of terrorism than countries with an average per capita GDP (suggesting a negative squared relationship, instead of a positive linear relationship). Regarding unemployment and education, results generally confirm the importance of inequality since the probability of general terrorist attacks is higher for countries with higher unemployment rates and lower education rates. Findings regarding other economic development indicators (HDI and adult literacy) were inconsistent and do not support any valid conclusion. Moreover, the robustness of this conclusion regarding economic inequality may be questionable due to the scarcity of empirical findings.

The relationship between economic inequality indicators such as **poverty and income inequality** and terrorism also seem to be inconsistent. There are two exceptions: greater poverty is consistently related to a higher incidence of transnational terrorism; and higher interregional inequality appears to be related to a higher incidence of domestic terrorism. Interpersonal inequality did not feature in a consistent relationship with any kind of terrorism. Generally, available literature on these variables is scarce and the tendency was to test only linear relationships, despite some evidence on non-linear trends.

Economic inequality at the social level (measured by country level economic development, poverty and inequality) does not consistently explain radicalisation. Consistent relationships are found only between greater poverty and a higher incidence of transnational terrorism; and higher interregional inequality and higher incidence of domestic terrorism.

Subjective economic inequality is less frequently investigated than objective economic inequality as a determinant of Islamist cognitive radicalisation. When investigated within survey research (in the context of predominantly Muslim countries or Western European countries) it was based on indicators such as income dissatisfaction, perceived individual poverty or unemployment worry,

personal or family economic status or perceived economic situation or prospects for country/area.

Subjective economic inequality (measured by income dissatisfaction, perceived individual poverty, unemployment worry) does not consistently explain radicalisation. But the relationship with radicalisation of this dimension of inequality is under-researched.

Review findings suggest that in **predominantly Muslim countries** perceived economic inequality is not related to cognitive Islamist radicalisation, although the results are not completely consistent. Moreover, one experimental study (in the Pakistani context) demonstrates that perceived individual poverty lowers the likelihood of cognitive Islamist radicalisation (negative causal relation) especially in combination with the perception of a high level of violence in the country. In **Western European**

countries, only two of the analysed studies investigated subjective economic inequality (unemployment worry, perceived family economic status) and **showed inconsistent results**. Thus, they not enable any valid conclusion about the relationship between perceived economic inequality and cognitive radicalisation.

Is socio-political inequality related to radicalisation and terrorism?

At the **individual level**, findings about the relationship between cognitive radicalisation and **perceived social inequality** (like personal or group deprivation, unfair treatment, discrimination and injustice) are generally more consistent than they are for economic inequality. Results suggest a **positive relationship between perceived social inequality and cognitive radicalisation**, regardless of the ideological orientation of radicalisation

Perceived social inequality at the individual level (measured by personal or group deprivation, discrimination and injustice) does consistently explain cognitive radicalisation, regardless of its ideological orientation.

(Islamist or far-right) and context. More specifically, studies in predominantly Muslim countries generally suggest a positive relationship between perceived social inequality and Islamist

radicalisation. Similarly, findings in Western European countries (although not completely consistent in the case of perceived discrimination as an indicator of social inequality) also indicate the importance of perceived injustice as a potential facilitator of cognitive Islamist radicalisation in the European context. Regarding far-right radicalisation, although the number of analysed studies is small, their findings also point to a positive relationship between perceived social inequality and cognitive radicalisation in the Western European context.

The positive relationship between perceived social inequality and Islamist or far-right radicalisation is probably indirect. In other words, it is mediated by a different social psychological process related to more general social and ideological attitudes. However, it should be noted that perceived injustice is confirmed as a potential motivator of political or collective action in general in the social science literature. Thus, future studies could further clarify the potential importance of perceived injustice in the context of the differentiation of radicalisation from other forms of political and collective action.

At a social or macro level, in the case of analysed **terrorism** studies, **socio-political inequality was** investigated through indicators such as democracy, respect for physical integrity rights, gender equality or level of repression.

In the case of **repression** and **respect for physical integrity rights**, studies consistently indicate that a higher incidence of terrorism is more characteristic for countries with a higher level of repression (in the case of general or domestic terrorism - there is no similar research on transnational terrorism) and a lower respect for physical integrity rights. However, the number of these studies was small. In contrast, the more frequently studied relationship between level of democracy and terrorism yielded inconsistent results. It appears that a higher level of democracy is related to a higher incidence of domestic and transnational terrorist attacks. However, studies also indicate that the relationship between democracy and terrorism is probably not linear; there is a higher incidence of terrorism in countries with a medium level of democracy. Findings regarding respect for civil rights and liberties are inconsistent. Concerning gender equality, results show some evidence that a higher level of gender equality generally is related to lower terrorism incidence at a general and transnational level,

but not at a domestic level (probably due to a higher incidence of Islamist and right-wing attacks in countries with higher levels of respect for women's rights).

Variables related to social and political rights (democracy and repression, education and adult literacy, civil rights and liberties, physical

Socio-political inequality at the social level (measured, for example, by level of democracy and repression) do not consistently explain radicalisation. Consistent relationships are found between greater repression and higher domestic terrorism and between higher abuse of social and political rights and higher terrorism.

integrity rights, women's rights) were considered as another potential source of terrorism. Suppression and abuse of rights (civil rights and liberties, physical integrity rights, women's rights) appear to be related to higher terrorism rates. However, terrorism rates were found to be higher in anocracies and weak democracies than in both developed democracies and autocracies; this suggests a potentially non-linear relationship between democracy and terrorism.

Limitations

The inconsistencies identified in the findings of studies on the relationship between particular indicators of inequality and racialisation/terrorism are, partially, a result of the complexity of the inequality-radicalisation relationship and its dependence on a number of additional individual or contextual factors. However, inconsistency in findings is also partially attributable to the methodological shortcomings of existing studies. Thus, even where consistent relationships have been identified in this review, the methodological issues noted in the course of this report may nevertheless undermine the validity of results. This suggests the need for more advanced, sophisticated and nuanced research in the future.

A key limitation of existing studies of cognitive radicalisation at the individual level is the almost complete absence of experimental and longitudinal studies. These studies also often lack a clear, theoretically-formulated research question and draw on public opinion data without adequate operationalisations of radicalisation or inequality. Studies investigating the inequality-radicalisation relationship based on characteristics of terrorists or radicalised individuals suffer from a lack of complete or reliable data on the radicalised individuals studied and an inability to differentiate between the importance of individual and district level characteristics. Researchers working in the field of terrorism studies often failed to differentiate between forms of terrorism in their research design or distinguished only between domestic and transnational terrorism when it has been shown that predictors vary, also, according to the ideological orientation of terrorist groups. There is evidence, therefore, that macro-level predictors of terrorism may not be as useful in predicting attacks of specific terrorist groups as they are in predicting domestic or transnational terrorism in general.

The small number of studies of ideologically differentiated terrorism renders it impossible to gather robust evidence on the relationship between inequality indicators and specific ideological forms of terrorism. This may be explained by the databases used in these studies, which do not include all terrorist incidents and often do not provide the data necessary to conduct more specific analyses. Moreover, in the majority of studies a single operationalisation of terrorism was used. Most

frequently this was number of attacks, which excludes a range of important terrorist group activities such as recruitment of new members, number of victims or number of thwarted attacks.

There is a particularly urgent need for further research into potential combined effects (interactions) between inequality indicators and other individual or social characteristics or contextual variables. Future research should more systematically investigate models which combine a number of inequality indicators such as education and poverty at an individual level or income inequality and type of government at the social level. Although such models are unlikely to be able to identify the exact sources of radicalisation and terrorism, such new insights could bring radicalisation and terrorism research a step closer to achieving that goal.

Finally, rather than using numerous control variables to observe more precisely the relationship between inequality and radicalisation, future research should focus on highlighting bivariate relationships, as they show how useful a certain inequality indicator is *per se* in explaining radicalisation; this could contribute to an understanding of potential statistical explanations for some of the inconsistent findings.

5. RECOMMENDATIONS

Policy

Findings of this review indicate that reducing socio-political inequality could be even more important for preventing radicalisation than reducing economic inequality.

Countries that are less repressive towards individual rights tend to have lower terrorism rates. Similarly, individuals who do not perceive their own or group position as discriminated or treated unjustly are less likely to support radicalised attitudes. It follows, assuming a causal relationship, that improving the rights of citizens, including those that are marginalised or excluded, could reduce radicalisation and terrorism.

Social-political inequality could be more important than economic inequality in understanding the drivers of radicalisation. Policy makers should devote more resources to reducing objective and perceived socio-political inequality.

Moreover, since inequality indicators related to individual rights and perceived inequality or injustice (indicators of socio-political inequality) tend to be more consistently related to radicalisation and terrorism than economic inequality indicators, this suggests that objective and subjective socio-political inequality may have a greater impact on radicalisation and terrorism than objective economic inequality.

It follows, assuming causal relationships, that by lowering socio-political inequality we could also reduce radicalisation and terrorism. Thus, policy makers should devote more resources to reducing objective and perceived socio-political inequality. Such efforts should be undertaken: at the individual level, i.e. target individuals and groups (communities) who consider themselves or their group to be discriminated, marginalised or targets of injustice; and at the social level by ensuring the conditions that will facilitate a higher level of respect and fulfilment of citizens' socio-political rights.

Policy efforts should be targeted towards:

- **individuals and groups (communities) who consider themselves or their group as discriminated, marginalised or targets of injustice;**
- **ensuring societal conditions that facilitate a higher level of respect and fulfilment of citizens' socio-political rights.**

Finally, given the finding that social political inequality could be more important than economic inequality, policy makers should invest additional efforts to avoid any iatrogenic effects of existing policies and measures aimed at increasing security and lowering the risk of radicalisation and terrorism. Specifically, they should ensure that such

policies do not increase perceived injustice and discrimination among targeted populations as such perceived injustice could increase receptivity to radicalised beliefs and lead to violence.

Future research

We hope that this review will encourage new research that acknowledges the methodological flaws in existing studies and applies more sophisticated research designs, variable operationalisations and data analyses. However, methodologically more rigorous and more diverse research is only the

Substantial advancement in the understanding of the relationship between inequality and radicalisation is possible only if new, systematic research into the individual and contextual characteristics affecting the existence, direction and strength of the inequality-radicalisation relationship is undertaken.

precondition for establishing more consistent findings about inequality-radicalisation relationships. Substantial advancement in the understanding of the relationship between inequality and radicalisation will be possible only if new, systematic research into the individual and contextual characteristics affecting the existence, direction and strength of the inequality-radicalisation relationship is undertaken.

As this review has demonstrated, to date, there has been little investigation into the combined (or interactive) effects of different inequality indicators or between inequality indicators and additional individual or country characteristics. Few studies also address the question of *how* inequality is related to radicalisation or terrorism by applying moderation or mediation tests to explore the inequality-radicalisation/terrorism relationship more complexly. Thus the door is open for future studies that pay more attention to such complex relationships. In engaging in such research, however, researchers should avoid the imprecisions present in most existing studies. For example, in the case of cognitive radicalisation, evidence indicated that perceived inequality leads to cognitive radicalisation indirectly, through intergroup attitudes, social identities or ideological and religious beliefs as mechanisms or mediators underpinning the inequality-radicalisation relationship. However, such studies are rare and tend to be similar in design. Future studies might employ a wider variety of research designs and operationalisations in order to test these and other possible mechanisms or mediators underpinning the inequality-radicalisation/terrorism relationship.

Some inconsistency in findings regarding the relationship between particular inequality indicators (e.g. per capita GDP, GINI, democracy) and terrorism may be attributable to the tendency to test only linear relationships. In fact, some findings suggest that nonlinear relationships between terrorism and several inequality indicators are more likely. This is also a potentially important direction for future studies.

Finally, it is recommended that future studies use more valid, reliable and more precise radicalisation measures (in relation to differentiation between cognitive and behavioural radicalisation, ideological sources of radicalisation and different types of terrorism such as domestic and international) and systematically explore inequality variables of different types (objective and subjective, personal or group) at different levels (individual and social) and simultaneously in different domains of inequality (economic and socio-political).

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Appendices

Appendix 1 Search history example

Print Search History: EBSCOhost

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Tuesday, March 20, 2018 8:20:54 AM

| # | Query | Limiters/Expanders | Last Run Via | Results |
|-----|--|---|--|---------|
| S17 | S14 AND S15 | Limiters - Date of Publication: 20010101-20171231; Publication Type: Periodical, Book; Language: English Search modes - Boolean/Phrase | Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - SocINDEX with Full Text | 739 |
| S16 | S14 AND S15 | Search modes - Boolean/Phrase | Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - SocINDEX with Full Text | 739 |
| S15 | S7 OR S8 OR S9 OR S10 OR S11 OR S12 OR S13 | Search modes - Boolean/Phrase | Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - SocINDEX with Full Text | 10,099 |
| S14 | S1 OR S2 OR S3 OR S4 OR S5 OR S6 | Search modes - Boolean/Phrase | Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - SocINDEX with Full Text | 53,856 |
| S13 | (radical* OR violent) W0 (attitud* OR ideology OR belief* OR discourse) | Limiters - Date of Publication: 20010101-20171231; Publication Type: Periodical, Book; Language: English Search modes - Boolean/Phrase | Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - SocINDEX with Full Text | 52 |

<http://web.b.ebscohost.com/ehost/searchhistory/PrintSearchHistory?sid=4462499a-20d5-4b4b-b4d4-03f94a8085eb%40sessionmgr101&...> 20/03/2018

| | | | | |
|-----|---|---|---|-------|
| S12 | ((extreme OR radical* OR violent OR ultra) W0 (nationalis* OR patriot*)) | Limiters - Date of Publication: 20010101-20171231; Publication Type: Periodical, Book; Language: English Search modes - Boolean/Phrase | Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - SocINDEX with Full Text | 66 |
| S11 | ((attitud* OR support* OR approv* OR justificati*) W2 violence) NOT (workplace OR school OR partner OR domestic OR sexual OR dating OR "against women" OR "video games" OR animals)) | Limiters - Date of Publication: 20010101-20171231; Publication Type: Periodical, Book; Language: English Search modes - Boolean/Phrase | Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - SocINDEX with Full Text | 79 |
| S10 | (radical OR religious OR political OR ideological*) W1 violence | Limiters - Date of Publication: 20010101-20171231; Publication Type: Periodical, Book; Language: English Search modes - Boolean/Phrase | Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - SocINDEX with Full Text | 1,021 |
| S9 | ((radical* OR violent* OR nonviolent*) W0 (right OR *Islam* OR *Muslim* OR milieu)) NOT *ctomy) | Limiters - Date of Publication: 20010101-20171231; Publication Type: Periodical, Book; Language: English Search modes - Boolean/Phrase | Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - SocINDEX with Full Text | 262 |
| S8 | ((radicals N1 (violent* OR politic* OR relig* OR ideolog* OR nonviolent*) NOT (econom* OR agrar* OR "violence radical")) | Limiters - Date of Publication: 20010101-20171231; Publication Type: Periodical, Book; Language: English Search modes - Boolean/Phrase | Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - SocINDEX with Full Text | 240 |
| S7 | ((radicali* OR deradicali* OR extremism OR extremist OR | Limiters - Date of Publication: 20010101-20171231; Publication | Interface - EBSCOhost Research Databases | 9,016 |

| | | | | |
|----|--|---|--|--------|
| | terroris* OR "lone wolf" OR "foreign fighter" OR "far right" OR "alt-right" OR "ultra-right" OR identitarian OR *jihad* OR *salafi* OR anti-muslim* OR anti-islam* OR islamophob*) NOT (radicality OR radicalic)) | Type: Periodical, Book; Language: English Search modes - Boolean/Phrase | Search Screen - Advanced Search Database - SocINDEX with Full Text | |
| S6 | (grievance N2 (social OR economic OR political OR religious OR group OR intergroup)) | Limiters - Date of Publication: 20010101-20171231; Publication Type: Periodical, Book; Language: English Search modes - Boolean/Phrase | Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - SocINDEX with Full Text | 61 |
| S5 | ((*economic* OR social) W0 (class OR status OR stratu* OR strati* OR gradient OR determinant* OR exclu* OR inclu* OR integrat* OR depriv* OR disadvantag* OR marginali* OR discriminat*)) | Limiters - Date of Publication: 20010101-20171231; Publication Type: Periodical, Book; Language: English Search modes - Boolean/Phrase | Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - SocINDEX with Full Text | 23,261 |
| S4 | (income OR salary OR wage OR pay) W0 gap) | Limiters - Date of Publication: 20010101-20171231; Publication Type: Periodical, Book; Language: English Search modes - Boolean/Phrase | Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - SocINDEX with Full Text | 675 |
| S3 | (gini W0 (coefficient OR index) | Limiters - Date of Publication: 20010101-20171231; Publication Type: Periodical, Book; Language: English Search modes - Boolean/Phrase | Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - SocINDEX with Full Text | 238 |

Print Search History: EBSCOhost

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| | | | | |
|----|--|---|--|--------|
| S2 | ((atkinson OR hoover OR "Robin Hood" OR schutz OR theil) W0 index) | Limiters - Date of Publication: 20010101-20171231; Publication Type: Periodical, Book; Language: English Search modes - Boolean/Phrase | Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - SocINDEX with Full Text | 36 |
| S1 | (inequality OR equality OR wealth OR poverty OR unfairness OR injustice) | Limiters - Date of Publication: 20010101-20171231; Publication Type: Periodical, Book; Language: English Search modes - Boolean/Phrase | Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - SocINDEX with Full Text | 35,914 |

Appendix 2 Grey literature search sources

1. General: [OpenGrey](#); [OAlster](#), Open AIR EU
2. More specific: radicalisation/terrorism/violence: Dispositifs et rapports sur la radicalisation <http://radical.hypotheses.org/681>
3. Projects/networks/institutions/organizations

| | | |
|--|--|---|
| 1. Bangladesh Institute of Peace and Security Studies | 2. Global Counter-Terrorism Forum, Violent Extremism | 3. SAFIRE (FP7- SEC-2009-6.1-01) |
| 4. Canadian Network for Research on Terrorism, Security and society (TSAS) | 5. ICCT International Centre for Counter-terrorism | 6. Terrorism and Extremism Research Centre – University of East London |
| 7. Centre for the Prevention of Radicalization Leading to Violence | 8. ICSVE International Centre for the Study of Viol. | 9. The Handa Centre for the Study of Terrorism and Political Violence (CSTPV) |
| 10. Counter Extremism Project | 11. IMPACT (EU, FP7-SEC-2012-1) | 12. The IGAD Centre of Excellence in Preventing and Countering Violent Extremism |
| 13. Countering violent extremism The Commonwealth | 14. Institute for Strategic Dialogue | 15. the International Centre for the Study of Radicalisation and Political Violence (ICSR) |
| 16. CVE Forum | 17. JAN Trust | 18. The International Panel on Exiting Violence (IPEV); WG1 Radicalization, a comparative perspective |
| 19. EICRI - European-Islamic Consultancy and Research | 20. Youth extremists: understanding across ideological and religious contexts | 21. The Prevention Project |
| 22. Ethno-national, religio-cultural or anti-Muslim? Investigating Sikh radicalisation in Britain - project. | 23. OSCE United in Countering Violent Extremism | 24. The Resolve Network |
| 25. EU Aware | 26. PRIME project "Preventing, Interdicting and Mitigating Extremist events: Defending against lone actor extremism" | 27. TRAC, Terrorism Research & Analysis Consortium |
| 28. EURISLAM (FP7-SSH-2007-1) | 29. Program on Extremism, The George Washington University | 30. TRIVALENT |
| 31. Exit | 32. Radicalisation Awareness Network (RAN) | 33. VOX – Pol (FP7-SEC-2012-1) |
| 34. German Institute on Radicalization and Deradicalization Studies (GIRDS) | 35. Radicalisation Research | 36. Women/Girls, Gender in Extremism and Prevention Network |
| 37. Global Centre on Cooperative Security | 38. The RAND Corporation | |

Appendix 3. List of reviewed studies – survey research group

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