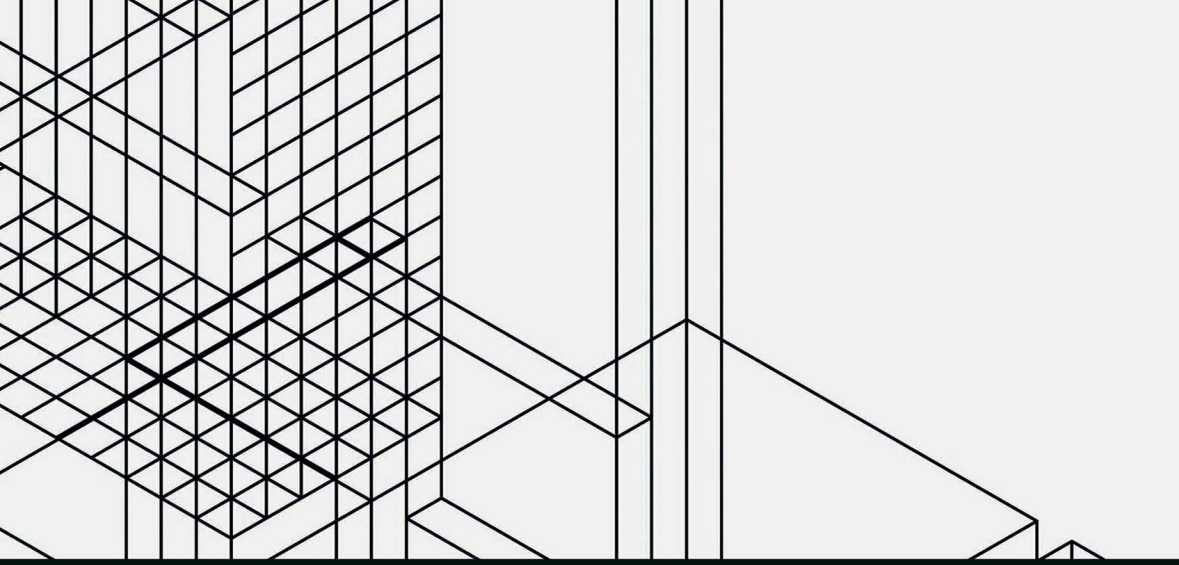
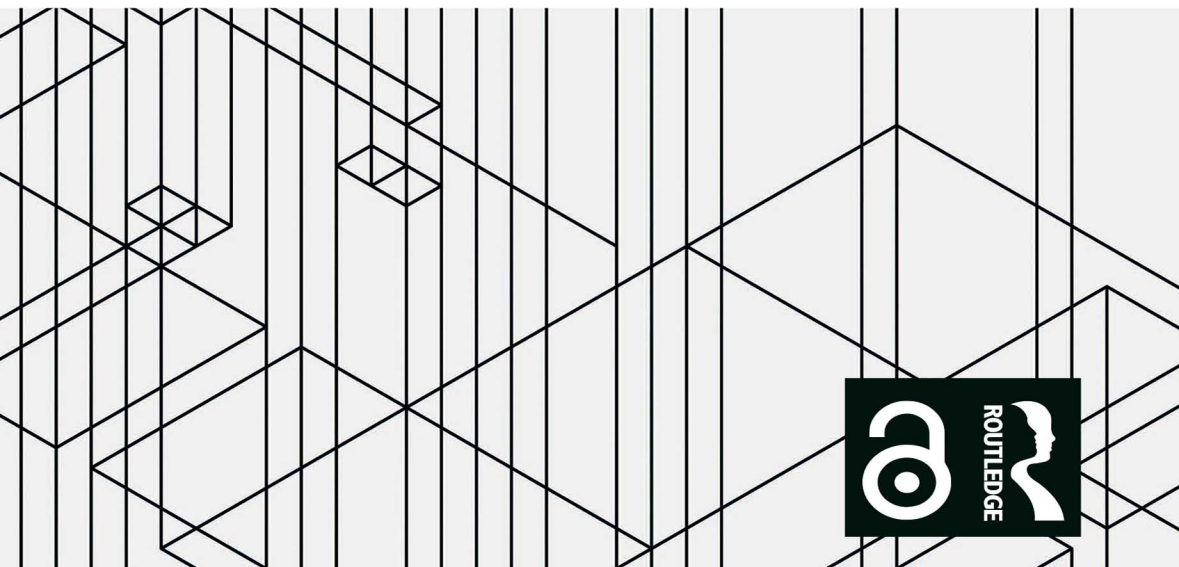


Routledge Advances in Sociology

THIRTY YEARS AFTER THE BERLIN WALL

GERMAN UNIFICATION AND TRANSFORMATION RESEARCH

Edited by
Ayline Heller and Peter Schmidt



Thirty Years After the Berlin Wall

This book examines the increasing body of research dedicated to the lasting differences between the former separate states of the Federal German Republic (FRG) and the German Democratic Republic (GDR). Thirty years after the fall of the Berlin Wall, it takes a broad view on German unification and transformation research.

Transformation and unification processes in East and West Germany are still ongoing, and they may serve as a model for social change and its political, economic, and psychological consequences. Using advanced statistical methods of analysis, this edited volume provides insights into the valuable contextualization of individual and social phenomena that current research on German unification and transformation is producing.

Following the open science mindset using code and data, the authors investigate temporal trends in (1) mental health, (2) political attitudes, and (3) work and family life. It explores changes in mental health and political attitudes, as well as continued differences in work and family arrangements, that may stem from heterogeneous experiences within the systems and during the transformation process. This book will appeal to scholars and students from the disciplines of sociology, political science, public health, social psychology, psychology, and communication science interested in postsocialist transition processes and temporal changes in individuals and societies.

Ayline Heller is currently working as a postdoctoral researcher and consultant at GESIS—Leibniz Institute for the Social Sciences in Mannheim, Germany.

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Thirty Years After the Berlin Wall

German Unification and Transformation Research

Edited by
Ayline Heller and Peter Schmidt

Routledge
Taylor & Francis Group
LONDON AND NEW YORK

First published 2024
by Routledge
4 Park Square, Milton Park, Abingdon, Oxon OX14 4RN

and by Routledge
605 Third Avenue, New York, NY 10158

Routledge is an imprint of the Taylor & Francis Group, an informa business

British Library Cataloguing-in-Publication Data
A catalogue record for this book is available from the British Library

The Open Access publication was financially supported by the Leibniz Association's Open Access Monograph Publishing Fund, the Open Access Publication Fund of the Justus Liebig University Giessen, and the Project "GDR-Past and mental health" funded by the German Federal Ministry of Education and Research.

ISBN: 978-1-032-54776-3 (hbk)
ISBN: 978-1-032-54777-0 (pbk)
ISBN: 978-1-003-42746-9 (ebk)

DOI: 10.4324/9781003427469

Typeset in Sabon
by Apex CoVantage, LLC

Access the Support Material: www.routledge.com/9781032547763

This book is dedicated to all members of the research alliance "GDR-past and mental health: Risk and protective factors (DDR-Psych)"


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Acknowledgments

Publishing this book would not have been possible without the great support of many helping hands. We would like to give special thanks to Elmar Brähler for sparking the idea for this edited volume and helping with the conceptualization, selection of topics, and acquisition of funds.

Each chapter received two peer reviews by both external reviewers and authors of other chapters. We would like to extend special thanks to Laura Altweck, Andrew Bell, Hendrik Berth, Elmar Brähler, Michael Braun, Marius Dilling, Markus Eisentraut, Theresa M. Entringer, Mareike Ernst, Toni Fleischer, Anastasia Gorodzeisky, Nan Dirk de Graaf, Alexander Jedinger, Kristine Khachatryan, Pascal Kolkwitz-Anstötz, Vera Lomazzi, Susanne Rippl, Daniëlle Otten, Daniel Seddig, Jörg Stolz, Nhat An Trinh, Heike Wirth, and Alexander Yendell. We were impressed by the precision and detail of their reviews, and we are certain that the quality of this edited volume greatly improved through the process.

With her attention to detail, her interest in the topic, and her great commitment to the book project, Lisa Trierweiler assisted us and the authors in polishing our usage of the English language. We thank her for being always available, even during the last stretch of finalizing the volume.

Our student assistants played a major role in the final preparation stage including proofreading, checking the wording and punctuation for consistency, and assembling all the data files and we would like to express our deepest appreciation to Celine Hudak and Nelly Graf for her diligent work as well as to Laura Gapta, who provided valuable support during this process.

We would also like to thank the authors for their patience and willingness to do several rounds of revisions and polishing, and Emily Briggs and Lakshita Joshi for their help in the editing process!

Regarding the financial support, we would like to thank the Leibniz Association's Open Access Monograph Publishing Fund, Felix Ruckelshausen and the Open Access Publication Fund of the Justus Liebig University Giessen, and the Project "GDR-Past and mental health (DDR-Psych)" funded by the Federal Ministry of Education and Research for rendering possible the open access publication. English proofreading was financially supported by the DDR-Psych project as well. Special thanks to Survey Design and Methodology at GESIS—Leibniz Institute for the Social Sciences for supporting our application to the Open Access Monograph Publishing Fund!

1 Introduction

Ayline Heller and Peter Schmidt

Transformation is fundamental in every society. While it usually happens gradually sometimes even seamlessly, breaking points, like upheavals, revolutions, wars, or epidemics, may serve as a lens, revealing the nature and mechanisms behind these processes. Germany, with its recent history of separation and unification, can thus be viewed as a case study and has oftentimes been described as a "quasi-experiment," exemplifying transformational processes and the short- and long-term impact they may have on individuals affected by it.

Even after almost 35 years of what was officially considered an accession ("Beitritt") of the German Democratic Republic (GDR) to the Federal Republic of Germany (FRG) in 1990, the categories "Eastern" and "Western" or "new" and "old" German states are still an important element of public and scientific discourse. This becomes apparent not only in the vast body of fictional and (auto-)biographical literature highlighting a variety of prolonging differences and underpinning the disadvantages many people living in the former GDR region experience and/or perceive. Furthermore, the mere fact that Germany installed a so-called *Federal Government Commissioner for the New Federal States*, a position responsible for ensuring the convergence of the economic and social situations between the two regions and issuing an "Annual Report of the Federal Government on the Status of German Unity"[1] (BMWK, 2023), reveals parts of the sociopolitical reality underlying the complex and sometimes very emotional debate about recent German history up to today.

Since 1990, much research has been dedicated to better identifying and explaining areas of rapprochement as well as persisting differences between the two regions. The aim of this volume is to further shed light on the multifaceted entanglement of individual and social factors involved in and affected by social change and transformation. We want to add to this body of literature by giving an international readership insight into a selection of current empirical research that is based on advanced statistical analyses modeling influences and temporal changes on different levels of observation. The book is divided into three parts. The first part is dedicated to aspects of *mental health* focusing on (mental) illnesses on the one hand and possible resources

DOI: 10.4324/9781003427469-1

and risk factors associated with the GDR and transformation history on the other hand. The second part sheds light on *(political) attitudes*, adding to the ongoing discussion of antidemocratic resentment in East Germany and its possible connection to recent German history. The third and final part focuses on the developments of work and family arrangements. The chapters in this section investigate how experiences of (repeated or long-term) unemployment in the transformation process as well as different attitudes toward women joining the work force led not only to different views on work and family life but also to prolonging differences in income and wealth.

To better understand and contextualize the results presented in this edited volume, this introductory chapter serves two main purposes. First, it will give some basic historical background on German separation and unification as well as the recent history since 1989. The chapter will thus serve as an overarching element connecting the three parts on mental health, political attitudes, and economic conditions with the different aspects and perspectives presented in each individual chapter. Using the underlying datasets as a nexus, the chapter's second main purpose is an introduction to the methods used to examine temporal trends. We will present the advantages and disadvantages of each method and evaluate its specific value with regard to transformation research.

Historical background

When talking about Germany's recent history, the first obstacle is finding the appropriate language. Do we talk about the *accession*, thus focusing on the legal aspect of the events, or is it more adequate to speak of an upheaval, of a radical change, or a *peaceful revolution* (Opp et al., 1995)? In the title, we chose to pick up the notion of the fall of the Berlin Wall—an image that was viewed worldwide and is still vividly present in the German social memory. Though reductive, in the sense that it focuses on the past instead of the long transformation that followed for all of Germany, and not just Berlin, it captures the sense of freedom, departure, and empowerment many Germans associate with the immediate unification period. It is also the best translation of the German term *Wende* that is often used to refer to the end of the GDR. Though commonly used, we refrain from using the term *reunification* in the introduction,[2] as it is unclear which epoch in German history the prefix *re* may refer to.[3] Moreover, due to the processual and ongoing character of the unification, we argue against the term *German unity*.

The weight of the debate around diction reveals the emotionality that was and is attached to the topic and that has its roots in the nature of the unification process. The fall of the Berlin Wall was the breaking point of a long-fought struggle of the East German public to gain the freedoms they lacked compared to their neighbors in the West. The majority of East Germans was by no means extreme; they were in fact asking for what we would now consider very basic freedoms, like the right to choose which

field of study or career to go into, which food to eat, and which places to travel to. Some did not even call for an end but rather demanded a reformed state of the GDR that allowed for wider and more effective democratic participation (Opp et al., 1995), without the fear of political persecution (see Chapter 3), the abolition of the Ministry of State Security (known as MfS or Stasi), or at least a new, shared constitution for a unified Germany (Freiling, 2014). One of most central demands "We are the people" ("Wir sind das Volk") became the slogan of a growing group that demonstrated against the political conditions every Monday. Later on, these demonstrations became known as the "Monday demonstrations" ("Montagsdemonstrationen"). The hopes and aspirations associated with this phase were immensely high (Opp et al., 1995).

Even though the inclusion of the public in the unification process was arguably broad immediately after the fall of the Berlin Wall—there were round tables and public discussions about which road to take in almost every major East German city (cf. Pollack, 2020)—the decision to accede to the Federal German Republic in 1990 was made during the first and only free election in the Volkskammer, the parliament of the GDR. Moreover, some of the decisions regarding the assimilation of the economic system were highly controversial; the "Treuhandanstalt" was installed in the late phase of the GDR to aid the transitioning of the state-directed economy to the FRG's social market system by ensuring the "efficacy and competitiveness" (outlined in §8 of the Treuhandgesetz enacted on June 17, 1990) of East German companies by systematic privatization or downsizing. Unemployment rates soared between 1990 and 1992 as East German goods were no longer marketed, which was partly fueled by the monetary reform that allowed for a 1:1 exchange of the East German Mark to the West German Mark. Very few East German companies survived this process. Moreover, most of East Germany's political, economic, and scientific elites and executive personnel, including prime ministers of the East German states as well as chairmen of large companies, university professors, and intendants of public media, were replaced by West Germans, leading to drastic changes in the social structure that are still visible today; for example, in 2017, only 2% of the chairmen of Germany's largest, DAX-listed companies and none of the judges at the highest courts were from East Germany (Kollmorgen, 2020). For these reasons, Kowalczuk (2019) speaks of an *acquisition* of the East by the West.

Many young and/or highly trained individuals thus left the East German region as they hoped for better job opportunities and living conditions in the West. Over 200,000 people relocated from the East German states to the West in 1991 alone (i.e., excluding East Berlin with its own unique position in the unification), while only about 64,000 moved the other way. It was not until around 2010 that these numbers started to even out (Federal Statistical Office, 2023). Combined with a decline of the birth rate and a swiftly increasing life expectancy leading to a much more rapid overall aging process of the East German population, the social structure continues to diverge on many

levels (Statistisches Bundesamt, 2021). The large number of German internal migrants raises a methodological issue as well. Oftentimes, when assessing the aftereffects of the GDR and the unification period, the large group of people born and raised in the GDR system that moved to the West at different time points either before or during the unification and transformation process is being neglected. They do, however, allow for a more finely grained analysis of the interaction of historical, social, and individual factors in the process of rapprochement.

Some authors argue, however, that differences between the East and the West have in fact existed well before World War II (WWII). Using 1925 German census data, Becker et al. (2020) approximate that the share of blue-collar workers in the total labor force was 11.8 percentage points higher in the region of Germany that would later become the GDR than it was in the western proportion of the country. With regard to political preferences, more East Germans favored the communist party in 1924, and the share of Protestants was 42% higher in the East. Finally, both the female labor force participation in 1925 and the extramarital birth ratio in 1937 were higher in the East, giving a new perspective on better gender equality in the East that typically is attributed mainly to the GDR legislation. This extensive study underlines the importance of considering historical continuities in social science research.

Structure and aim of this volume

Keeping preexisting structural differences between the two regions in mind, the importance of statistically sound investigations becomes even more apparent. Before diving into the methods used in this volume to investigate transformation processes, we want to introduce the three aspects of everyday life that we will be focusing on and explain the perspective each individual chapter is taking. For a long time, studies focused mainly on the social-structural and economic aspects of separation and unification. In the past years, however, the view has broadened, taking into consideration many different phenomena that we grouped into the aforementioned book parts: (mental) health, (political) attitudes, and work and family arrangements.

Indicators of mental health and distress: did the "peaceful revolution" create a "peace of mind"?

Right after the unification in the 1990s, there were large differences regarding indicators of general health, for example, life expectancy, mortality as well as the prevalence of smoking and obesity. This could at least be partly attributed to differences in health care availability during the GDR time: While basic care was covered through a network of policlinics and the GDR health care system was considered one of the flagships of socialism (Strauß et al., 2022), more specialized care was rather limited and mostly underfunded

(Nolte et al., 2000). Nonetheless, 20 to 25 years after unification, the aforementioned indicators had assimilated and differences almost diminished (Kurth et al., 2010; Prütz et al., 2014). For a long time, research focusing on mental health and distress was scarce, and results remained inconclusive (Hessel et al., 2005; Jacobi et al., 2004; Prütz et al., 2014). In an attempt to close research gaps in many areas regarding the GDR, the Federal Ministry for Education and Research initiated 14 research associations focusing on different key aspects of the GDR history, with one of them emphasizing psychotherapy, psychiatry, and psychosomatic medicine during the socialist era and another one focusing exclusively on developments and persisting differences in mental health until today ("GDR-past and mental health: Risk and protective factors"). Results of the former were published in German in an edited volume (Strauß et al., 2022), while researchers of the latter largely contributed to the results presented in this book. The four chapters dedicated to mental health and distress shed light on processes of assimilation and persisting differences while addressing the interdependence of individual reactions to changes and transformations in the social context.

First, Entringer et al. give an extensive overview of the development of several indicators of mental health and distress in East and West Germany across 30 years since unification, for example, in life satisfaction, affective well-being, symptoms of anxiety and depression, loneliness, and others. Overall, the authors conclude that the existing gaps between the two regions regarding some of the indicators narrowed considerably, but differences remain.

The third chapter by Altweck et al. sheds light on the connection between the exposure to potentially traumatic events, posttraumatic stress disorder, and subjective health complaints in East Germany. This is especially relevant as there were many sources for exposure to potentially traumatic events specific to the socialist system of the GDR (e.g., political persecution, including surveillance and imprisonment, or reformatories for children and adolescents), and it did not offer favorable healing conditions with regard to the availability of psychotherapy (Strauß et al., 2022).

Using Durkheim's (1897/2002) theory of anomie, Otten et al. analyze the effects of the social context on suicidal ideation focusing on differences over time, during the life cycle, and in different birth cohorts in East and West Germany. While both sociostructural risk and protective factors as well as suicide rates would suggest higher values of suicidal ideation in the East German states, results in fact reveal lower rates compared to West Germany. These findings disentangle and substantiate the complex interplay of both the closer and broader social context as well as individual factors in terms of suicidal crises.

Political attitudes: does the wall persist in thoughts and worldviews?

Many studies repeatedly point out differences in political attitudes between East and West Germany (Brähler & Wagner, 2014; Decker et al., 2022;

Heyder & Schmidt, 2003). Due to rising support of the right-wing populist party "Alternative für Deutschland" (AfD) not only but most visibly in the Eastern German states (Pesthy et al., 2021), the topic is still very present in public discourse. Theories regarding the nature of these differences are very diverse and highly controversial.

Some authors argue that differences may be due to a "double dose of dictatorships" (Best et al., 2014) that leaves East Germans unable to function in a democratic setting due to a lack of positive experiences with democracy after the end of WWII. Others tend to blame a sense of nostalgia, even coining the term *ostalgia* (Neller, 2006) that implies a specific East German ("ost-") idealization of the past due to negative transformation experiences. Still others emphasize the relevance of continuing structural disparities that cause a sense of being left behind (Mau, 2021; Statistisches Bundesamt, 2021). The four chapters included in this part provide an overview of the temporal development of various aspects of political attitudes, adding new insights on possible causes of persisting differences.

In Chapter 5, Khachatryan et al. use a longitudinal study to identify the influence of identification with the GDR system on political support of democracy following the concept of Easton (1965). While no impact was found on a general (diffuse) support of the political system, previous GDR identification in fact influenced the attitude toward the performance and perceived everyday outputs of the system (specific support). The authors interpret these finding in light of negative transformation experiences: A strong identification with the GDR system during its existence may thus have intensified the feeling of loss after unification, especially with regard to social issues, such as (female) employment, childcare, and legal abortion (Hanschmidt et al., 2020; Lippmann & Senik, 2019).

Bergmann et al. provide an extensive overview of antisemitic attitudes in Germany comparing 19 different surveys that span the entire unification period (1991–2021). Using a model-based age-period-cohort approach, they identify age as a central predictor for antisemitic attitudes, with older respondents more likely agreeing to antisemitic statements. Cohort effects differed between East and West Germany: Agreement probability generally decreased among younger generations but did so more slowly in East German generations. The East German generations socialized during the immediate unification period that were most affected by its negative consequences are thus more prone to antisemitic attitudes than their West German counterparts and those generations socialized in the GDR regime.

Many studies have pointed to differences in religious affiliation and religiosity between the two German regions due to the socialist rule (Stolz et al., 2020). In the seventh chapter, Pickel and Pickel outline the processes of advancing secularization and analyze possible political consequences of these developments. They not only see East Germany as a precursor of the West German situation regarding the decrease in religiosity but also point toward

a separate East German identity that is built on non-denominationalism and contributes to differences in political cultures between the two regions.

Chapter 8 concludes this section by offering new insights on research on authoritarianism in Germany. Using multilevel models, Dilling et al. revisit the concept and analyze contextual and individual factors that influence five different aspects of authoritarian attitudes (Decker et al., 2020). Results reveal that significant regional differences that go beyond mere East–West differences can only partially be explained by characteristics of the district (e.g., indicators of structural deprivation). The authors highlight the importance of individual factors as well as the interaction of objective and subjective deprivation that may lead to a certain fear of social decline.

Work and family in and after the socialist reality

One of the most striking differences between the GDR and the FRG is the role of work and family life. With their self-definition of a state of workers and farmers, the GDR identified work not only as a constitutional right but also as a civic duty. The GDR claimed to have full employment, and joblessness was highly stigmatized and even legally persecuted (Stedler, 2021). In contrast to the Federal Republic, where after a long struggle for equality, women finally achieved equal rights for participation in the labor market in 1976 (§ 1356 Abs. 2 BGB), women in the GDR were encouraged and even expected to join the workforce from early on. This was enabled by a widespread system of childcare facilities, including daytime, weekly, and even seasonal care for babies starting below the age of three (Brückner et al., 2020). After unification, possible negative effects of early out-of-family care have been a highly debated topic (Berth et al., 2023; Israel & Kerz-Rühling, 2008; Liebsch, 2023), and even though research suggests that people raised in the GDR generally report fewer adverse childhood experiences (Schulz et al., 2022) and recall their parents' childrearing behavior to be more positive (Brähler et al., 2023; Döge & Keller, 2014), a number of children and young adults were traumatized by so-called Jugendwerkhöfe, special re-education homes for nonconformists, like punks, hippies, or offspring of political prisoners (Thieme, 2006). In the immediate unification period, the close connection between work and family life manifested: While unemployment rates skyrocketed, fertility rates as well as the number of marriages dropped immensely (Statistisches Bundesamt, 2021). In this regard, Stöbel-Richter et al. (2023) point to the relevance of societal context when it comes to starting a family. They assume a behavioral lag, implying that changes in values and actions were delayed compared to the rapid economic transformations.

Moreover, East German women were faced with drastically different beliefs about gender roles in West Germany. Until today, studies consistently point to the fact that East German men and women tend to express more egalitarian beliefs about gender roles than West Germans, especially when it comes to maternal participation in the labor market (Lippmann & Senik,

2019; Zoch, 2021). This implies that the socialist image of a woman as both a worker and a homemaker may actually have had a long-lasting effect. In Chapter 9, Heller et al. further investigate these effects using hierarchical age-period-cohort analyses on an East German sample. Results show a retraditionalization effect: Just like the two generations born before the separation of Germany, the two youngest generations born and socialized mainly in unified Germany express more traditional beliefs about gender roles compared to those born and socialized in the GDR. The authors argue that a linear age effect, with older respondents generally expressing more traditional beliefs, as well as cohort replacement, may further accelerate the process.

While the income gap between East and West Germany is slowly diminishing, the gap in wealth is increasing in most birth cohorts: Home ownership is still the exception rather than the norm, and most East Germans have little to inherit from their parents and grandparents who were born before or during the socialist era (Kasinger et al., 2023). In Chapter 10, Kasinger et al. investigate the impact of uneven wealth distributions between East and West Germans on subjective well-being. While they previously found wealth to be an important predictor for general life satisfaction, results reveal that it is less relevant for affective well-being, as it only predicted changes over time within respondents but did not explain differences between respondents.

Finally, Chapter 11 further investigates the impact of job losses on partnerships in East and West Germany. As unemployment influences not only the directly affected but may also have a negative impact on their partners through intradyadic spillover and crossover effects, Braunheim and Gapta analyze the effect of the partner's job loss on one's own life satisfaction. Due to the described differences in women's labor market participation and the resulting divergencies in gender roles, they find gender-specific differences: West German women were most affected by their partner's job loss in terms of life satisfaction. The authors attribute this finding to persisting differences in gender roles as well as a more unbalanced contribution to the household income in the West.

The following chapters are based on different datasets that allow for different methods to be used and thus for different kinds of conclusions to be drawn as well as specific limitations. Table 1.1 gives an overview of all the datasets used in this edited volume, and we will now explain the methods and pitfalls associated with transformation research (not solely) in Germany.

Methods and methodology of transformation research

We begin our methodological section by first giving a brief overview of both the study design issues and the statistical methods specifically relevant for transformation research. Then we will present a concise overview of the methods used in past transformation research on German unification and, finally, we describe the designs and methods used in this volume and the added value they present.

Table 1.1 Datasets included in the edited volume.

Dataset	*Area*	*Study design*	*Measurement points*	*Age*	*Sample size*	*Chapter*	*Topics*	*Methods*
ALLBUS/ GGSS	FRG	Repeated cross-sectional	Biennial; West: since 1980; Federal: since 1991	18–99	1,500–3,000	9	Attitudes about gender roles	HAPC
						6	Antisemitism	APC (Gamm)
						7	Religiosity	Descriptive analysis
ESS	Europe	Repeated cross-sectional	Biennial since 2001	15–99	Min. 1,500	7	See above	Descriptive analysis
GFE	FRG	Repeated cross-sectional	2001–2011	18–95	approx. 3,000	6	Antisemitism	APC (Gamm)
REP	FRG	Repeated cross-sectional	1994, 2002–2022	14–95	2,000–5,000	4	Suicidal ideation	HAPC
						8	Authoritarianism	MLM
(G)SOEP	FRG	Panel	Annual; West: since 1984; Federal: since 1991	17–99	12,000–40,000	2	Mental health	Descriptive analysis
						11	Job loss	Fixed-effects regression
						10	Income and wealth	LGM

(*Continued*)

Table 1.1 (Continued)

Dataset	*Area*	*Study design*	*Measurement points*	*Age*	*Sample size*	*Chapter*	*Topics*	*Methods*
SHIP	Regional East (Northeastern states)	Panel	Baseline 1997–2001 with three 5-year follow-ups, 2008-2011 with one 5-year follow-up	20–79	8,730	3	Trauma and mental health	ANOVA and binomial regression
SLS	Regional East (Saxonie)	Panel	Annual since 1987	Cohort of 1973/74	1,407	5	GDR identification, support for democracy	SEM, measurement invariance

Note: The exact sample size and measurement points are reported in the respective chapters. *Panel* refers to a set-up with the same sample being observed over time; *cross-sectional* datasets observe a different sample at each measurement point. SLS = Saxonian Longitudinal Study, REP = Representative Survey of the German Population, SHIP = Study of Health in Pomerania, GFE = Group-Focused Enmity, ALLBUS/GGSS = German General Social Survey, (G)SOEP = German Socio-Economic Panel, ESS = European Social Survey, FRG = Federal Republic of Germany.

Transformation research, as empirical longitudinal research in general, can be characterized in the following way by following a statement issued by the National Academy of Sciences Leopoldina. The authors highlighted those attributes that should form the core of empirical research and hitherto transformation research:

Longitudinal studies are necessary to reach the following goals:

- To analyze stable patterns but also changes over time, to identify new trends and relationships between socioeconomic and biomedical mechanisms
- To study theory-driven hypotheses related to cause–effect relationships
- To derive predictions for future developments, which provide valuable support for the orientation and planning of societal, economic, and health-related decisions.

(Breuer, 2016, p. 6)

We concentrate in this book on the first two goals. For the fulfillment of the first goal, the respective authors selected repeated cross sections and/or panel studies to analyze changes in East and West Germany after unification (see Table 1.1). In the case of the Saxon Longitudinal Study (SLS, Chapter 6), data from before unification was also available and analyzed. To reach the second goal, we utilized a variety of advanced statistical procedures, most of which have not been used in past transformation research in Germany, to test specific theory-driven hypotheses. One example is age, period, and cohort analyses.

Transformation research is by default based on secondary analyses of pre-existing data, and in order to choose the best available datasets, one has to analyze the study designs and availability in detail. Strengths and weaknesses of the datasets, with their different quasi-experimental and longitudinal study designs, have to be taken into account to choose the best statistical approach for the respective research questions. This will be the topic of the next section.

Study designs

To assess temporal trends, it is necessary to have at least two time points. A single cross-sectional sample design with an East and West German sample collected after unification thus forms one of the weakest types of quasi-experimental design (Shadish et al., 2002). In such designs, many alternative factors and model specifications (Hoyle, 2023) may be responsible for the results of analyses rather than the unification itself. Stricter tests on longitudinal changes over a longer time period can be performed using repeated cross-sectional study designs, like the German General Social Survey (ALLBUS) or the European Social Survey (ESS), where different samples are drawn at each

measurement point over a set period of time (see Table 1.1). Panel studies, like the German Socio-Economic Panel (GSOEP) or the Saxon Longitudinal Study (SLS), observe the same sample over a certain time frame. Panel studies with at least three waves allow for tests of individual change, whereas repeated cross-sectional longitudinal studies can be employed only to analyze group changes (Mulder & Hamaker, 2021).

In the methodological literature, the role of the type of study design for *causal inferences*, a term used by Shadish et al. (2002), has been a central issue. They summarize and discuss the major threats of different quasi-experimental designs for excluding alternative explanations for one's findings. While it was often called an experiment (Giesen & Leggewie, 1991), the division of East and West Germany from 1945 until 1990 was not a randomized controlled trial (RCT) but a natural quasi-experiment—with many points of measurement after the "intervention" in form of the unification. Such quasi-experimental designs imply many more threats to validity and causal inference than an RCT. A discussion of such threats in the case of studies on unification can be found in the aforementioned paper by Becker et al. (2020), who criticize that preexisting differences between the two German regions from the time before the separation are rarely included in the analyses or interpretation of results. The availability of survey data from this time period is, of course, a central problem. In fact, the SLS (Berth et al., 2020) is the only dataset with measurements before unification, as it has been surveying the same cohort since 1987. These study designs, with measurement points before and after unification, allow researchers to apply stronger quasi-experimental designs like regression discontinuity designs (RDD) or difference-in-differences designs (DD; Angrist & Pischke, 2014). However, to avoid straw fire effects (i.e., short changes that do not persist), it is also important to have several time points after an event like unification to analyze the stability of effects over time.

Another central issue is the treatment of the belonging to East and West Germany until 1989 and the changing situations after unification (Braun, 1993). This issue has been coined the socialization effect versus situational effect. Living in the GDR from 1945 until 1990 with its institutions and political system is then regarded a socialization effect. In contrast to this, a situational effect would be, for example, unemployment experiences after unification. These two effects can only be meaningfully separated if longitudinal data after 1989 is available.

Another way of addressing this issue is to specifically look at the large number of internal migrants. Unfortunately, most studies do not differentiate between the region of birth and the current place of residence, making identification of internal migrants difficult to nearly impossible. Even the datasets that do differentiate do not ask for the point in time when people relocated (before or after unification), the age at which the relocation took place, or the time that has passed since the relocation. All these can be central to the question of socialization effects versus situational influences (Beutel et al., 2022).

Finally, we want to address only shortly the effects of different sampling designs and mode effects. Both might have slight or even strong effects (Hox et al., 2015; Schnell & Smid, 2020). An example for a strong mode effect is seen in Chapter 7 on antisemitism, where the mode change could explain sudden changes of antisemitism, whereas there had been no substantive reasons for such a change in the observed values of antisemitism.

After this discussion of the important role of the chosen study designs for the validity of the results, we will now discuss different statistical models for formalizing and testing our specific hypotheses.

Causality and theory-driven hypothesis testing

All statistical procedures applied in this volume, including structural equation modeling (SEM), can be regarded special cases of the generalized latent variable model (Muthén, 2002; Skrondal & Rabe-Hesketh, 2004). However, the interpretation of and meaning of different models and the respective results have been very diverse. One of the most controversial issues of the last years has thus been the use of causal language in formulating hypotheses (Grosz et al., 2020; Haber et al., 2022; Rohrer, 2018) and interpreting empirical results. While most researchers implicitly assume causal relations, they often avoid making these assumptions explicit. This is particularly common when single cross-sectional data are used. Pearl (2023) commented on this as follows: "SEM provides in fact the formal mathematical basis from which the potential outcome notation draws its legitimacy. This together with its friendly conceptual appeal and effective mathematical machinery, explains its status as the prime language for causal and counterfactual analyses" (p. 51). His argument applies to all multivariate procedures like regression, analysis of variance, and factor analysis.

In the present, methodological literature on causal inference (Pearl et al., 2016), hypothesis testing, and interventions has been introduced via graphical models. In our contributions, path diagrams are used mainly as visualizations of the postulated relationships, and the collected papers do not use graph theory to derive certain tests (Pearl, 2023). However, we postulate that even in cross-sectional analyses, causal hypotheses can be falsified but certainly not inferred from the data. Therefore, the term causal *inference* is misleading. From our point of view—methods of transformation research—neither the designs nor the statistical techniques used are specific for this type of research. However, it is important to accentuate the usefulness of longitudinal data to analyze transformation processes after sudden societal ruptures like the unification in Germany.

To further point out the pitfalls and reflect on past research, in the next section, we will summarize past transformation research in Germany before we discuss advantages and disadvantages of the methods used in this edited volume.

Past transformation research

Over time, an overwhelming body of empirical research has accumulated, including several edited volumes dealing with the German unification. Concerning the other former socialist countries in Eastern Europe, only Poland established a long running, unique panel study, POLPAN starting before 1989 (Słomczyński et al., 2015). In Germany, different datasets and statistical approaches have been used, but results are rarely integrated or even presented in a comprehensive way. To further point out some of the pitfalls and reflect on past research, we will now summarize the methods and designs used in past transformation research on unification in Germany.

In the edited volume by Huinink and Mayer (1995), the exploration of life trajectories and biographies analyzed by event history models was the main topic. The time dimension was taken into account by using retrospective questions, focusing on the development of social classes, income, and additional demographic attributes. Diewald et al. (2006) edited a more general account of the effects of unification dealing with professional mobility and the subjective coping with the social, economic, and social changes. As statistical tools, descriptive analyses event history analyses, correlation, and regression analyses were used in the different contributions.

As the outcome of the special research program "Social and political change during the integration of the German Democratic Republic (GDR)" of the German Science Foundation (DFG), a collective volume was edited by Esser (2000). It contained institutional analyses, case studies, and qualitative and quantitative studies comprising several time points and spanning up to seven years. A subset of the authors used correlation analysis and SEM. In the same year, an edited volume was published by political scientists, summarizing the results of a research project dealing with political attitudes, political participation, and voting behavior in unified Germany (Falter et al., 2000). The authors used different time points of their own panel study and employed correlation analysis, regression analysis, exploratory factor analysis, path analysis, and SEM.

Krause and Ostner (2010) published an extensive edited volume dealing mainly with social-structural and demographic changes and also attitudes with an excellent overview of all datasets used like GSOEP, Mikrozensus, EVS, ESS, and ALLBUS. The analyses in this volume were mainly descriptive but some more advanced methods were employed, like event history analyses, many regression analyses, logistic regressions, logit analyses, one age-period-cohort analyses, and one mixed latent Markov model.

The volume summarizing the results of the Special Research Programs 580 of the DFG, edited by Best and Holtmann (2012), contains both qualitative studies with typologies and quantitative studies using principal component analysis for the formation of typologies. In addition to the predominant use of descriptive analyses, analysis of variance, logistic regressions, and correspondence analysis were applied in some chapters.

Methods used in this volume

Even though some of these volumes do include advanced statistical analyses to investigate their respective research questions, some current developments had not been applied. Table 1.2 gives an overview of the strengths and weaknesses of the approaches used in the chapters of this volume. Some of these have also been used in the past; others, like multilevel analyses or age-period-cohort analyses, are only starting to be integrated into current research projects.

The major drawback of descriptive analyses is that no hypothesis testing is performed, and thus, theoretical explanations cannot be adequately tested. However, a comparison of observed scores and tests of existential hypotheses can still be performed. Analysis of variance (ANOVA) and regression models including multilevel regressions and fixed panel regressions do not take into account random and nonrandom measurement errors, and therefore, the coefficients may be biased (see Bollen, 1989). Group comparisons as well as

Table 1.2 Strengths and limitations of the methods used in this volume.

	Strengths (what can be studied)	*Limitations (what cannot be studied)*
Descriptive analyses	Comparison of observed scores Existential hypotheses	Causal analyses Latent variables Measurement invariance
ANOVA and (binomial) regression	Group comparisons Hypotheses about group means	Latent variables Measurement invariance
Multilevel regression models (MLM)	Inclusion of contextual and/or temporal factors Cross-level interactions	Latent variables Measurement invariance
Hierarchical age-period-cohort analysis (HAPC)	Estimating age, period, and cohort effects	Latent variables Strong assumptions about the nature of these effects (linear vs. nonlinear)
APC (Gamm)	Same as above	Same as above
Latent growth models (LGM)	Trajectories of groups over time, individual and group Effects	Causal direction Latent variables
Autoregressive models	Stability measurement error correction	Causal direction Latent variables
Fixed-effects regression	Causal analyses Individual effects	Latent variables
Structural equation models (SEM)	Causal analyses Individual effects Measurement error correction Measurement invariance	Longitudinal processes only with repeated cross sections or panel data

tests of hypotheses about group means are still possible. A major advantage of multilevel analyses is the simultaneous test of contextual and individual attributes as well as the inclusion of cross-level interactions.

As described in Table 1.2, the advantage of age-period-cohort models is their attempt to differentiate between age, period, and cohorts by simultaneously estimating all three effects instead of just using one of them as predictor. However, to disentangle the three effects, strong assumptions about their nature have to be made, and these assumptions cannot be tested within the respective frameworks. Moreover, they usually do not take into account measurement errors either, as they are typically based on single indicators, observed scores, or factor scores.

Latent growth curves are used to analyze individual or group-related trajectories over time using longitudinal panel data. Yet without latent variables, measurement errors cannot be considered either. Finally, pure autoregressive models allow researchers to study the stability of variables, but they have to be combined with tests of cross-lagged effects to test the direction of causality (Granger, 1969).

To summarize, in this final paragraph, we describe the specific techniques that were employed in each chapter included in this volume.

- To test the underlying measurement theories explicitly, most of the contributions used confirmatory factor analysis (Chapters 5 and 9) rather than exploratory factor analysis or simply composite scores.
- To test the equivalence of measures over time, the available techniques for testing measurement invariance were employed (Davidov et al., 2014; Leitgöb et al., 2023; Chapter 5).
- Multilevel analyses were employed to simultaneously take into account individual attributes like age and education, contextual attributes like percentage of GNP per district, and cross-level interactions between individual-level (level 1) and contextual-level (level 2) attributes (Billiet et al., 2018, p. 27; Chapter 8).
- While not solving the problem of simultaneously estimating age, period, and cohort effects (Bell, 2020), multilevel analysis (Chapters 4 and 9) and maximum likelihood analysis (Chapter 6) were employed to address this issue using age-period-cohort models.
- Panel data were used to test the trajectories of psychological constructs over time (Chapters 2, 3, 5, 10, and 11).
- To test group changes, repeated cross sections over time were analyzed (Chapters 4, 6, 7, 8, and 9).
- SEM was applied to take into account random and nonrandom measurement error (Chapter 5).

Concerning the type of hypotheses tested, two contributions (Chapters 2 and 7) are exploratory whereas all others are confirmatory in their approach. They all differ in the amount they control for random and nonrandom measurement

error, explicit tests of underlying measurement models, test of measurement invariance over East and West Germany and over time, and taking into account contextual attributes and tests for cross-level interactions.

With these respective approaches and the wide variety of topics covered in this volume, we have strived to provide an overview of current developments in transformation research in Germany. Ideally, this volume will spark some interest and give rise to new ideas on employing these methods in other contexts to compare and contrast transformational processes in different social contexts all over the globe. As countries and individuals become increasingly more connected, a historically informed, methodologically advanced approach to the analysis of individual and societal change becomes increasingly more complex and more important, and it is the intention of this book to deepen the discussion and promote the exchange of ideas on these topics.

Notes

1 Since 2022, the annual report alternates with a report of the Federal Government Commissioner.
2 For the individual chapters, we leave it to the authors to use whichever term they feel most fitting.
3 Throughout history, the German borders were never the same as the border of today (for the history of the German borders, cf. Becker et al., 2020).

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Part 1

Indicators of mental health and distress

Did the "peaceful revolution" create a "peace of mind"?


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2 Mental health in East and West Germany from reunification to the present

Theresa M. Entringer, Laura Buchinger, Lisa Güttschow, and Tillman Schenk

Mental health in East and West Germany

Over the past century, mental health conditions have become a major source of suffering for individuals in many countries and a growing concern for society. Mental health conditions have been found to cause 19% of all years lived with disability in the world's population (Rehm & Shield, 2019), and it is estimated that every second person will suffer from a mental health condition at least once in their life (OECD, 2021). However, the risk of developing a mental health condition is not the same for everyone: Cultural and socioeconomic factors have been shown to play a major role in the emergence and persistence of mental health disorders (Altweck et al., 2015; Kröger et al., 2015; Lorant et al., 2003).

In this context, Germany represents a special case. After World War II (WWII), the country was divided for over 40 years into two states with dramatically different economic and political systems: the German Democratic Republic (GDR) in the East and the Federal Republic of Germany (FRG) in the West, with West Berlin existing as an enclave within the territory of the GDR. Hence, it seems likely that East and West Germany differed in mental health parameters at the time of reunification in 1990. Even today, there are persistent cultural and socioeconomic differences between the two parts of Germany, raising the question of whether a mental health divide still exists. And if it does, how has it changed over the past 30 years since reunification?

To answer these questions, this chapter provides the first comprehensive overview of mental health in Germany since reunification. Relying on data from the German Socio-Economic Panel (SOEP), an annual, representative panel study running since 1984 (in East Germany since 1990), the chapter provides insights into life satisfaction, satisfaction with health, general mental health-related quality of life, affective well-being, loneliness, symptoms of depression and anxiety, and formal diagnoses of mental disorders. As such, it identifies differences in mental health that existed immediately after reunification (the "immediate reunification period," 1990–2000) and also general trends in the prevalence of mental health conditions in East and West Germany in the more than 20 years following this initial period of time (the

DOI: 10.4324/9781003427469-3

"extended reunification period"). Furthermore, the chapter provides answers to the question of whether socioeconomic factors (e.g., income, education, gender, age, marital status, household composition, unemployment, part-time work, or migration background) show similar associations with mental health outcomes in both parts of the country or whether the role of these factors differs between the East and the West.

The chapter is structured as follows. First, we explain why it appears plausible to assume that individuals from East and West Germany exhibited different mental health conditions immediately after reunification. In addition, we outline how differences in socialization and persistent socioeconomic disparities might still affect mental health, even 30 years after reunification. Second, we describe the data and analytical methods that form the basis for our findings. Third, we present the results, starting with general trends in the immediate and extended reunification period and continuing with a description of the role of socioeconomic factors in mental health in both parts of the country. Finally, we discuss the implications of our findings for the still ongoing reunification process.

The immediate reunification period (1990–2000): cultural socialization and mental health

From 1949 to 1990, Germany was divided into two states: the GDR and the FRG. The GDR was the first socialist country on German soil and had a planned socialist economy modeled after that of the Union of Soviet Socialist Republics (USSR). The FRG was a democratic and federal parliamentary republic modeled after the United States and had a capitalist social market economy. During the period of East–West division, political ideologies and economic decisions and also work attitudes, values, and lifestyle preferences differed dramatically between the two countries (Frese et al., 1996; Pfau-Effinger & Smidt, 2011). In light of the important role of socialization in the development and pathogenesis of mental health, it seems plausible to assume that mental health conditions differed between people living in the GDR and FRG at the time of reunification. Yet it is less clear which part of Germany fared better in terms of mental health, and there are arguments on both sides.

On the one hand, there are several factors that would suggest individuals in West Germany had better mental health than individuals in East Germany at the time of reunification. The Marshall plan, the currency reform, and economic competition had led to rapid economic growth in West Germany in the 1950s (Stephan & Wiedemann, 1990). As economic welfare is associated with higher well-being and better mental health (Patel & Kleinman, 2003; Rathod et al., 2017), it seems plausible to assume that individuals in West Germany fared better than those in the East. Furthermore, West Germans experienced more legal freedom than East Germans (Kroh, 2008), particularly with regard to the expression of opinion——another factor known to foster well-being and mental health. Finally, mental health problems were less stigmatized in the FRG than in the GDR. The stigmas in the East were

rooted in socialist ideology, which assumed that freeing people from the burden of capitalist competition would ultimately overcome human suffering (Wilde, 1891). Consequently, individuals who suffered from a mental health condition were often discriminated against under socialism, which, in turn, hampered access to adequate treatment (Altweck et al., 2015) and created additional stress (Levy et al., 2014).

On the other hand, there are reasons to assume that individuals in East Germany had better mental health immediately after reunification than individuals in West Germany. While unemployment rates in West Germany had returned to 10.2% five years after WWII, the socialist system in East Germany made unemployment practically impossible (Galenson & Zellner, 1957). Unemployment is a well-known risk factor for mental health problems, and it is one from which people in the East were protected (Backhans & Hemmingsson, 2012; Zhang & Bhavsar, 2013). Furthermore, income inequality is associated with negative (mental) health outcomes (Zeira, 2022). This risk factor for mental health was much less pronounced in East Germany than in West Germany. Finally, the GDR provided a good childcare infrastructure that allowed women to work full-time (Adler & Brayfield, 1996). More gender-egalitarian cultures are associated with better mental health (Haar et al., 2014), and hence, it seems likely that individuals in East Germany had another mental health advantage over individuals in West Germany. Taking the arguments on both sides together, there is ample reason to assume that mental health conditions differed between East and West Germany in the immediate reunification period. It is not clear yet, however, whether individuals in East or West Germany fared better in terms of mental health during this earlier period.

The extended reunification period (2000 to present): persisting differences or convergence

But how did the mental health divide evolve over the course of the more than two decades following the immediate reunification period up to the present, to which we refer as the extended reunification period? There is one key reason to assume that socialization-related mental health differences persist—— at least to some extent. Society is shaped by the experiences of older generations who pass on their values and preferences to their children. This is evident in Germany, where several studies have shown that socialization differences continue to affect people's lives even decades after reunification (e.g., Sack, 2017; Scheling & Richter, 2021). Individuals living in East Germany score higher on values of security, conformity, and tradition compared to individuals living in West Germany (Davidov & Siegers, 2010).[1] According to this *transgenerational perspective*, it seems likely that differences in mental health that existed in the immediate reunification period might still be visible even now in the present.

Yet there are also two reasons to assume that mental health conditions in East and West Germany converged over the extended reunification period. The years from 1990 to 2020 were an unprecedented phase of peace and stability in Germany and Europe (Hussen, 2012). Furthermore, the extended

reunification period was a phase of economic growth and societal welfare in which living conditions improved significantly in Germany. These improvements are likely to also have impacted individual mental health.

However, there are three reasons to assume that individuals in East Germany fared worse in terms of mental health than individuals in West Germany during the extended reunification period, and possibly even worse than in the immediate reunification period. First, the reunification of Germany did not entail an integration of the two cultural systems. Citizens of the former GDR became citizens of the FRG and were expected to adopt West German values, preferences, and norms. Yet changing such central aspects of one's identity is not easy, as the persistent differences in values, preferences, and norms between people in the East and West are clearly visible. A mismatch between personal identity and culture is widely known to be associated with detriments to well-being (Diener et al., 2018). Second, the abrupt system change led to mass unemployment in East Germany (e.g., Bundesagentur für Arbeit, 2023) because its industry was now forced to compete in a capitalist world resulting in the closure of many East German firms. This caused many skilled and well-educated people to search for better job opportunities in the West, further exacerbating the "brain drain" that was already ongoing before reunification (Fritsch et al., 2023). Third, a socioeconomic gradient in health has been empirically established in many societies (Kröger et al., 2015). Socioeconomic factors also differ between East and West Germany: Individuals in the East still have lower socioeconomic status (SES; e.g., income, education) on average (Bundesministerium des Innern, für Bau und Heimat, 2021) and higher unemployment rates than individuals in the West (Schnabel, 2016). SES is considered a fundamental cause of health differences (Lorant et al., 2003; Yu & Williams, 1999) as it is directly tied to important social and financial resources. For instance, individuals with higher SES are more likely to have access to the kind of care that can help prevent or at least reduce disease and its negative consequences (Link & Phelan, 1995; Phelan et al., 2010). In addition, individuals with high SES usually have better working and living conditions (Bosma et al., 2001) and larger and more heterogeneous social networks (Carey & Markus, 2017) and hence more access to social support (Huurre et al., 2007).

Taken together, the findings suggest that differences in mental health existed between individuals in East and West Germany during both the immediate and the extended reunification period. It is not so clear, however, how these differences manifested.

The data

This chapter is based on data from the Socio-Economic Panel (SOEP), the only nationwide population-representative longitudinal survey in Germany in which multiple mental health indicators are assessed repeatedly. The SOEP is supplemented by a special survey conducted during the COVID-19 pandemic, the SOEP-CoV project. Both surveys are described in more detail later.

SOEP and SOEP-CoV

The SOEP is a representative annual panel survey of private households in Germany that has been running since 1984 in West Germany and since 1990 in East Germany (Goebel et al., 2019). Currently, about 30,000 respondents in approximately 15,000 households are surveyed each year. Since the same households are contacted each year, it is possible to look not only at long-term trends but also at group-specific developments over time. The SOEP contains a wide range of information on respondents at both the individual and household levels. This includes socioeconomic characteristics as well as information on employment status and questions on (mental) health and well-being.

The SOEP-CoV study was launched shortly after the onset of the COVID-19 pandemic (Kühne et al., 2020a). It was funded by the German Federal Ministry of Education and Research as part of a call for research on COVID-19. For the SOEP-CoV study, in addition to the regular annual survey, SOEP households took part in a special COVID-related survey from March 31 to July 4, 2020, and again from January 1 to February 28, 2021. The special survey focused on respondents' occupational and family situation during the pandemic as well as indicators of mental health. Due to the contact restrictions in place during the study period, fieldwork was carried out based on telephone interviews. In total, 6,667 respondents were interviewed in 2020 and 6,013 in 2021 for the SOEP-CoV study. Since participants in SOEP-CoV were selected from the regular SOEP sample, both datasets can be merged to illustrate developments and changes over time.[2] In the following section, we provide an overview of the eight mental health indicators and nine socioeconomic factors that were used in the analysis.

Mental health indicators in the SOEP

The WHO defines mental health as "a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community" (WHO, 2004, p. 10). This chapter examines eight important health indicators that attempt to capture this overall state of well-being: (1) life satisfaction, (2) satisfaction with health, (3) mental health-related quality of life, (4) affective well-being, (5) loneliness, (6) depressive symptoms, (7) anxiety symptoms, and (8) formal depression diagnosis. Later, we describe how these indicators are assessed in the SOEP (see also a summary of the indicators and their assessments in Box 2.1).

Life satisfaction

Since the SOEP's launch in 1984, life satisfaction has been assessed annually with a single-item measure (e.g., "How satisfied are you with your life in general, all things considered?"). It has been shown to perform equally well to multi-item measures (Cheung & Lucas, 2014). Participants are asked to rate their life

Box 2.1. Summary of the mental health indicators analyzed in the present chapter

- *Life satisfaction—single indicator* (range: 0–10; assessed annually since 1990)
- *Satisfaction with health—single indicator* (range: 0–10; assessed annually since 1990)
- *Mental health-related quality of life (SF-12)—composite score* (range: 0–100; assessed biannually since 2002)
- *Affective well-being (frequency of being angry, worried, happy, and sad in the last four weeks)—composite score* (range: 4–20; assessed annually since 2007)
- *Loneliness—single indicator* (range: 1–4; assessed in 1992, 1993, 1995, 1996, 1997, 2008, 2013, and 2018)
- *Depressive symptoms (PHQ-2)—composite score* (range: 0–6; assessed in 2016, 2019–2021)
- *Anxiety symptoms (GAD-2)—composite score* (range: 0–6; assessed in 2016, 2019–2021)
- *Formal depression diagnosis—single indicator* (yes/no; assessed biannually since 2009)

satisfaction on an 11-point scale (0 = *completely dissatisfied* to 10 = *completely satisfied*). Hence, higher scores reflect higher satisfaction with life.

Satisfaction with health

Satisfaction with health has also been assessed annually since 1984 with a single-item measure (e.g., "How satisfied are you with your health?"). Participants are asked to rate how satisfied they are with their health on an 11-point scale (0 = *completely dissatisfied* to 10 = *completely satisfied*). Accordingly, higher scores reflect higher satisfaction with health.

Mental health-related quality of life

Mental health-related quality of life has been assessed biannually since 2002 using the Short-Form Health Survey 12 (SF-12) questionnaire (Andersen et al., 2007; Wirtz et al., 2018). Participants rate how often in the past four weeks they experienced certain health states (e.g., feeling "run down/melancholy" or "tired/worn out") on a five-point scale (1= *always* to 5 = *never*). Following common practice guidelines, the single scores were aggregated into one mental health-related quality-of-life indicator (Nübling et al., 2006). Higher scores on the indicator reflect higher mental health-related quality of life.

Affective well-being

The SOEP has been assessing affective well-being annually since 2007. Respondents are asked to rate how often in the past four weeks they have felt sad, angry, worried, and happy on a five-point scale (1 = *very rarely* to 5 = *very often*). Negative emotions were reverse-scored and aggregated into a sum score so that higher scores represent higher affective well-being.

Loneliness

Loneliness has been assessed eight times in the SOEP using the single-item measure "I often feel lonely." It was assessed for the first time in 1992 and then on an irregular basis up to 2018. Participants were asked to rate the item on a four-point scale, ranging from 1 = *agree completely* to 4 = *disagree completely*. Items were reverse-scored so that higher scores represent greater loneliness.

Depression and anxiety

The SOEP relies on the four-item Patient Health Questionnaire (PHQ-4; Löwe et al., 2010) to assess the two leading symptoms of major depression and generalized anxiety disorder. On a four-point scale ranging from 1 = *not at all* to 4 = *(almost) every day*, participants rate how often in the past two weeks they have experienced "little interest or pleasure in doing things," "feeling down, depressed, or hopeless" (depressive symptoms), "feeling nervous, anxious or on edge," and "unable to stop or control worrying" (anxiety symptoms). We aggregated the two items assessing the leading symptoms of major depression (PHQ-2) and the two items assessing the two leading symptoms of generalized anxiety disorder (GAD-2) into a composite score. Hence, higher scores reflect more symptoms of major depression or generalized anxiety disorder. To date, the PHQ-2 and the GAD-2 have been assessed in 2016, 2019, and in both waves of the SOEP-CoV survey.

Depression diagnosis

Every other year since 2009, the SOEP has asked respondents to report if they have ever received a formal diagnosis of major depression. Respondents only indicate whether they have received such a diagnosis. Hence, the final score reflects the proportion of respondents who answered "yes" to this question, and higher scores reflect a higher prevalence of depression diagnoses. Importantly, the reference group for this indicator is everyone else, that is, (1) individuals who have not received such a diagnosis and (2) individuals who have not answered the question.

Socioeconomic factors in the SOEP

Nine socioeconomic factors have been shown in previous studies to be either risk or protective factors for mental health. A summary of these factors can be found in Box 2.2.

Box 2.2. Summary of socioeconomic factors affecting mental health

- *Income* (low, medium, and high income; analysis based on tertiles of net household income weighted by the household size-adjusted consumer price index)
- *Education* (low, medium, and high education: below secondary, secondary, and tertiary levels based on CASMIN)
- *Sex* (female vs. male)
- *Age* (24 and younger, 25–49, 50–64, 65 and older)
- *Marital status* (married or in a registered same-sex partnership vs. not married or in a partnership)
- *Household type* (couples with children vs. others; others include couples without children, single parents, singles)
- *Unemployment* (yes vs. no; yes refers only to registered unemployment)
- *Part-time work* (yes vs. no; part-time work is defined as working less than 30 hours per week)
- *Direct migration background* (yes vs. no; direct migration background is defined as first-generation immigrants[3])

Analysis

The results are based on a sample of N = 138,949 individuals who were part of a SOEP household between 1990 and 2021. All individuals aged 18 years or older who provided information about their place of residence (East Germany vs. West Germany) and at least one of the mental health indicators were included in the sample. On this basis, we compiled the mental health indicators and socioeconomic factors described in Boxes 2.1 and 2.2, respectively. Next, using the SOEP's standard person weights (Kroh et al., 2015), we calculated the means and 95% confidence intervals for all mental health indicators in all available survey waves since 1990, stratified by sampling region (East Germany vs. West Germany). Finally, we repeated that analysis but stratified the results according to the nine socioeconomic factors.

Detailed results of this analysis can be found in the eResources of this chapter, available at Routeledge.com. Due to space constraints, however, we rely on a graphical illustration of the results in the present chapter and focus on the (persisting) differences in mental health across the different socioeconomic factors. We interpreted non-overlapping confidence intervals as evidence of group differences. The statistical open-source software R (Version 4.2.2.; R Core team, 2022) was used for all data wrangling, formal analysis, and visualization.

Results

This section begins with an overview of how mental health indicators have changed in East and West Germany since reunification, starting with the immediate reunification period (1990–2000) and continuing with a description of trends in the extended reunification period (2000 to present). Depicted are weighted scale scores or averages and 95% confidence intervals allowing for precise inferences from the data. Next, the different socioeconomic factors relevant to mental health in East and West Germany are summarized. The figures present overall developments since reunification, whereas the text focuses on current and persisting differences. Finally, the section concludes by describing mental health differences in East and West Germany during the COVID-19 pandemic.

General trends in mental health in East and West Germany

Figure 2.1 provides an overview of general trends in mental health in East and West Germany since reunification. Three of the eight indicators were already assessed in the immediate reunification period (1990–2000): life satisfaction, satisfaction with health, and loneliness. The remaining five indicators were assessed only in the extended reunification period (2000 to present). The figure shows that individuals in East Germany were generally less satisfied with their lives and health than individuals in West Germany during the immediate reunification period. Yet the figure also shows that individuals in East and West Germany were experiencing similar levels of loneliness after reunification.

Figure 2.1 also shows that differences in life satisfaction diminished in the extended reunification period until the onset of the COVID-19 pandemic (please note that we discuss COVID-19-related changes in mental health in the section below; this section focuses on changes during the 20 years from 2000 until 2019). However, although life satisfaction may converge eventually, individuals in East Germany are still less satisfied with their lives than individuals in West Germany in 2019. Furthermore, the figure shows that during the extended reunification period (until the onset of the COVID-19 pandemic), satisfaction with health has remained relatively stable, implying that individuals in East Germany are still less satisfied with their health than individuals in West Germany. Finally, during the extended reunification period, differences in loneliness have emerged. Since 2008, individuals in East Germany report more loneliness than individuals in West Germany.

Two further mental health indicators have begun to converge during the extended reunification period until the onset of the COVID-19 pandemic. Mental health-related quality of life and affective well-being have improved in both parts of Germany, but more among individuals in the East, leaving individuals from both parts of Germany with similar mental health-related quality of life and affective well-being. In addition, three mental health indicators show no evidence of differences between East and West Germany during the extended reunification period: Depressive symptoms and anxiety symptoms

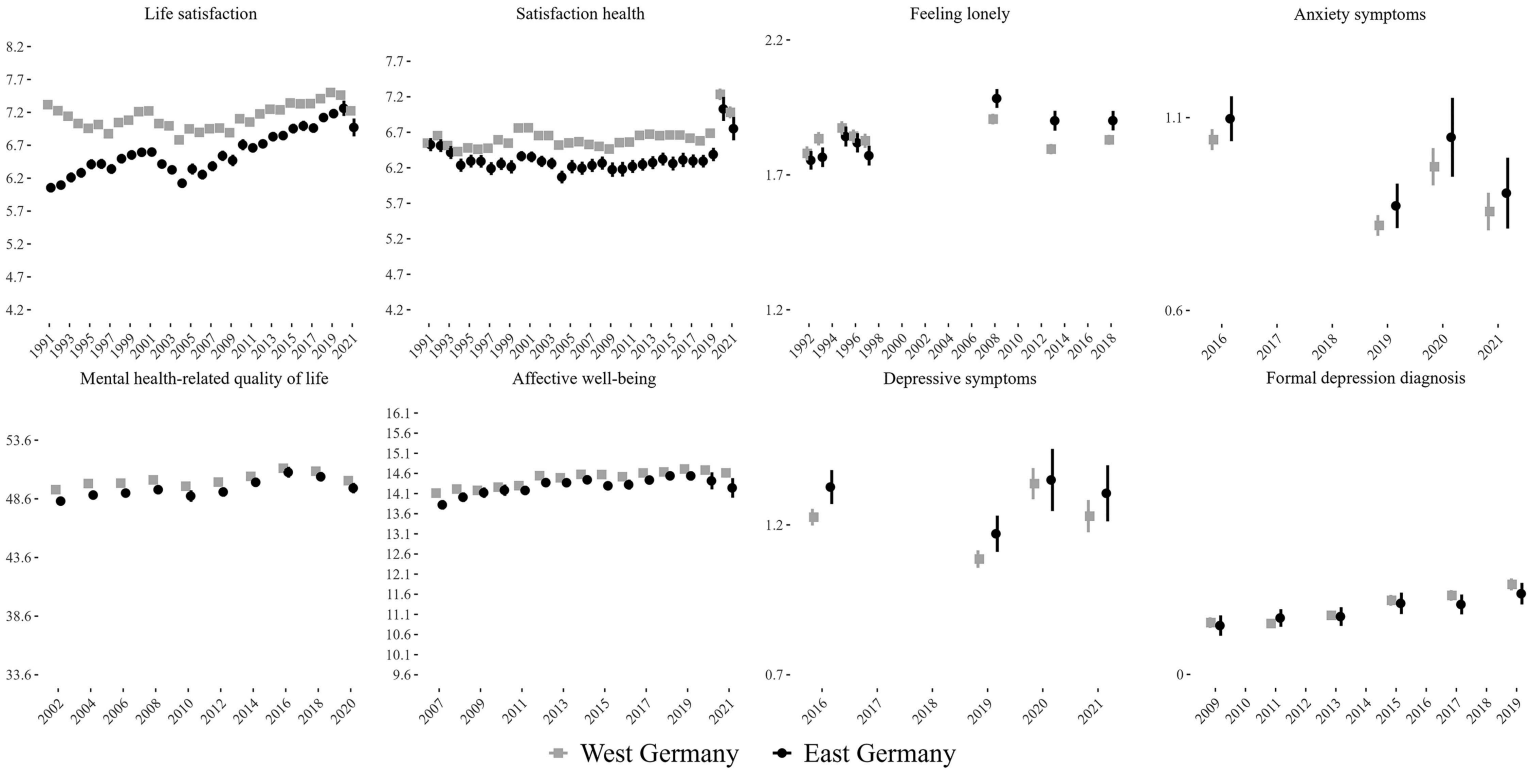

Figure 2.1 General trends in mental health in East and West Germany.

Note: Higher levels on the *y*-axis reflect a higher health-related quality of life, higher affective well-being, higher life satisfaction, higher loneliness, more depressive symptoms, more anxiety symptoms, and a higher prevalence of formal depression diagnoses.

have remained very similar in both East and West Germany since their first assessment in 2013, and clinical depression diagnoses have increased to similar degrees in both parts of the country.

The importance of socioeconomic factors in mental health in East and West Germany

Overall, associations between mental health indicators and socioeconomic factors did not differ substantially between East and West Germany. Unemployment, for instance, was negatively associated with all mental health indicators, independent of where individuals lived (Figure 2.2).

Similarly, low income was associated with poorer mental health on all mental health indicators except the formal diagnosis of a depressive disorder. To account for this dominance of socioeconomic factors over location (East vs. West), we report our results for the various indicators below, starting with a description of the general differences associated with the socioeconomic factors and noting differences between East and West Germany only when they are present.

Life satisfaction

Almost all socioeconomic factors were associated with differences in life satisfaction over the entire study period. Individuals with lower income and education, individuals living alone, and older individuals reported overall lower life satisfaction. Furthermore, life satisfaction is the only mental health indicator showing larger differences between East and West Germany than between different categories of a socioeconomic factor, such as education or age.

For instance, immediately after reunification, individuals with high education in East Germany were less satisfied than individuals with low education in West Germany. The differences have diminished over the decades since reunification but still remain evident (see Figure 2.3). With regard to age, in the years immediately following reunification, young people in West Germany were the most satisfied with their lives (followed by all others in West Germany), whereas middle-aged individuals (50–64 years) in East Germany were the least satisfied. Over time, however, this gap has closed (see Figure 2.4).

Satisfaction with health

The pattern of results for satisfaction with health is very similar to the pattern for life satisfaction. However, two findings stand out: Over the course of the study period, individuals without children in East Germany were less satisfied with their health than individuals without children in West Germany. Furthermore, married individuals in East Germany were less satisfied with their health than all other individuals in East and West Germany (see online supplementary material).

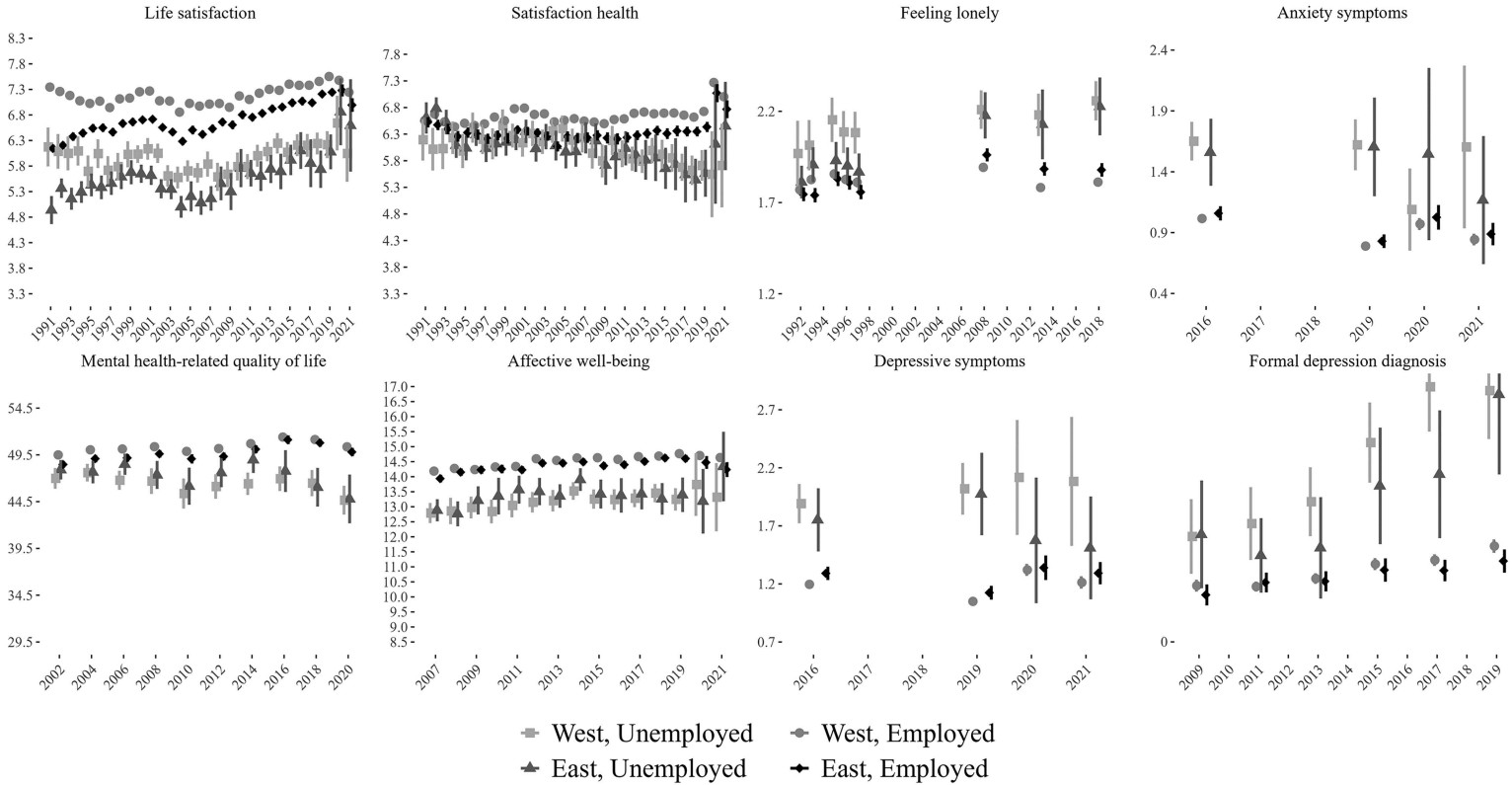

Figure 2.2 Mental health indicators by employment status and region.

Note: Higher levels on the *y*-axis reflect a higher health-related quality of life, higher affective well-being, higher life satisfaction, higher loneliness, more depressive symptoms, more anxiety symptoms, and a higher prevalence of formal depression diagnoses. Employment status is defined as employed versus registered unemployed.

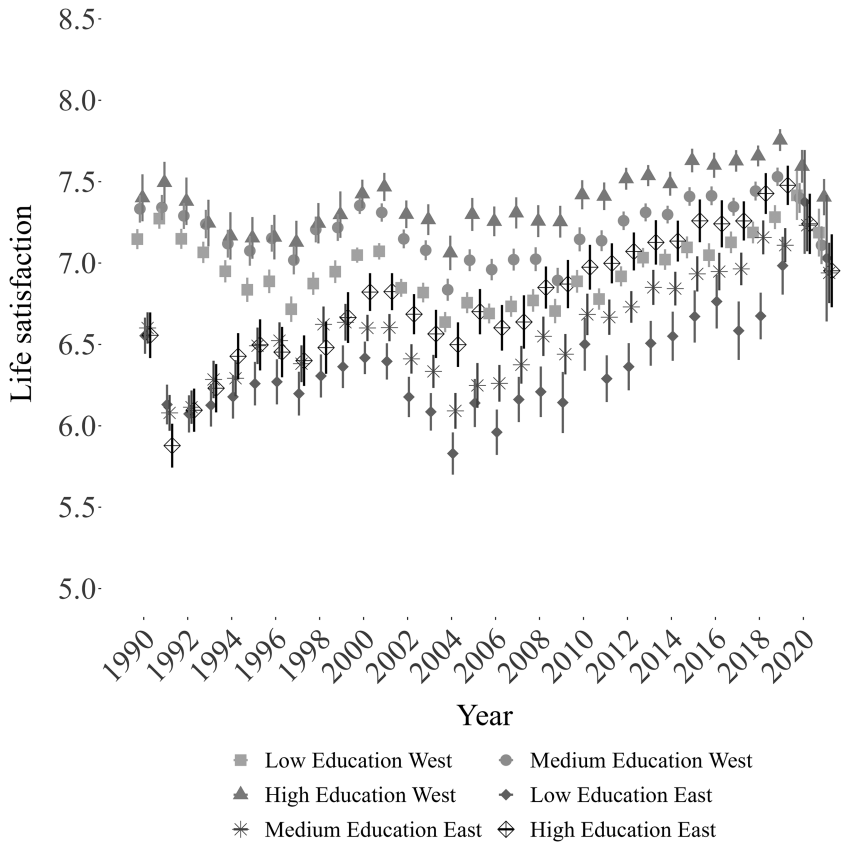

Figure 2.3 Life satisfaction by education and region.

Note: Higher levels on the *y*-axis reflect higher life satisfaction. Education levels are defined as low, medium, and high: below secondary, secondary, and tertiary based on the CASMIN educational classification system.

Mental health-related quality of life

Overall, the following socioeconomic factors were associated with lower mental health-related quality of life: unemployment, female sex, younger age, and lower income.

Furthermore, two socioeconomic factors were associated with increasing differences in mental health-related quality of life over time: unemployment and age. First, throughout the study period, the mental health-related quality of life of employed individuals in both parts of the country remained relatively stable, whereas that of unemployed individuals decreased (see Figure 2.2). Furthermore, in East and West Germany, mental health-related quality of life increased in the oldest age group (≥65) but decreased in the youngest age group (<25; see Figure 2.5).

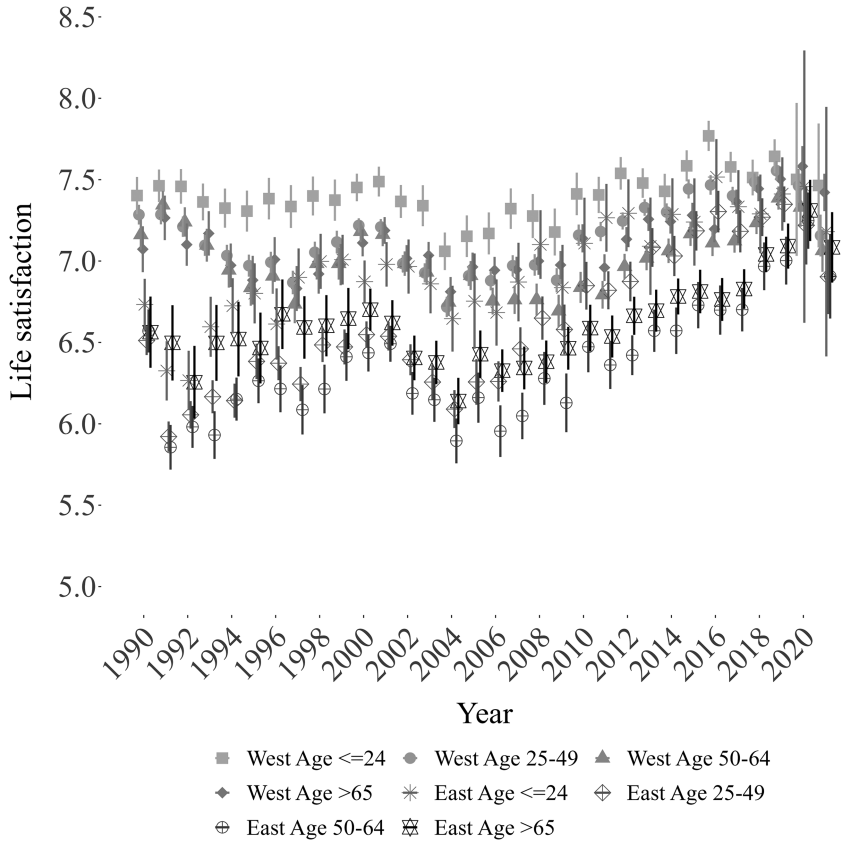

Figure 2.4 Life satisfaction by age group and region.

Note: Higher levels on the *y*-axis reflect higher life satisfaction. Age groups are separated into the following groups: 24 and younger, 25–49, 50–64, 65 and older.

Affective well-being

Lower affective well-being was reported by individuals who were unemployed or working part-time, individuals with no children, with lower income, with lower education, and individuals living alone. Importantly, two of these socioeconomic factors showed different associations with affective well-being in East and West Germany: type of employment and parenthood. Individuals in part-time employment in East Germany reported the lowest levels of affective well-being, especially in the period immediately following reunification (see Figure 2.6). With regard to parenthood, couples with children reported higher affective well-being than other household types. This effect was slightly larger for individuals living in West Germany than for those in East Germany (see Figure 2.7).

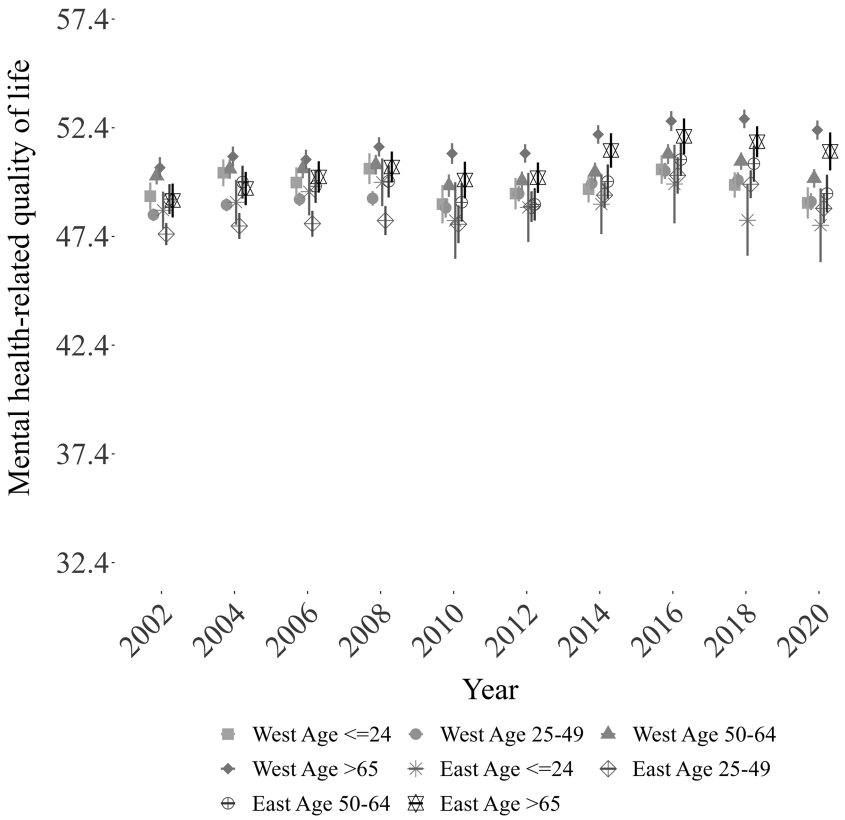

Figure 2.5 Mental health-related quality of life by age group and region.

Note: Higher levels on the *y*-axis reflect a better mental-health-related quality of life. Age groups are separated into the following groups: 24 and younger, 25–49, 50–64, 65 and older.

Loneliness

The analysis of the socioeconomic factors revealed that, with the exception of job type (part-time vs. full-time), all of the socioeconomic factors investigated play a role in loneliness. The most pronounced differences were found for unemployment, lower income, lower education, and being single (vs. being married), all of which were associated with higher values in loneliness.

However, two differences regarding the association between loneliness and socioeconomic factors emerged in the comparison of East and West Germany: Not being married and not living with a partner and a child are more strongly associated with loneliness in East Germany than in West Germany, particularly in the extended reunification period (see Figure 2.8).

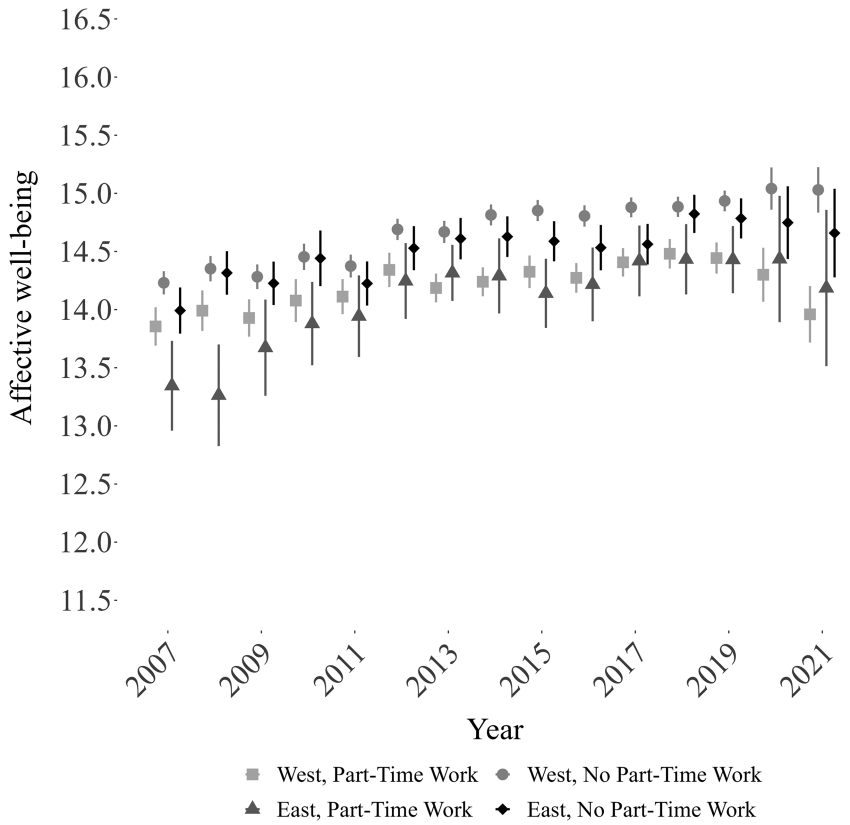

Figure 2.6 Affective well-being for the type of employment by region.

Note: Higher levels on the *y*-axis reflect a higher affective well-being. Type of employment is defined as part-time work versus no part-time work. Part-time work includes working fewer than 30 hours per week.

Depressive symptoms

Regarding depressive symptoms, the analyses again revealed differences for most of the investigated socioeconomic factors. And again, these differences were similar for individuals from both parts of the country, with one exception: Individuals who were not married reported the most depressive symptoms in East Germany and considerably fewer depressive symptoms in West Germany (Figure 2.9).

Anxiety symptoms

The pattern of results for anxiety symptoms is very similar to the pattern for depressive symptoms. Overall, these findings are independent of the individual's location in East or West Germany.

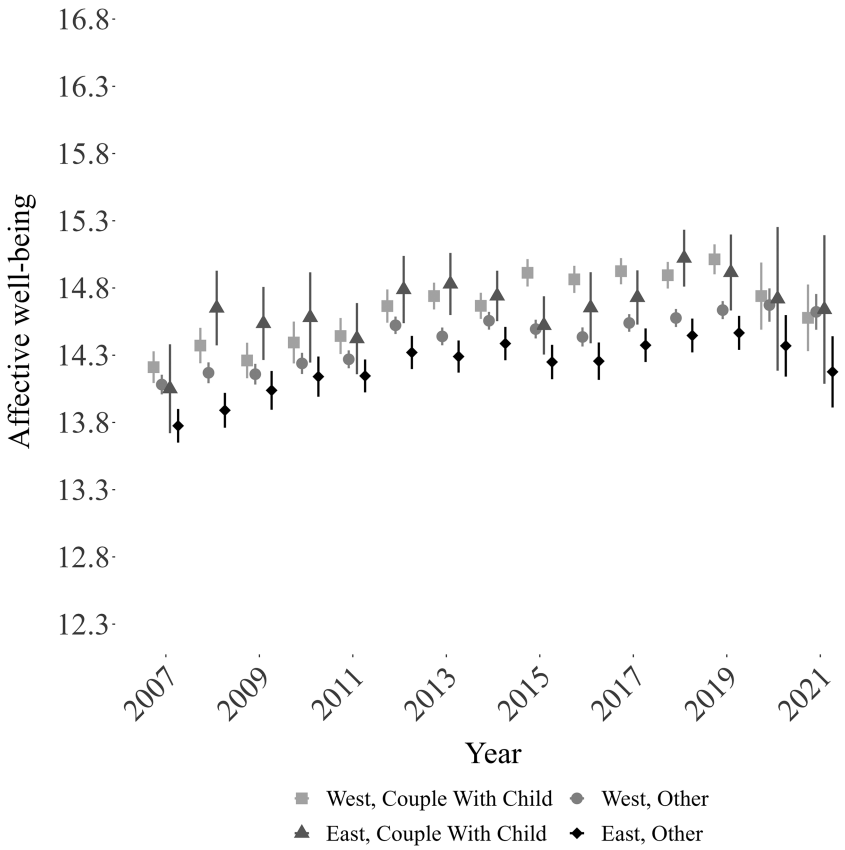

Figure 2.7 Affective well-being of couples with and without children by region.

Note: Higher levels on the *y*-axis reflect a higher affective well-being. Household type is defined as couples with children versus others; others include couples without children, single parents, and singles.

Formal depression diagnosis

The analysis of socioeconomic factors revealed that individuals who were unemployed, had low income, were unmarried, older, female, and living alone more often received a formal diagnosis of depression than individuals who were employed, had high income, were married with children, and were not living alone. The analysis also suggests, however, that educational background has a differential association with the diagnosis of major depression in East versus West Germany. In East Germany, there were no differences in the number of depression diagnoses by educational background (Figure 2.10). By contrast, in West Germany, individuals with low education received formal diagnoses of depression more often than individuals with high education.

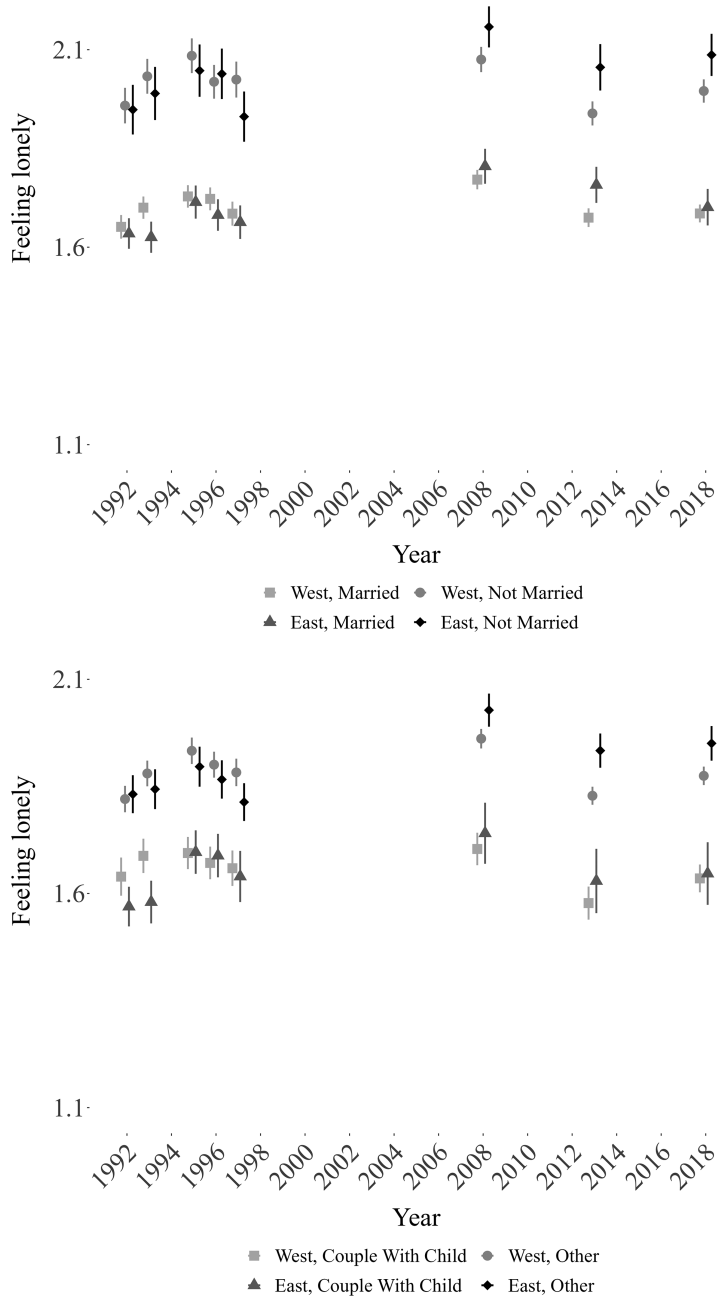

Figure 2.8 Loneliness by marital status, household type, and region.

Note: Higher levels on the *y*-axis reflect more loneliness. Marital status is defined as married, including same-sex registered partnerships versus not married. Parenthood is defined as couples with children versus others. Others include couples without children, single parents, and singles.

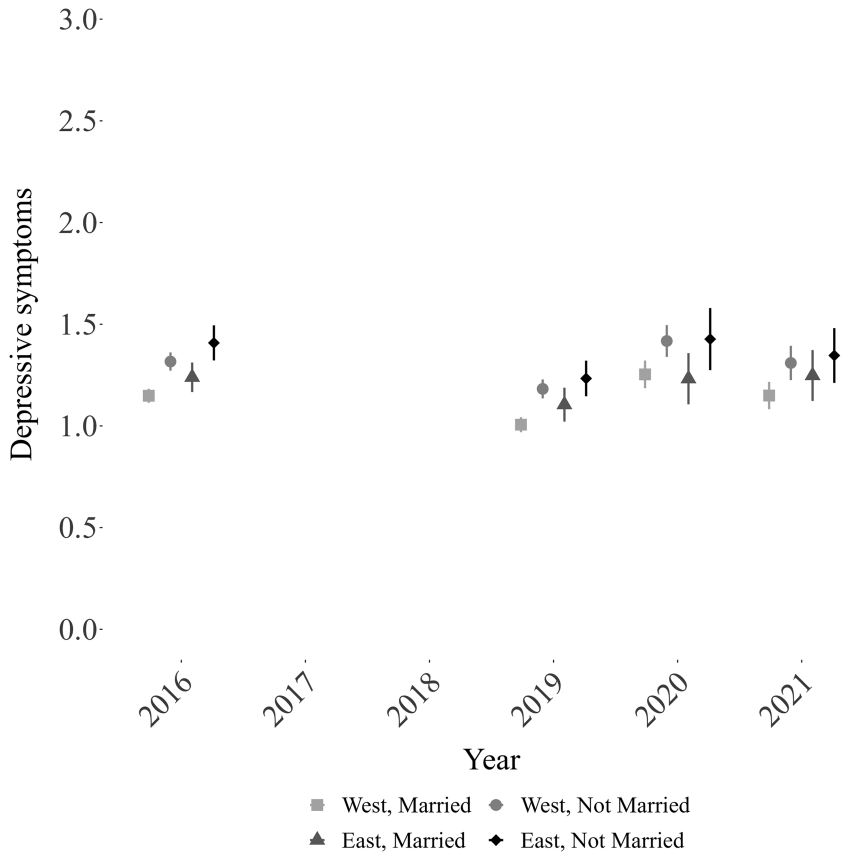

Figure 2.9 Depressive symptoms by marital status and region.

Note: Higher levels on the *y*-axis reflect more depressive symptoms. Marital status is defined as married, including same-sex registered partnerships, versus not married.

Mental health in East and West Germany during the COVID-19 pandemic

The COVID-19 pandemic was an exceptional threat to the physical and mental health of the population (Vindegaard & Benros, 2020). The economic uncertainty, fear of contracting the virus, manifold constraints on daily life due to measures to slow the spread of the virus, and the reduced availability of in-person social support are just some of the COVID-19-related stressors that may have impaired mental health. Furthermore, these stressors impacted preexisting economic and mental health differences between East and West Germany. Also, there were considerable regional differences in the number of COVID-19 cases, in the acceptance of government measures to combat the pandemic (Sabat et al., 2020), in satisfaction with the government's handling of the situation (Kühne et al., 2020b, 2020c), and in vaccine hesitancy

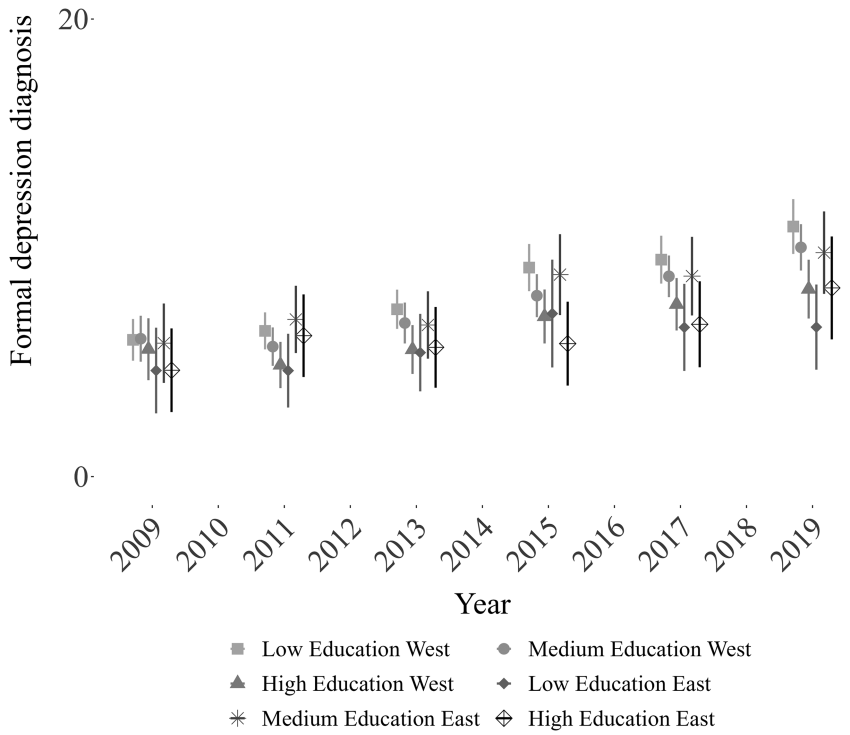

Figure 2.10 Formal diagnosis of depression by education and region.

Note: Higher levels on the *y*-axis reflect more formal depression diagnoses. Education levels are defined as low, medium, and high education: below secondary, secondary, and tertiary based on the CASMIN educational classification system.

(Sallam, 2021). All these differences raise the question of whether living through the pandemic had different effects on people's mental health in East and West Germany. To answer this question, we used data from the SOEP-CoV survey, described in the SOEP and SOEP-CoV section. The SOEP-CoV data include all mental health indicators except the clinical depression diagnosis and the mental health quality-of-life indicator.

Figure 2.1 shows that individuals living in East and West Germany reacted similarly to the COVID-19 pandemic. Levels of anxiety and depressive symptoms rose in the first year of the pandemic but fell almost back to prepandemic levels in 2021. Furthermore, loneliness increased steeply in 2020 and remained high in 2021. Affective well-being remained relatively stable, and in 2021, life satisfaction levels decreased considerably in both East and West Germany.

Interestingly, our findings regarding socioeconomic factors suggest that some variables that had a protective effect on mental health in one part of the country during the pandemic had the opposite or no effect in the other part of the country. Having children, for instance, was a protective factor

in East Germany but not in West Germany: Affective well-being increased among East German couples with children in 2021 but decreased among West German couples with children. Educational background, in contrast, was a protective factor for mental health in West Germany but not in East Germany: Highly educated individuals in West Germany reported the highest levels of affective well-being in 2021, whereas highly educated individuals in East Germany reported the lowest levels of affective well-being.

Discussion

This chapter sought to answer the question of whether differences in mental health existed at the time of reunification, and if so, whether they have increased or decreased over time.

To do so, this chapter relied on the analysis of data from the SOEP, a representative panel study providing data on eight mental health indicators and nine socioeconomic factors from individuals living in East and West Germany over the course of the last 30 years.

Overall, the results revealed that in the early years after reunification (the "immediate reunification period," 1990–2000), individuals in East Germany did suffer from lower life satisfaction and lower satisfaction with health than individuals in West Germany, a finding that has been explained by political differences (Träger, 2022), cultural differences (Sack, 2017), and socioeconomic differences (Iglauer et al., 2021). Furthermore, the results revealed that over the past over 20 years (the "extended reunification period," 2000 to present), two trends in the data emerged. First, quality of life improved for individuals in both parts of the country (e.g., increases in mental health-related quality of life, affective well-being, and life satisfaction). The increase in quality-of-life indicators matched the economic development in Germany since reunification, showing how societal welfare fosters overall individual well-being. The results, however, also revealed a rise in depression diagnoses in both parts of the country, a phenomenon that has been described and discussed elsewhere (e.g., DAK, 2021).

Second, the results revealed another trend in the data: During the extended reunification period, differences in life satisfaction and satisfaction with health in East and West Germany diminished—but have not converged up to the present. Furthermore, during the extended reunification period, differences in loneliness emerged. At present, individuals in East Germany are lonelier than individuals in West Germany—a difference that did not exist in the immediate reunification period. Finally, there are no differences in anxiety and depression symptoms or the number of formal depression diagnoses between individuals in East and West Germany.

Furthermore, the analysis of the socioeconomic factors in conjunction with location in East or West Germany showed that socioeconomic factors were generally associated with larger differences in mental health than location. In addition, the results replicated former findings (Kröger et al., 2015; Reiss, 2013; Lorant et al., 2003) and showed that among all socioeconomic factors,

socioeconomic status had the strongest association with mental health. In a few instances, however, the results also showed differential effects of the socioeconomic factors in East and West Germany. For instance, working part-time was more detrimental to individuals in East Germany than to individuals in West Germany. This finding is not surprising given the fact that in the GDR, almost everyone worked full-time. Thus, switching to part-time work after reunification meant not only economic losses but also a major lifestyle shift.

Finally, the results also showed similar mental health responses of individuals in East and West Germany to the COVID-19 pandemic. Hence, it seems that the pandemic worked as an equalizer between East and West and did not disrupt the reunification process (Liebig et al., 2020). Life satisfaction, however, was again an exception to the rule: Especially in 2021, individuals in East Germany experienced larger declines in life satisfaction than individuals in West Germany. This finding is in line with findings reporting higher dissatisfaction with the handling of the crisis (Kühne et al., 2020b, 2020c) and higher refusal to adhere to the measures implemented to fight the spread of the virus (Reuband, 2022) in East than in West Germany. Furthermore, overall societal cohesion decreased during the pandemic (Boehnke et al., 2022). Hence, although the COVID-19 pandemic did not disrupt the convergence in mental health between East and West, it seems likely that it has disrupted the East–West reunification process in other respects. However, more research is needed to better understand why individuals in East Germany reacted differently to the threats of the virus and the policy measures implemented to combat it than individuals in West Germany.

Limitations and avenues for future research

Finally, we want to point out some limitations in our sample, measures, and analytic strategy. First, the SOEP data contain no information on mental health in East Germany before 1990 and no information on mental health in all of Germany before the country's division in 1949. It has been suggested, however, that regional differences existed long before the formal division and that these differences are often overlooked in the reunification literature (e.g., Becker et al., 2020). To illustrate, female labor market participation was already higher in East Germany long before the country's division, and individuals in East Germany were less often self-employed, less religious, and had more extramarital offspring than those in the West (Fritsch & Wyrwich, 2014; Hölscher, 2001). Hence, it is possible that differences in culture and lifestyle preferences not only are attributable to differences in the political and ideological systems of the FRG and GDR but also existed in nascent form long before 1949.

Second, in the period immediately following reunification, many individuals migrated from East to West Germany. The present chapter analyzed individuals in East and West Germany based on their current place of residence. Hence, it is possible that some of the individuals who indicated living in West Germany were socialized in East Germany. However, in our sample, this applied to only approximately 600 individuals. Because the number was

relatively low, we decided to keep these individuals in our sample. Future research, however, should analyze whether mental health differed for individuals who (re-)migrated from East to West Germany after reunification (Farugie et al., 2022; Schmalbach et al., 2021).

Third, the three measures that were assessed in the immediate reunification period are indicators of well-being rather than of clinical mental health. Clinical mental health indicators were only assessed during the extended reunification period. We therefore do not know if the findings regarding the extended reunification period reflect the end of a process of convergence or if there were already no differences to begin with.

Fourth, our aim was to provide a detailed but straightforward overview of epidemiological trends in mental health in Germany since reunification. The chapter can thus be understood as a starting point for more in-depth research that focuses on specific mechanisms and processes explaining the differences between individuals in East and West Germany. For instance, to disentangle the effects of individual-culture (mis-)match and sociodemographic factors, future research could focus on first-generation migrants from the former USSR ("Eastern Bloc") states in Germany.

Authors' note

Appendixes mentioned in this chapter and additional supporting materials are freely available at www.routledge.com/9781032547763.

The study is part of the DDR-PSYCH project, which is funded by the Federal Ministry of Education and Research (BMBF; Grant no. 01UJ1911BY).

The data that support the findings are openly available in the repository of the German Socio-Economic Panel at http://doi.org/10.5684/soep.core.v38eu.

The authors have no conflict of interest to declare.

Notes

1 East and West Germany do not differ in all value dimensions. For instance, both parts of Germany share similar work values (Borg & Braun, 1996).
2 More information on the SOEP-CoV study can be found at www.soep-cov.de/.
3 A first-generation immigrant is defined as a person who is born in another country than his/her country of residence.

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3 Exploring the burden of past trauma in East Germany

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Introduction

After World War II (WWII), Germany was separated into two parts with opposing political systems—a capitalist Western part (Federal Republic of Germany [FRG]) and a socialist Eastern part (German Democratic Republic [GDR]), which were reunited in 1990. The socialist political system of the GDR offered various sources for potentially traumatic events (e.g., political persecution or abuse in "special homes" for children and adolescents) along with unfavorable conditions for healthy coping strategies. Such potentially traumatic events and especially the subsequent development of posttraumatic stress disorder (PTSD) have been shown to be associated with higher rates of objective and subjective physical and mental health problems. An East German sample is used to investigate the differences in subjective health complaints (SHCs) between persons without exposure to potentially traumatic events, and those who reported exposure without and with subsequent PTSD.

Exposure to potentially traumatic events in East Germany

As mentioned earlier, the political persecution under the regime of the Socialist Unity Party of Germany (Sozialistische Einheitspartei Deutschlands [SED]) constituted a well-known source of potentially traumatic events. Political opponents and dissidents were persecuted in order to enforce the interests of the former GDR—mainly through the Ministry for State Security. More than 300,000 people were imprisoned for political reasons in the Eastern part of Germany following WWII and throughout the existence of the GDR (i.e., from 1949 to 1989) (Frommer, 2002). Basic human rights were restricted on a social level (e.g., by impeding access to education, training, or employment) and on a legal basis (e.g., repeated threats of being interrogated or

DOI: 10.4324/9781003427469-4

imprisoned). Targeted persons were further intimidated by threatening to do the same to their close relatives. Furthermore, individuals were publicly humiliated and defamed in their social and work environment. Lastly, surveillance by the Ministry for State Security posed a constant threat (e.g., tracking of communication such as phone calls, mail, etc. and questioning persons of interest) (Fikentscher & Lukas, 1997).

Furthermore, living in so-called special homes was potentially traumatizing for many children and adolescents. There were 662 homes for minors in the GDR, which were divided into normal homes, special homes, and youth work yards; in these homes, 495,000 children and adolescents experienced potentially traumatizing events (Censebrunn-Benz, 2019). Particularly in special homes "coercion, violence, restriction of freedom, human rights violations, alienation, degrading punitive measures, and last but not least the denial of educational and developmental opportunities" were common (Censebrunn-Benz, 2019, p. 64). Indeed, children were systematically abducted and placed into these homes by the state (Schmole, 2015; Sommer & Seifert, 2021). After the abduction, it was nearly impossible for parents to retrieve their child from such a home and thus the experience would potentially have traumatic consequences for both children and parents.

Finally, the political system of the GDR did not offer appropriate conditions for coping with the potentially traumatic experiences associated with WWII. The rape of German women after the end of the war by the Soviet armed forces was well known. However, likely due to the close connection between the GDR and the Soviet Union, this represented a taboo subject (Poutrus, 1995). The GDR framed the end of the war as a "liberation," which did not allow a discussion about the trauma experienced in the context of the war and thus prevented successful coping by the victims (Poutrus, 1995). A similar problem was evident in dealing with the trauma of forced resettlement after the end of WWII. Affected individuals in the former FRG were recognized as "displaced victims," while in the GDR, they were labeled as the "resettled," that is to say they were not granted victim status (Ulke et al., 2021).

Health-related consequences of exposure to potentially traumatic events

The World Health Organization (WHO; 2019) defines a potentially traumatic event as ". . . a stressful event or situation (of either brief or long duration) of an exceptionally threatening or catastrophic nature, which is likely to cause pervasive distress in almost anyone." The experience of a potentially traumatic event can result in various psychological consequences, which can be characterized as specific (i.e., PTSD) and nonspecific (e.g., depression, anxiety, and substance use disorders) (Maercker & Hecker, 2016). Furthermore, studies also show an increased risk for physical health problems (Glaesmer et al., 2011; Spitzer et al., 2009).

Posttraumatic stress disorder

Exposure to potentially traumatic events does not always lead to PTSD, but there is evidence for a dose–response relationship (i.e., a higher number of potentially traumatic events are associated with an increased risk for PTSD; Neuner et al., 2004). Furthermore, the type of trauma plays an important role: There is a higher prevalence of PTSD following interpersonal (e.g., childhood sexual abuse, torture, or war experiences) compared to other types of potentially traumatic events (Nyberg, 2005). Maercker (2013) and Maercker and Hecker (2016) reported that sexual violence in adulthood had a 37–50% likelihood of a subsequent PTSD diagnosis, followed by child abuse at approximately 35%, and war experience with 25–38%. In a representative German epidemiological study, a similar picture emerged: Rape victims, followed by victims of child abuse, were most likely to develop PTSD (Maercker et al., 2008). These findings, however, ranked life-threatening illnesses in third place (Maercker et al., 2008), deviating from Maercker (2013) and Maercker and Hecker's (2016) ranking of war experiences in this position. A study by Maercker and Schützwohl (1997) examined the consequences of political imprisonment in the GDR: Of the 146 former prisoners interviewed, 30% currently suffered from PTSD.

Finally, the occurrence, development, and severity of PTSD are related to a variety of other preexposure (e.g., genetic and sociodemographic factors, prior mental illness), periexposure (e.g., biological stress regulation, initial psychological reaction, interpretation of the event), and postexposure factors (e.g., biological changes, persistent feelings of threat, acknowledgment as a victim) (Maercker & Hecker, 2016).

Further health-related consequences of the exposure to potentially traumatic events and PTSD

In general, exposure to potentially traumatic events is associated with poorer physical health. Dong et al. (2004) found a graded association between the number of adverse childhood experiences and the risk of ischemic heart disease. Scott et al. (2013) found that exposure to a higher number of traumatic life events was related to an increased likelihood of developing chronic physical health conditions (e.g., back and neck pain, diabetes, peptic ulcers, heart disease, chronic lung diseases).

An additional PTSD diagnosis further increases such health risks. Spitzer et al. (2009) found that people without any exposure to potentially traumatic events showed the lowest risk of physical illnesses (e.g., heart disease, chronic bronchitis, asthma), followed by those who reported exposure without PTSD, while people with a PTSD diagnosis had the highest risk. Another study with a population-based sample showed that a PTSD diagnosis was also associated with cardiovascular disease, cardiovascular risk factors, asthma, cancer, back pain, hearing loss, osteoporosis, stomach problems,

and thyroid disease (Glaesmer et al., 2011). This was confirmed by studies of populations with increased exposure to traumatic events. For instance, a study of Afghan war veterans showed that a PTSD diagnosis, compared to other mental disorders, was associated with a higher risk of the diagnosis of at least one autoimmune disease (O'Donovan et al., 2015). In a study with Southeast Asian refugees in Connecticut, a greater number of severe PTSD symptoms were found to be related to a higher prevalence of cardiovascular disease (Wagner et al., 2013). Norris et al. (2006) studied people in Mexico who were victims of a disaster and found that survivors' physical health was affected by the experience and that these health consequences were mediated by subsequent symptoms of PTSD.

In addition to these objective health indicators, some studies have examined associations of exposure to potentially traumatic events, PTSD, and subjective health indicators. A study by Ulke et al. (2021) comparing displaced and nondisplaced people in East and West Germany found higher scores of self-reported depressive symptoms in displaced East German persons while this difference was not statistically significant in West Germany. Weißflog et al. (2012) examined SHCs in people after political imprisonment in East Germany and found that, compared to the general population, this sample reported significantly more severe physical complaints in total and in all four categories that were surveyed (exhaustion, stomach complaints, aching limbs, and heart complaints). Additionally, a PTSD diagnosis was related to more somatic symptoms (Kuwert et al., 2015) as well as a greater number of SHCs and poorer subjective health (Kimerling et al., 2000; Wagner et al., 2013).

There are several mechanisms that can explain the link between the exposure to potentially traumatic events, PTSD, and health problems (Felitti, 2009; Gillock et al., 2005). On the one hand, there may be a long-term consequence of maladaptive coping behaviors, such as overeating, smoking, or drug use. On the other hand, the exposure to potentially traumatic events and PTSD is often accompanied by neurobiological changes, for instance, an overactivation of the hypothalamic-pituitary-adrenal (HPA) axis, resulting in increased levels of cortisol and chronic stress.

The current study and research questions

In summary, studies show that exposure to potentially traumatic events and PTSD occurs not only in particularly exposed groups, such as refugees (e.g., Wagner et al., 2013), but also in the general population (e.g., Hapke et al., 2006; Hauffa et al., 2011; Kuwert et al., 2015; Maercker et al., 2008; for a comprehensive overview regarding the prevalence of potentially traumatic events and PTSD in different German samples, see Appendix 3.1). Thus, investigating a population that has lived in a system that perpetuated an increased potential for exposure to potentially traumatic events is also of particular interest.

We draw from the Study of Health in Pomerania (SHIP), which was collected in a region of the former GDR. Spitzer et al. (2009) reported a high lifetime prevalence for exposure to potentially traumatic events, and the present work expands on this: The relationship with the presence of disease for this population has been established, demonstrating that PTSD further increases the risks for cardiovascular disease. Therefore, the goal of the present study is to examine whether there are also associations with SHCs. This is important, because objective findings of illness do not necessarily coincide with SHCs, which constitute an important predictor of health status and healthcare use over and above the effects of objective mental and physical health conditions (Tomenson et al., 2013).

Therefore, the following hypotheses were proposed: For individuals who reported experiencing a potentially traumatic event without the manifestation of PTSD, the

(H1) total SHC score,
(H2) burden regarding different types of SHCs, and
(H3) number of substantial complaints

are *lower* compared to individuals without exposure to a potentially traumatic event and *higher* in persons diagnosed with PTSD.

This study adds significant value by exploring the long-term psychological and physical health implications of potentially traumatic events in persons who have lived under an oppressive political regime, like the GDR, where exposure to traumatic events was not unlikely. By focusing on SHCs, the research provides unique insights into health problems beyond objectively diagnosable disorders.

Method

Data and sample

Anonymized data from the Study of Health in Pomerania (SHIP), a regional survey of the general adult population in northeast Germany, which was reviewed and approved by a local ethics committee, were used (Völzke et al., 2022). The panel, originally planned as a cross-sectional study from 1997 to 2001 (SHIP-START-0; N = 4,308), was then supplemented by several follow-up studies: SHIP-START-1 (2002–2006), SHIP-START-2 (2008–2012), SHIP-START-3 (2014–2016), and SHIP-START-4 (2019–2021) (Völzke et al., 2022).

For the present study, data from SHIP-START-1 and SHIP-START-2 were used because exposure to potentially traumatic events and PTSD were surveyed only in SHIP-START-1 and SHCs in SHIP-START-2. Additional data was taken from the associated "Life Events and Gene–Environment Interaction in Depression" study (SHIP-LEGEND; 2007–2010), comprising a subsample of SHIP-START-0 participants.

The following exclusion criteria were applied: individuals were excluded (1) if they did not participate in both survey time points (SHIP-START-1 and SHIP-START-2) (n = 2,085), (2) if they did not complete the SHC list (n = 9), and (3) if they indicated that they did not live in the GDR in 1989 (n = 41). As a result, the analyses were conducted with a sample of N = 2,173 respondents.

The sample consisted of 52.92% women, and the mean age was 51.90 years (SD = 13.54) (see Table 3.1). On average, participants reported 9.65 years of schooling (SD = 1.43), a household equivalent income (in euro) of 1,313.42€ (SD = 607.24), and the majority of the sample (78.40%) lived with their partner.

Measures

Trauma List & PTSD module of the SKID-I for DSM-IV

The trauma list was surveyed in SHIP-START-1. It contains 10 questions about events considered to be potentially traumatizing, for example, "Have you ever had a terrible experience while deployed to war?" Analogous to Spitzer et al. (2009), if participants answered yes at least once, they were assigned to the exposure to potentially traumatic events group; otherwise they were assigned to the no exposure group.

The PTSD module of the Structured Clinical Interview (SKID-I) for Diagnostic and Statistical Manual of Mental Disorders Fourth Edition (DSM-IV) (Wittchen et al., 1997) was used to determine PTSD diagnosis.[1] As such, lifetime exposure to a potentially traumatic events and PTSD diagnosis were considered in the current analyses.

Considering the presence or absence of a PTSD diagnosis, the exposure to potentially traumatic events group was divided into exposure without PTSD (n = 1,091) and exposure with PTSD (n = 32), so that, with the no exposure group (n = 1,050), three study groups were examined. The grouping variable was dummy-coded, and the exposure without PTSD was used as the reference group.

Subjective Health Complaints

The items concerning the SHCs were developed using the SHIP dataset and validated by Konerding et al. (2006). The complaints are nonspecific and cannot be assigned to a particular illness, and they can be of psychological or somatic nature (Horsfield et al., 2020). The respondents rated the individual complaints on a scale ranging from 1 (*not at all*) to 4 (*strongly*).

Following previous work (Brähler et al., 2008), the analyses examined three aspects of SHCs: (1) *Total SHC score:* For this, a total sum score was computed from the reported values of all 38 items (range: 38–152). (2) *SHC subscales:* Eight factors (see Appendix 3.2), which were determined by Konerding et al. (2006) using factor analysis, were used. Cronbach's alpha and

Table 3.1 Sociodemographic variables and frequencies for exposure to potentially traumatic and region-specific events in the total sample as well as by exposure group.

	Total (N = 2,173)	*Missing data*	*Group*			*p*
			No exposure (n = 1,050, 48.32%)	*Exposure without PTSD (n = 1,091, 50.21%)*	*Exposure with PTSD (n = 32, 1.47%)*	
Sex, *n* (%)						.156
Female	1,150 (52.92)	–	561 (53.43)	567 (51.97)	22 (68.75)	
Male	1,023 (47.08)		489 (46.57)	524 (48.03)	10 (31.25)	
Cohabiting partnership, *n* (%)						
No	463 (21.31)	6 (0.27)	186 (17.73)	262 (24.13)	15 (46.88)	<.001[a]
Yes	1,704 (78.42)		863 (82.27)	824 (75.87)	17 (53.13)	
Age, *M* (*SD*)	51.90 (13.54)	–	49.23 (12.48)	54.46 (14.00)	52.31 (14.57)	<.001[b]
Years of schooling, *M* (*SD*)	9.65 (1.43)	1 (0.05)	9.73 (1.34)	9.59 (1.51)	9.16 (1.11)	.004[c]
Household income (€), *M* (*SD*)	1,313.42 (607.24)	60 (2.70)	1,313.15 (602.62)	1,316.66 (607.91)	1,214.70 (734.35)	.645
Trauma list, *n* (%)						
War experience	167 (7.69)	2 (0.09)	–	163 (14.94)	4 (12.50)	.804
Physical violence	143 (6.59)	2 (0.09)	–	135 (12.37)	8 (25.00)	.051
Rape	28 (1.29)	2 (0.09)	–	25 (2.29)	3 (9.38)	.043
Childhood abuse	24 (1.11)	4 (0.18)	–	21 (1.92)	3 (9.38)	.027
Natural disaster	8 (0.37)	2 (0.09)	–	8 (0.73)	0 (0.00)	1.000
Serious accident	173 (7.97)	3 (0.14)	–	168 (15.40)	5 (15.63)	1.000
Prisoner, hostage, kidnapping	56 (2.58)	2 (0.09)	–	53 (4.86)	3 (9.38)	.403
Life-threatening disease	114 (5.25)	3 (0.14)	–	110 (10.08)	4 (12.50)	.763
Sudden death of a loved one	748 (34.45)	2 (0.09)	–	727 (66.64)	21 (65.63)	1.000
Witnessed trauma	179 (8.25)	4 (0.18)	–	172 (15.77)	7 (21.88)	.464

(*Continued*)

Table 3.1 (Continued)

	Total (N = 2,173)	*Missing data*	*Group*			*p*
			No exposure (n = 1,050, 48.32%)	*Exposure without PTSD (n = 1,091, 50.21%)*	*Exposure with PTSD (n = 32, 1.47%)*	
Region-specific events, *n* (%)						
Political persecution in the GDR	30 (1.39)	8 (0.36)	11 (1.05)	16 (1.46)	3 (9.38)	.004
Imprisonment due to political persecution[†]	12 (40.00)[d]	2,143 (98.62)	1 (0.09)	10 (0.92)	1 (3.13)	.018
Upbringing in children's home	44 (2.45)	378 (17.40)	19 (1.81)	25 (2.29)	0 (0.00)	.477
Victim of war	59 (3.31)	388 (17.86)	4 (0.38)	54 (4.95)	1 (3.13)	<.001
Displacement from home after WWII	192 (11.52)	507 (23.33)	81 (7.71)	108 (9.90)	3 (9.38)	.060

Note: [a] The post hoc test (*z*-test) shows significant differences between all three exposure groups. [b] The post hoc test (Games–Howell) shows significant differences between the no exposure and exposure without PTSD groups. [c] The post hoc test (Games–Howell) shows a significant difference for no exposure and exposure with PTSD. [†] Only persons who experienced political persecution in the GDR were asked to report on imprisonment due to political persecution. [d] Percentage was calculated related to persons who reported political persecution (*n* = 30).

McDonald's omega showed good to very good reliability for six of the eight SHC subscales. For the nausea/weight loss and temperature sensitivity scales, the values were less than acceptable. (3) *Substantial complaints:* A single complaint (item) was scored as a substantial complaint if it had been indicated as 4 (*strongly*). The number of substantial complaints was then computed (range: 0–38).

Sociodemographic and other life event variables

In addition to the trauma list, further life events relevant to the region were included for descriptive analyses from SHIP-START-1 (political persecution in the GDR and imprisonment due to political persecution) and SHIP-LEGEND (upbringing in children's home, victim of war, and displacement from home after WWII).

Sex is related to health complaints and PTSD, as women reported more health complaints than men (Horsfield et al., 2020) and were more likely to develop PTSD (Hapke et al., 2006). With increasing age, health complaints (Horsfield et al., 2020) and the number of traumatic events experienced also increase (Maercker et al., 2008). In addition, people with a higher household income and those with more than 10 years of schooling reported fewer SHCs (Horsfield et al., 2020). People living with a partner have lower morbidity (Joung et al., 1994). As a result, the following covariates were included in the statistical calculations because of their associations with SHCs, PTSD, and exposure to traumatic experiences: *sex* (reference group = male; SHIP-START-1), *age* (SHIP-START-1), *household equivalent income* (HHEI, SHIP-START-1),[2] *years of schooling*,[3] and whether or not the person *lives with a partner* (yes = married and/or living together [reference group]; no = single, living alone, divorced, or widowed; SHIP-START-2).

Statistical analysis

The analyses were performed using IBM SPSS Statistics (version 27; IBM Corp, 2020) and R (version 4.2.2; R Core Team, 2022). Descriptive statistics of covariates, trauma exposure, region-specific events, PTSD, and SHC items were performed after the division of the sample into no exposure, exposure without PTSD, and exposure with PTSD groups. For continuous variables, the means and standard deviations were calculated, while for categorical variables, the frequencies and percentages were calculated. Group differences were tested using analysis of variance (ANOVA) *F*-tests or Welch tests, chi-square tests, Monte Carlo method (MC) with 99% confidence interval and 10,000 samples, and post hoc tests.

Multiple hierarchical linear regression (HLR) models were calculated to examine the total SHC score (H1) and the SHC subscales (H2). HLRs were performed in two steps: First, sociodemographic variables that are associated with SHCs (block 1: sex, income, age, schooling in years, partner) were

simultaneously included, and, second, the two dummy variables for exposure group (block 2: no exposure, exposure with PTSD) were added to identify the share of explained variance (ΔR^2) above and beyond the sociodemographic variables. However, the requirements to perform HLRs were not met: The assumption of homoscedasticity was violated for all SHC scales and normal distribution of residuals was not given for the SHC subscales difficulty breathing, digestive problems, nausea/weight loss, and temperature sensitivity. Therefore, bootstrapping was performed with a confidence interval of 95% and 1,000 samples.

Because the number of substantial complaints in the three exposure groups (H3) is a count variable, HLR was not suitable to test this hypothesis. However, it was not possible to conduct Poisson regression for count data either because its prerequisites were not met—that is, a violation of the Poisson distribution was found (overdispersion; variance > mean) and the variable contained many zero counts (zero inflation). Therefore, a negative binomial regression was conducted as a more flexible method to model the number of substantial complaints. All variables (sociodemographic variables and exposure group) were entered simultaneously into the model.

Results

Descriptive analyses

In all three groups, the proportion of women was higher than the proportion of men, with the highest number of women in the exposure with PTSD group (68.75%; see Table 3.1). The no exposure group included the largest proportion of those living with a partner (82.27%), while the smallest proportion (53.13%) was found in the exposure with PTSD group. On average, the highest age of respondents was found in the exposure without PTSD group (M = 54.46, SD = 14.00). The exposure with PTSD group, on the other hand, reported the fewest years of schooling on average (M = 9.16).

The prevalence of exposure to potentially traumatic events without PTSD in the sample was 50.21%, and the prevalence of exposure with PTSD was 1.47% (see Table 3.1). The potentially traumatic event that was experienced the most was sudden death of a loved one (34.45%), followed by witnessing trauma, serious accident, war experience, physical violence, and life-threatening disease (5.25–8.25%). The potentially traumatic events experienced least frequently were imprisonment, hostage, or kidnapping, rape, childhood abuse, and natural disaster (0.37–2.58%). Physical violence, rape, and childhood abuse were reported significantly more often by individuals with PTSD than by individuals who experienced potentially traumatic events without PTSD (i.e., 2–4 times more likely).[4]

Next, events that are more relevant in the sample region, namely relating to the GDR system or post-WWII experiences, were examined. Political

persecution in the GDR and imprisonment due to political persecution were experienced significantly more in the exposure without PTSD group and even more frequently in the exposure with PTSD group. Being a victim of war and displacement from home after WWII were experienced significantly more in both the exposure without PTSD and exposure with PTSD groups.

The total SHC score as well as the number of substantial complaints significantly differed between the three groups, with the no exposure group reporting the lowest scores, followed by the exposure without PTSD and then the exposure with PTSD group (see Table 3.2). This was also the case for the SHC subscales of anxiety/depression, exhaustion, pain, and sensory disturbances of the extremities. The no exposure group also reported significantly lower difficulty breathing as well as nausea/weight loss than the other two groups. The exposure with PTSD group reported significantly more digestive problems and temperature sensitivity than the other two groups.

Table 3.2 Descriptive statistics of subjective health complaints in the total sample as well as by grouping variable.

	Total	*No exposure*	*Exposure without PTSD*	*Exposure with PTSD*	*(adjusted) F-test*	*p*
	M (SD)	*M (SD)*	*M (SD)*	*M (SD)*		
Total SHC score	63.48 (16.75)	61.62 (15.45)	64.63 (17.32)	85.16 (19.36)	29.51	<.001[a]
SHC subscales						
Anxiety/ depression	12.34 (4.37)	11.94 (4.09)	12.55 (4.48)	18.25 (5.14)	27.11	<.001[a]
Exhaustion	10.97 (3.79)	10.66 (3.59)	11.13 (3.88)	15.31 (4.36)	20.56	<.001[a]
Difficulty breathing	3.88 (1.44)	3.74 (1.29)	3.99 (1.51)	4.88 (2.51)	11.49	<.001[b]
Pain	8.62 (2.72)	8.40 (2.60)	8.76 (2.78)	11.22 (3.03)	19.90	<.001[a]
Sensory disturbances of the extremities	5.40 (2.27)	5.22 (2.13)	5.52 (2.37)	7.13 (2.52)	12.47	<.001[a]
Digestive problems	4.80 (1.75)	4.75 (1.65)	4.81 (1.81)	6.13 (2.04)	7.18	<.001[c]
Nausea/weight loss	2.51 (0.83)	2.45 (0.77)	2.55 (0.85)	3.03 (1.28)	6.81	.002[b]
Temperature sensitivity	3.14 (1.36)	3.06 (1.31)	3.19 (1.38)	4.00 (1.67)	6.95	.002[c]
Number of substantial complaints	1.20 (2.55)	0.88 (2.05)	1.37 (2.71)	5.44 (5.50)	21.02	<.001[a]

Note: [a] All three exposure groups differ significantly from each other. [b] The no exposure group differs significantly from the two other groups. [c] The exposure with PTSD group differs significantly from the two other groups. Differences were measured using ANOVAs. Paired post hoc comparisons with the Games–Howell or Bonferroni tests for "pain."

An overview of the associations of the central variables and covariates is found in Appendix 3.4.

Exposure to potentially traumatic events and subjective health

Total SHC score

The HLRs revealed that, compared to the exposure without PTSD group, the no exposure group reported a significantly lower and the exposure with PTSD group reported a significantly higher total SHC score (see Table 3.3). The group variable additionally explained 2.6% of the total variance. For more comprehensive results, see Appendix 3.5.

SHC subscales

The results of the HLRs for the eight SHC subscales are shown in Table 3.4 (see also Appendix 3.6).

Table 3.3 Hierarchical linear regression of total SHC score on group.

	Unstandardized coefficients			*Model test*		
	B	*LB*	*HB*	F^a	*Adj.* R^2	ΔR^2
No exposure	–2.07**	–3.52	–0.70	33.42	.097***	.026***
Exposure with PTSD	19.56***	12.58	26.90			

Note: ** p <.01, *** p <.001. Reference category: exposure without PTSD; LB/HB = lower/higher bound of 95% confidence interval; covariates: sex, income, age, schooling in years, partner; ΔR^2 refers to change in explained variance due to the introduction of group (step 1: covariates, step 2: covariates + group); [a]df = 7 (2,099).

Table 3.4 Hierarchical linear regression of the eight SHC subscales on group.

	Unstandardized coefficients			*Model tests*		
	B	*LB*	*HB*	F^a	*Adj.* R^2	ΔR^2
Anxiety/depression						
No exposure	–0.61**	–0.98	–0.26	22.01	.065***	.030***
Exposure with PTSD	5.44***	3.72	7.15			
Exhaustion						
No exposure	–0.38*	–0.67	–0.05	15.19	.045***	.021***
Exposure with PTSD	4.03***	2.49	5.69			
Difficulty breathing						
No exposure	–0.13*	–0.25	–0.02	30.26	.089***	.007***
Exposure with PTSD	0.81	–0.06	1.71			

(*Continued*)

Table 3.4 (Continued)

	Unstandardized coefficients			*Model tests*		
	B	*LB*	*HB*	F^a	*Adj.* R^2	ΔR^2
Pain						
No exposure	–0.29**	–0.50	–0.06	23.61	.070***	.014***
Exposure with PTSD	2.26***	1.50	3.36			
Sensory disturbances of the extremities						
No exposure	–0.11	–0.29	0.09	32.31	.094***	.008***
Exposure with PTSD	1.52***	0.69	2.44			
Digestive problems						
No exposure	–0.04	–0.20	0.10	8.40	.024***	.008***
Exposure with PTSD	1.27**	0.56	1.99			
Nausea/weight loss						
No exposure	–0.08*	–0.15	–0.01	8.59	.025***	.008***
Exposure with PTSD	0.44	–0.02	0.94			
Temperature sensitivity					.	
No exposure	–0.03	–0.14	0.09	28.24	.083***	.005**
Exposure with PTSD	0.78**	0.19	1.35			

Note: * p <.05, ** p <.01, *** p <.001. Reference category: without PTSD; LB/HB = lower/higher bound of 95% confidence interval; covariates: sex, income, age, schooling in years, partner; ΔR^2 refers to change in explained variance due to the introduction of group (step 1: covariates, step 2: covariates + group); [a]df = 7 (2,099).

Compared to individuals who reported a potentially traumatic event but did not develop PTSD, individuals who did not experience a potentially traumatic event reported significantly lower while persons who also developed PTSD reported significantly higher subjective burden on three subscales: anxiety/depression, exhaustion, and pain.

The group who had not experienced potentially traumatic events also reported significantly lower subjective burden on the two SHC subscales difficulty breathing and nausea/weight loss. Significantly higher subjective burden, however, was reported by the exposure with PTSD group on the three subscales of sensory disturbances of the extremities, digestive problems, and temperature sensitivity.

All other group effects were nonsignificant. Overall, adding exposure without or with PTSD explained a significant share of variance for all eight subscales, with the highest values for anxiety/depression (3.0%), exhaustion (2.1%), and pain (1.4%), whereas the percentages were below 1% for all other subscales.

Number of substantial complaints

The negative binomial regression showed that persons who had no exposure to a potentially traumatic event reported about 30% less substantial

Table 3.5 Negative binomial regression of the number of substantial complaints on group.

	Unstandardized coefficients			*Model test (likelihood ratio)*	
	IRR	*LB*	*HB*	χ^{2a}	*df*
No exposure	0.70***	0.62	0.80	275.65**	7
Exposure with PTSD	4.04***	2.74	5.97		

Note: ** p <.01, *** p <.001. Reference category: exposure without PTSD; IRR = incidence rate ratio; LB/HB = lower/higher bound of 95% confidence interval; covariates: sex, income, age, schooling in years, partner; [a] Wald χ^2 test. Covariates: sex, income, age, schooling in years, partner.

complaints than persons who had experienced potentially traumatic events without developing PTSD (see Table 3.5 and Appendix 3.7, for more comprehensive results). In contrast, persons with PTSD reported about four times more substantial complaints than persons who had experienced potentially traumatic events without developing PTSD.

Discussion

This study examined the association of SHCs (i.e., total SHC score, types of SHC, number of substantial complaints) with exposure to potentially traumatic events with and without subsequent PTSD in an East German population sample. This sample was ideal for this study due to the increased potential for exposure to potentially traumatic events many of these citizens faced due to the system they formerly lived in. As predicted, exposure to potentially traumatic events and the manifestation of PTSD were associated with more health complaints, as well as individual types of SHC and the number of substantial complaints.

Exposure to potentially traumatic events, PTSD, and subjective health complaints

Potentially traumatic experiences without the manifestation of PTSD were associated with a greater total SHC score, a significantly higher level for five of the eight types of SHC (i.e., anxiety/depression, exhaustion, pain, difficulty breathing, and nausea/weight loss) and a higher number of substantial complaints in comparison to no exposure to potentially traumatic events. Individuals with PTSD reported an even higher total SHC score and a higher number of substantial complaints than those who experienced a potentially traumatic event without developing PTSD. Furthermore, they reported significantly higher levels of anxiety and depression, exhaustion, pain, as well as additional somatic symptoms—that is, sensory disturbances

of the extremities, digestive problems, and temperature sensitivity. Overall, the share of explained variance due to exposure to potentially traumatic events with or without PTSD was highest for anxiety/depression, exhaustion, and pain.

These results are in line with previous research focusing on the distinct associations of traumatic events and PTSD with physical health and SHCs (Kimerling et al., 2000; Kuwert et al., 2015; Scott et al., 2013; Spitzer et al., 2009; Wagner et al., 2013; Weißflog et al., 2012). Similar to the results of this study, experiencing potentially traumatic events was shown to be associated with more health complaints. Scott et al. (2013) found weak associations between traumatic life events and subsequent chronic physical complaints in adults comparable to the size of the effects in this study. People who had been victims of political imprisonment, and thus had experienced a traumatic event, had been shown to report more severe SHCs compared to the general population (Weißflog et al., 2012). The study by Spitzer et al. (2009), using SHIP data and the study by Kuwert et al. (2015) based on patients of general practitioners, demonstrated that developing PTSD after experiencing a traumatic event constitutes an additional health burden similar to the results of the present study: Individuals reporting traumatic experiences without developing PTSD reported more physical health complaints and had more physical illnesses than people without traumatic experiences, but those who did develop PTSD had an even higher burden of physical health problems than persons with trauma experience without subsequent PTSD. This was also found in studies with trauma-exposed samples (Kimerling et al., 2000; Wagner et al., 2013). Kimerling et al. (2000) found that PTSD symptoms were related to severe physical health impairments—in the form of global health perceptions and specific physical symptoms. Wagner et al. (2013) found a correlation between PTSD and self-reported health complaints, as well as poorer subjective health, a finding also confirmed by the results of the present study.

All types of SHC that did not differ significantly between persons without potentially traumatic experiences, and those who experienced potentially traumatic events without developing PTSD (sensory disturbances of the extremities, digestive problems, and temperature sensitivity) can be classified as physical symptoms according to Klinger-König et al. (2018). However, the level of these complaints was significantly higher for persons with PTSD compared to those who experienced potentially traumatic events without developing PTSD. On the other hand, for example, difficulty breathing was significantly more pronounced in persons who experienced potentially traumatic events without developing PTSD than those who did not experience any traumatic event but it did not differ from the group with PTSD. A possible explanation for these differences could be that the respective groups have different, comorbid physical illnesses, and the symptoms of these illnesses correspond to the subjective complaints. According to Brähler and Scheer (1984), these would be individuals where the objective and subjective

complaints coincide. As described earlier, many studies found an association of exposure to potentially traumatic events or PTSD with physical illness: For instance, Spitzer et al. (2009) found that people with PTSD had higher risks for angina pectoris and heart failure than people who had experienced traumatic events but did not develop PTSD. Overall, the results indicate that persons with PTSD are at a greater risk for developing physical health problems than those exposed to traumatic events without PTSD.

Strengths and limitations

A strength of this study is the large sample size (N = 2,173) and that the sample was not a specific trauma-exposed group, such as war veterans, but represented a cross section of the population in West Pomerania (East Germany) who lived in the former GDR. In addition, PTSD diagnoses were given in accordance with the standards of the DSM-IV by the corresponding SKID module, which allows comparison with other studies. Additionally, only participants who had indicated that they had lived in East Germany in 1989 were selected. Therefore, they most likely grew up in the former GDR, because internal migration from West to East Germany was rare before the reunification in 1990.

Although the present study has several strengths, some aspects may limit the generalizability of the findings. First, the data do not provide a clear picture of what proportion of the traumatic experiences was in fact due to the GDR regime. Thus, the high trauma prevalence being due to the former GDR is one possible explanation and requires separate investigation. Furthermore, the sample was recruited exclusively in the region of Western Pomerania, which is not representative for the whole former GDR: Western Pomerania is a rural region with small towns, while other Eastern German federal states include large cities such as Berlin, Leipzig, and Dresden. Additionally, selection effects due to dropout or nonresponse from the baseline (SHIP-START-0) to the two follow-ups (SHIP-START-1 and SHIP-START-2) cannot be ruled out. Those who were more exposed to traumatic events and suffered more strongly from health-related consequences, especially PTSD, may be less likely to have participated in the follow-ups, which potentially reduced the statistical power to find significant effects for this group.

Regarding PTSD, it should be noted that the diagnosis was not made according to the more current DSM-V, but with the previous version (DSM-IV). This was because the PTSD module of the SKID-I for DSM-IV (Wittchen et al., 1997) was used in SHIP-START-1. Although the differences are small, (i.e., removal of the event criterion in DSM-V), SHIP did not take the DSM-VI time criterion into account (i.e., symptoms lasting more than one month), potentially leading to the erroneous classification of persons into the exposure group with PTSD. Furthermore, the group of persons with PTSD encompassed only 32 individuals, which may have affected the statistical power while the nonsignificant effects for difficulty breathing and nausea/

weight loss may have been underestimated. It is, however, remarkable that the associations with the total SHC score, the other types of SHC, and the number of substantial complaints were statistically significant.

Furthermore, the SHCs were not measured with an established instrument such as the Subjective Complaints List (GBB-24) (Brähler et al., 2008; Brähler et al., 2000), but with the SHC items that were created for the SHIP. The eight complaint groups were defined following the results of a factor analysis with an orthogonal varimax rotation with the SHIP data (Konerding et al., 2006). Although low reliabilities for two types of SHC were found, the total SHC score showed high internal consistency.

Finally, the data for SHCs were taken from SHIP-START-2 (2008–2012), whereas the PTSD diagnosis was made using SHIP-START-1 (2002–2006). Changes may have occurred in the years between the SHIP-START-1 and SHIP-START-2 surveys: For example, people in the no exposure group may have experienced a traumatic event and may have developed PTSD. These changes may have had an impact on SHCs. On the other hand, it may be precisely these intervening years that are crucial for detecting a longer-term effect of PTSD or trauma in general on SHCs.

Conclusion and outlook

In this study, associations were found between subjectively perceived health complaints with exposure to potentially traumatic events with and without subsequent PTSD. It was shown that people exposed to potentially traumatic events with and without subsequent PTSD reported higher levels for the total SHC score, all types of SHC, and a larger number of substantial complaints than people without exposure to potentially traumatic events. The greatest total SHC score as well as the highest scores for six of the eight SHC types (anxiety/depression, exhaustion, pain, sensory disturbances of the extremities, digestive problems, and temperature sensitivity) were found in people who had experienced potentially traumatic events and developed PTSD. The number of substantial complaints was also greatest for this group.

Further studies should be conducted in other regions of the former GDR as well as comparatively between East and West Germany to ensure generalizability of the results and clarify their association with the prevalence of potentially traumatic events. Future research should also address the question of a dose–response relationship between exposure to traumatic events and the occurrence of SHCs. Larger samples of people with exposure to potentially traumatic events and PTSD should be examined. Additionally, future studies should use the current diagnostic criteria of the DSM-V and pay particular attention to ensuring that all criteria are also surveyed in order to provide more accurate and potentially comparable results.

The findings of this study may not only be important for research, they can also contribute to a more comprehensive understanding of the clinical picture of people with potentially traumatic experiences and PTSD in practice.

Previous research found an association of potentially traumatic events and PTSD with physical illness, and the present study also found an association with SHCs. Based on a broad sample, it was shown that this finding applies not only to particularly exposed groups (e.g., war veterans) but also to the general population in Western Pomerania. For general practitioners and psychotherapists, this knowledge may allow for a more targeted treatment of their patients. Patients with a diagnosis of PTSD can be screened for subjective complaints and be provided with psychoeducation regarding nonorganic complaints.

Authors' note

Appendixes mentioned in this chapter and additional supporting materials are freely available at www.routledge.com/9781032547763.

The study is part of the DDR-PSYCH project, which is funded by the Federal Ministry of Education and Research (BMBF; Grant no. 01UJ1911DY). SHIP is part of the Community Medicine Research net of the University of Greifswald, Germany, which is funded by the Federal Ministry of Education and Research (BMBF; Grant nos. 01ZZ9603, 01ZZ0103, 01ZZ0701 and 01ZZ0403), the Ministry of Cultural Affairs, and the Social Ministry of the Federal State of Mecklenburg West Pomerania. SHIP-LEGEND was funded by the German Research Foundation (DFG; GR 1912/5–1).

Data to support the results of this study are available from the Institute of Community Medicine, University of Greifswald at the Transfer Unit for Data and Biomaterials and can be accessed following an application (https://transfer.ship-med.uni-greifswald.de/FAIRequest/; email: transfer@uni-greifswald.de).

The authors thank Henriette Franz and Elisa Rosenkranz for their contributions to proof reading and conducting additional analyses.

HJG has received travel grants and speakers' honoraria from Fresenius Medical Care, Neuraxpharm, Servier, and Janssen Cilag as well as research funding from Fresenius Medical Care. GS has received speakers' honoraria from Lundbeck.

Notes

1 The PTSD module was conducted when at least one question on the trauma list had a "yes" response. A number of symptoms are surveyed—that is, those that are also used as diagnostic criteria in the DSM-IV. Following Spitzer et al. (2009), the diagnosis of PTSD was given if the following criteria were met: the event criterion (A) and the symptom criteria re-experiencing (B), avoidance or restriction of responsiveness (C), and increased arousal level (D). As in Spitzer et al. (2009), the time criterion (E)—duration of symptoms B, C, and D for more than one month—was not used because data were not available.

2 Here, an average value was calculated for the respective categories, which was then divided by the number of other persons living in the household and the person examined. A correction of the average values was made in each case for the lowest category by 1/3 downward and for the highest category by 1/3 upward.

3 This was recorded as a numerical specification in SHIP with the item: "How many years did you go to school?" (excluding vocational school, technical college, and university).
4 For a comparison with other German studies, see Appendix 3.3.

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4 Disentangling age, period, and cohort effects shaping suicidal ideation in East and West Germany

An analysis of representative survey data spanning 18 years

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Background

Suicidal thoughts and behaviors (STBs) are pressing mental health issues around the world. In Germany, approximately 10,000 people die by suicide each year (Statistisches Bundesamt, 2022). Not only is every suicide death a tragedy of its own but it also affects, on average, more than 130 other people who knew the victim (Cerel et al., 2019). This number highlights how suicidal crises are interwoven with social relationships.

The notion of the fundamental importance of social connectedness is a cornerstone of both the earliest and the most recent theoretical conceptions of risk and protective factors for STBs over the life span: At the end of the 19th century, Émile Durkheim analyzed statistics from several European countries that were directly or indirectly related to suicide death rates. His seminal work *Le suicide* (Durkheim, 1897) examined both societies in a historical context concerning their basic structural features and individuals and their behavior in illustrative case studies. Durkheim distinguished different types of suicide (egoistic, altruistic, and anomic suicide). In all cases, the cause is to be sought in the relationship of the individual with the wider society. It was in this context that Durkheim coined the important term "*anomie*." According to its Greek origin *anomía* (ἀνομία), anomie could be translated as lawlessness, normlessness, or disorder. Durkheim used it as a descriptor of the state of the individual or a group lacking social ties. By means of the example of suicide, he stated that feelings of solidarity and social connectedness are literally vital in the sense that individuals cannot endure a life without them.

Highly influential newer conceptions of suicide risk take up this thought: Within the context of the interpersonal theory of suicide (Van Orden et al., 2010), thwarted belongingness refers to the impression of being alienated from others or not being part of a valued group (such as a family or circle of

DOI: 10.4324/9781003427469-5

friends). Furthermore, within the integrated motivational–volitional (IMV) model of suicide (O'Connor & Kirtley, 2018), thwarted belongingness and also protective factors such as social support are conceptualized as motivational moderators, that is, variables that determine whether suicidal thoughts emerge in a situation of dire distress in the motivational phase (e.g., O'Connor & Kirtley, 2018; Van Orden et al., 2010). This phase is distinct from the volitional phase in which suicidal behavior is observed and which is furthermore shaped by a distinct set of risk and protective factors ("volitional moderators" comprising, e.g., the access to means).

Both models are empirically well-supported, and a comprehensive meta-analysis attested to the relevance of social factors as a broad category of risk and protective factors, including, for example, isolation and also family cohesion/difficulties (Franklin et al., 2017). Hence, in the scientific approach to STBs, factors outside of the individual must be considered as well.

Unfortunately, research focusing on clinical populations/individuals at high risk of STBs often does not place them in the larger social and temporal context. The latter would include regional differences as well as changes over time, for instance, through major crises. While their downstream effects might be addressed on the individual level, for example, in terms of poverty or unemployment (Amiri, 2021), this individualized approach disregards possibly relevant societal perspectives. In contrast, the effects of profound societal changes on suicide rates were already the focus of Durkheim's theory of anomie as it described rising suicide rates resulting from the social division of labor developing in the early industrialism (Durkheim, 1893/1964). It could be argued that both the reference to the onset of industrialization and the assumption of a moral orientation that transcends society (as the main driver of or protective factor against suicide, respectively) seem outdated today. However, contemporary structural principles of modern societies still map onto the concept of anomie, for example, the unequal distribution of socioeconomic resources and societal trends toward individualization and singularization, both of which could be drivers of mental distress. At the same time, many modern empirical studies investigating changes over time regularly lack information about the nature of the social integration of the individual, for example, in terms of living situation or marital status, if the smallest unit analyzed is the country (Alicandro et al., 2019) or region (Santana et al., 2015).

Against this backdrop, it becomes apparent that there is a paucity of original investigations addressing STBs from a multilayered perspective. Conceptually, the life course cube model (Bernardi et al., 2019) is a suitable modern framework to better understand this interplay of individual and contextual factors over the life span. It comprises three dimensions—life domains, levels of analysis, and time. The life domains refer to different contexts such as work, family, or education, which of course are also interconnected. Different levels of analysis refer to the inner-individual (e.g., values and attitudes, but also medical-biological individual differences), individual-action

(describing outcomes and achievements of the individual in interaction with their environment, such as the level of education), and the supraindividual level (referring to greater sociocultural environments the individual finds themselves in and interacts with). Lastly, the time dimension described interdependencies between the individual and their life course's past, present, and future. Thus, the multifaceted model is ideally suited to integrate research perspectives located at different levels and focusing on different domains, such as psychological and sociological ones, both of which have previously made important contributions to the understanding of suicide risk, as it describes how a person's development is the result of the multilevel interdependence of the life course. Importantly, it also attributes an active role to the individual (through their interactions with others across their individual life courses) which, besides all the other influencing factors the model acknowledges, underscores their agency.

Especially with regard to Germany, the lack of empirical approaches to STBs that consider both the individual and higher levels, as well as the time dimension, constitutes a research gap because there have been and there still are important regional differences within Germany. First, suicide rates are consistently higher in the Eastern than in the Western federal states (Statistisches Bundesamt, 2022), with currently highest rates in Saxony (14/100,000 inhabitants) and lowest in North Rhine-Westphalia (7.4/100,000). Similar differences were recently observed for loneliness, a well-established risk factor for suicidal thoughts as well as behaviors (McClelland et al., 2020) and a construct with conceptually close relations to anomie. Self-reported feelings of loneliness showed a substantial geographical gradient with above-average values in all of Eastern Germany and the highest values in the North-East (Buecker et al., 2020). Differences between East and West Germany also relate to further risk and protective implicated in STBs, such as wealth and income (e.g., Kasinger et al., 2022), family structure and cohesion (Raab, 2017), or the work biography of men and women (Struffolino et al., 2016). Importantly, these factors do not only vary between regions (in Germany), but they are also subject to general changes over time including demographic, economic, and general-societal "megatrends" (Naisbitt & Bisesi, 1983) spanning several decades. These profound societal disruptions relate to advancing digitalization and globalization, an aging society, more mobility, and the decline of the significance of "traditional" lifestyles and life goals. For instance, we observe an extension of developmental phases in the sense of emerging adulthood (Arnett, 2014), which now stretches into life phases that were previously deemed middle adulthood, with individuals taking longer to reach occupational stability and enter committed relationships. In addition to these overarching trends, major crises/times of upheaval can also have effects that become apparent more rapidly (e.g., income losses in the context of the COVID-19 pandemic; Holst et al., 2020). It is therefore beneficial to also consider the temporal component in analyses, especially against the unique context of the German separation and reunification, which caused

extremely different socialization processes and living conditions between the former East and West Germany. A differentiation of time as historical time versus ontogenetic time (i.e., time over the life span of a person) and their interdependencies is best achieved by disentangling three kinds of effects: First, there are influencing factors of the *period*, meaning the times people live through. With regard to Germany, in recent decades, we saw an economic crisis (2009), the so-called refugee crisis (2015/2016) and most recently, the ongoing COVID-19 pandemic (2020–). Second, *age* plays a role in the sense of a modifier of risk and resilience over a person's life span (in the sense of within-person differences). For instance, we have learned that high-risk periods for suicide attempts concern, in particular, (late) adolescence, with a peak around 25 years of age (Turecki et al., 2019), whereas suicide deaths are most common among older individuals (Statistisches Bundesamt, 2022). Lastly, the effects of the *cohort* include unique socialization effects of a group of individuals as they move across time. These socialization effects are related to people's upbringing and life experiences (e.g., high-impact historical events) and contribute to a persons' mental health. For example, individuals from the oldest birth cohorts who experienced World War II (WWII) might still suffer from mental health problems related to war-related experiences 50 years after the end of the war (Fischer et al., 2006), especially since war-related traumatic events are highly connected to depressive symptoms (Glaesmer, 2014; Glaesmer et al., 2012).

Another cohort that might be especially suffering from mental health problems due to a high-impact historical event is the cohort actively experiencing the German separation and reunification, which caused extremely different living conditions and future perspectives between inhabitants of the former East and West Germany. One could therefore assume that mental health problems including suicidal ideation are more frequent among the older birth cohorts compared to the younger birth cohorts.

Researchers have previously employed age-period-cohort (APC) analyses to investigate fluctuations in suicide rates in other countries such as Russia (Jukkala et al., 2017), Turkey (Dogan et al., 2019), Korea (Park et al., 2016), Japan (Odagiri et al., 2011), and Australia (Snowdon & Hunt, 2002). All of these investigations found that suicide risk increased with higher age, but that period and/or cohort effects shaped suicide risk as well and that the different effects could also differ in women compared to men. For instance, for Hong Kong and Taiwan, both age effects (in the sense that suicide risk increased with higher age) and period effects were found, but cohort effects were only confirmed among men (Y.-Y. Chen et al., 2021). Fluctuations in China's suicide statistics could also be tied to major historical events (X. Chen et al., 2019) and researchers have warned of rising rates, especially among the young, in connection with the country's continuing development. An earlier study from Switzerland (Ajdacic–Gross et al., 2006) also showed that period-specific effects followed economic cycles. Furthermore, the risk of suicide also increased with age, and the overall risk was lower in cohorts

born before WWII. To the best of our knowledge, there are no corresponding analyses of suicide risk, suicidal ideation, or behavior (e.g., suicide attempts) over time based on German population data. Also, in the case of the Swiss study (which, out of all cited investigations, could be assumed to be the most comparable with the German context), the underlying data collection ended in the year 2000.

Furthermore, respective analyses regarding suicidal *thoughts* (rather than behaviors/deaths) in the general population are scarce, although they would be especially relevant to stratify prevention efforts. An exception using the US-American National Survey on Drug Use and Health (NSDUH) is a recent study by Twenge et al. (2019), who reported cohort effects of higher rates of mood disorders and STBs among those born in the late 1990s compared to older millennials.

Lastly, there are only a few empirical studies explicitly referencing Durkheim's theory (Graeff & Mehlkop, 2007; Hodwitz & Frey, 2016) and, to our knowledge, none that apply newer conceptualizations, such as the life course cube model, to investigate the complex interacting factors shaping suicide risk. The present work aimed to close this research gap by employing a multilayered, theoretically grounded analysis of reports of suicidal ideation in East and West Germany using HAPC analyses.

Methods

Survey method and participants

The present work combines data from seven individual surveys of representative samples (with regard to age, gender, and level of education) of the German population spanning the years 2003–2021. Taken together, it includes responses from N = 17,542 participants who were surveyed in their homes by trained interviewers.

Applied eligibility criteria were an age of at least 14 years and a sufficient understanding of the German language. Before interviews started, all potential participants were informed of the aims of the respective survey, method of data collection, and handling of data including data privacy and anonymity in responses. They then provided informed consent. Minors gave informed assent, and informed consent was given by their parents or legal guardians. Sociodemographic information was collected in face-to-face interviews. Further information was gathered in written form (pen and paper) as part of a set of standardized questionnaires that were handed out together with a sealable envelope. All responses were anonymous. We excluded participants with missing values on suicidal ideation and incomplete birth date information.

All surveys were coordinated and conducted by the independent demographic consulting company USUMA (based in Berlin, Germany). Participants were chosen via a random-route procedure. Individuals in multiperson

households were randomly selected using a Kish Selection Grid (Kish, 1949). The study was conducted in accordance with the Declaration of Helsinki and fulfilled the ethical guidelines of the International Code of Marketing and Social Research Practice of the International Chamber of Commerce and of the European Society of Opinion and Marketing Research.

All surveys were carried out in the summertime, with minor deviations as the surveys in 2019 and 2020 took place from springtime until the beginning of summer. The surveys generally achieved relatively high participation rates of over 40% (e.g., 42.6% in the latest included survey).

Data

Sociodemographic data included individuals' birth year and their age at the time of the survey, gender, equivalent household income (dividing the monthly net household income by the square root of the number of persons in the household), level of education, whether they lived alone or in a shared household, whether they lived in East or West Germany, and their marital status.

We assessed suicidal ideation with the item "Over the past two weeks, how often have you been bothered by thoughts that you would be better off dead or of hurting yourself in some way?" included in the widely used depression module of the Patient Health Questionnaire (PHQ-9) (Kocalevent et al., 2013; Lowe et al., 2004). The PHQ-9 captures depression symptoms in line with the DSM-V criteria. Participants are asked to report the occurrence of their respective thoughts over the course of the last 14 days. Response options range from 0 (*not at all*) to 3 (*nearly every day*).

Data harmonization and recoding

For use in analyses, some of these variables were recoded in comparison to how they had originally been assessed to ease interpretation: Level of education was coded as general (up to 10 years) versus high education (more than 10 years of education).

We also differentiated two categories of marital status: Those who were married at the time of the survey and those who were not married. Furthermore, information about the number of individuals living in the same household was used to create the categories of living alone versus living in a shared household.

Along these lines, we also assigned individuals to cohorts based on their year of birth. There are different approaches to dividing birth years into generations, and they differ between East and West Germany. For East Germany, researchers often follow the categorization proposed by Ahbe and Gries (2006). For West Germany, a more suitable allocation of birth years to generations was developed by Klimczuk (2015). In the present work, we aimed to create cohorts that represent both East and West Germany in an adequate

way, which is why we drew from both approaches and divided birth years into five groups: The first group was comprised of study participants who had been born before 1946. They were labeled the pre-WWII generation. The second defined generation spanned the birth years from 1946 until 1959. This group represented the integrated generation and the baby boomers. In the third group, whose birth years ranged from 1960 to 1969, the unrestricted/unlimited generation and a part of Generation X were included. The birth years from 1970 until 1980 made up the fourth group, which included survey participants who had been children at the time of the existence of the former German Democratic Republic and who had experienced the united Germany as adults. Lastly, the fifth group included participants who had been born after 1980, representing Generation Y. To summarize, the present study differentiated five birth cohorts (born: <1946, 1946–1959, 1960–1969, 1970–1980, >1980). The groups contained approximately equal numbers of participants.

The suicidal ideation item of the PHQ-9 was recoded into a binary variable in order to report prevalence rates of suicidal ideation for the different cross-sectional surveys. This was done in line with previous research (Otten et al., 2022): "Not at all" responses of individuals when reporting suicidal ideation were given the label "no suicidal ideation" (coded 0) and responses of individuals reporting any frequency of suicidal ideation (options 1–3 in the PHQ-9) were combined under "suicidal ideation" (coded 1).

Statistical analyses

All analyses were performed in R version 3.6.3 (R Core Team, 2023). In the following, sample characteristics are presented as mean values and standard deviations or as proportions and frequencies, respectively.

In order to test whether age, time period, and birth cohort affect suicidal ideation, HAPC analyses were conducted using the continuous outcome variable for suicidal ideation. All APC analyses are impeded by the theoretical and mathematical perfect collinearity between age, period, and cohort. As a solution, Yang and Land (2008) proposed multilevel modeling on repeated cross-sectional data in which age and age^2 are included as fixed effects, whereas cohort and period are included as random effects. However, the HAPC method could still be biased; that is, results may be a consequence of the data structure (Bell & Jones, 2018). In order to allow for a simultaneous estimation of the APC effects, strong assumptions about the nature of the data have to be made that cannot be tested directly (Bell, 2020). This is especially a problem when it comes to near-linear trends in the random part of the model. As we expected a decrease in suicidal ideation over the birth cohorts, we included cohort additionally in the fixed part of our models.

The HAPC models were fitted using the *lmer* function within the *lme4* package (Bates et al., 2015) in R. In our first model (M1), age, age^2, cohort (as fixed and random effect), and period (as random effect) were tested. Age^2 was

significant and therefore remained in this and the other models. Hereafter, the main predictor variable living in East or West Germany was additionally included in the model (M2). In the third and last model (M3), sociodemographic and socioeconomic covariates were added. To assess the significance of random period and cohort effects, the fit of models without each of these terms was compared with the fit of the complete model (Dobson et al., 2020; Yang & Land, 2013). Furthermore, for all models, marginal and conditional R^2 for explained variance was reported.

Lastly, because estimates from the HAPC models with unequal intervals for age, year, and cohort may depend on the width chosen for these intervals (Luo & Hodges, 2016), we performed a robustness test to control our cohort classification. We tested our three models using a five-year grouping variable of birth cohorts and compared the model fits with our reported models. The models with the alternative cohort variable did not fit the data better.

Results

Sample description

Data were based on seven cross-sectional surveys, conducted in 2003, 2007, 2008, 2011, 2012, 2019, and most recently in 2020. The sample included a total of 17,542 participants; sample sizes were comparable across measurement points, ranging from 2,492 in 2008 to 2,542 in 2011. The proportion of women in the sample was constant at around 53%, with the lowest in 2008 (n_{women} = 1,304; 52.3%) and highest in 2003 (n_{women} = 1,377; 55.0%). Approximately 20% of the participants lived in East Germany at the time of the respective surveys.

The mean age ranged from 45.98 years (*SD* = 17.77) to 49.58 (*SD* = 18.16) in the respective surveys, which is comparable to the other survey years. From 2003 to 2012, the proportion of married participants remained constant around 50%, while in the last two survey years, it fell below 50% (2019: n_{married} = 1,162, 46.2%; 2020: n_{married} = 1,046, 41.9%). Approximately 30% of the participants reported living alone at the time of assessment. The household equivalent income increased with the survey years, from a mean income of 1,260.35 (*SD* = 611.94) in 2003 to a mean income of 1,925.05 (*SD* = 879.59) in 2020. The proportion of participants who reported any suicidal ideation varied across the survey years, ranging from 5.5% in 2012 to 9.7% in 2019. The mean of the frequency of reported suicidal ideation also varied across the survey years, ranging from 0.06 (*SD* = 0.28) in 2012 to 0.13 (*SD* = 0.45) in 2020. The detailed participant characteristics can be found in Table 4.1.

The 17,542 participants were divided into the following seven age groups: below 25 years, 25–34, 35–44, 45–54, 55–64, 65–74, and over the age of 74 years. Characteristics of these groups are shown in Table 4.2. Participants over the age of 74 made up the smallest group (*n* = 1,309), while participants

Table 4.1 Main characteristics of the complete sample combining seven cross-sectional surveys stratified by survey year.

Survey year	*N*	*Women (n, %)*	*East Germans (n, %)*	*Age (M ± SD)*	*Married (n, %)*	*Living alone (n, %)*	*Household equivalent income (M ± SD)*	*Reports of suicidal ideation (M ± SD)*	*Reports of suicidal ideation (n, %)*
Total	17,542	9,375 (53.4)	3,508 (20.0)	48.44 ± 18.01	8,765 (50.0)	5,410 (30.8)	1,565 ± 739	0.10 ± 0.37	1,374 (7.8)
2003	2,503	1,377 (55.0)	503 (20.1)	48.77 ± 17.91	1,342 (53.6)	754 (30.1)	1,260 ± 612	0.09 ± 0.34	198 (7.9)
2007	2,499	1,358 (54.3)	503 (20.1)	47.95 ± 17.79	1,336 (53.5)	700 (28.0)	1,416 ± 631	0.08 ± 0.32	159 (6.4)
2008	2,492	1,304 (52.3)	502 (20.1)	48.95 ± 18.35	1,323 (53.1)	742 (29.8)	1,409 ± 614	0.08 ± 0.33	163 (6.5)
2011	2,542	1,334 (52.5)	498 (19.6)	49.58 ± 18.16	1,277 (50.2)	857 (33.7)	1,510 ± 685	0.12 ± 0.39	238 (9.4)
2012	2,495	1,333 (53.4)	488 (19.6)	49.42 ± 18.01	1,279 (51.3)	782 (31.3)	1,593 ± 681	0.06 ± 0.28	136 (5.5)
2019	2,515	1,343 (53.4)	507 (20.2)	48.41 ± 17.85	1,162 (46.2)	833 (33.1)	1,844 ± 790	0.12 ± 0.41	245 (9.7)
2020	2,496	1,326 (53.1)	503 (20.2)	45.98 ± 17.77	1,046 (41.9)	742 (29.7)	1,925 ± 880	0.13 ± 0.45	235 (9.4)

Note: Most surveys took place in summer (2003, 2007, 2008, 2011, and 2012); only the surveys in 2019 and 2020 took place from springtime until the beginning of summer.

Table 4.2 Main characteristics of the complete sample stratified by age group.

Age group	*N*	*Women (n, %)*	*East Germans (n, %)*	*Age (M ± SD)*	*Married (n, %)*	*Living alone (n, %)*	*Household equivalent income (M ± SD)*	*Reports of suicidal ideation (M ± SD)*	*Reports of suicidal ideation (n, %)*
Total	17,542	9,375 (53.4)	3,508 (20.0)	48.44 ± 18.01	8,765 (50.0)	5,410 (30.8)	1,565 ± 739	0.10 ± 0.37	1,374 (7.8)
<25	2,053	1,030 (50.2)	382 (18.6)	19.57 ± 3.13	84 (4.1)	496 (24.2)	1,392 ± 691	0.09 ± 0.37	136 (6.6)
25–34	2,418	1,261 (52.2)	425 (17.6)	29.63 ± 2.88	914 (37.8)	772 (31.9)	1,523 ± 716	0.08 ± 0.34	158 (6.5)
35–44	2,927	1,623 (55.4)	519 (17.7)	39.60 ± 2.81	1,824 (62.3)	611 (20.9)	1,596 ± 721	0.08 ± 0.34	192 (6.6)
45–54	3,245	1,751 (54.0)	570 (17.6)	49.53 ± 2.88	2,018 (62.2)	832 (25.6)	1,755 ± 794	0.09 ± 0.37	241 (7.4)
55–64	3,017	1,614 (53.5)	682 (22.6)	59.39 ± 2.85	1,896 (62.8)	945 (31.3)	1,669 ± 809	0.10 ± 0.37	244 (8.1)
65–74	2,573	1,302 (50.6)	630 (24.5)	69.14 ± 2.78	1,530 (59.5)	978 (38.0)	1,452 ± 654	0.10 ± 0.35	223 (8.7)
>74	1,309	794 (60.7)	296 (22.6)	79.59 ± 3.92	499 (38.1)	776 (59.3)	1,355 ± 558	0.17 ± 0.46	180 (13.8)

aged between 45 and 54 made up the largest group (n = 3,245). The proportion of women was highest among participants over the age of 74 (60.7%). Participants below the age of 25 years reported the lowest household equivalent income with a mean of 1,392.48 (SD = 690.88), while participants between the ages of 45 and 54 reported the maximum with a mean of 1,755.44 (SD = 794.14). The proportion of married participants ranged from 4.1% for those below 25 to 62.8% for those aged 55–64 years. Participants between 35 and 44 years were those who lived alone least often (20.9%), while 59.3% of those over 74 years lived alone. The proportion of participants who reported suicidal ideation increased with age, starting with 6.6% for those below the age of 25 years and concluding with a maximum of 13.8% among those over the age of 74. The mean of the reported frequency of suicidal ideation increased with age as well, ranging from 0.08 (SD = 0.34) for the age groups 25–34 and 35–44 years to 0.17 (SD = 0.46) for those over the age of 74.

The main characteristics of the participants divided into six birth cohorts can be found in Table 4.3. The birth cohorts were classified as follows: born before 1946, 1946–1959, 1960–1969, 1970–1979, 1980–1989 and born from 1990 onward. The birth cohort from 1990 onward included the fewest participants (n = 1,590), while the 1946–1959 birth cohort included the largest group of participants (n = 4,042). The proportion of women in the birth cohorts varied between 49.3% (born from 1990 onward) and 55.1% (born 1970–1979), and the proportion of East Germans in the birth cohorts varied between 16.4% (born from 1990 onward) and 24.0% (born before 1946). Mean age naturally decreased over birth cohorts, with a mean age of 71.92 (SD = 6.94) for participants born before 1946 and a mean age of 20.60 (SD = 4.59) for those born in 1990 or later. Participants born between 1946 and 1959 were most often married (63.1%). Those born before 1946 had the highest reporting rate of living alone (43.9%) and those born from 1990 onward the lowest (20.6%). Additionally, participants born before 1946 reported the lowest household equivalent income with a mean of 1,333.03 (SD = 545.78), while participants born between 1960 and 1969 reported the maximum with a mean of 1,683.65 (SD = 802.26). The proportion of participants who reported suicidal ideation varied across the birth cohorts, ranging from 6.5% for those born between 1970 and 1979 as well as 1980 and 1989 to 9.9% for those born before 1946. Similar results were found for the mean of reported suicidal ideation; it was lowest for those born between 1970 and 1979 as well as 1980 and 1989 (M = 0.08, SD = 0.33) and highest for respondents born before 1946 (M = 0.12, SD = 0.38).

Age-period-cohort analyses

M1 of the HAPC analyses included the predictors age, age^2, cohort as fixed and random effect, and period as random effect. We found a negative age and positive age^2 effect. These age effects combined indicate a change of the age effect over the lifespan. The initial decrease of suicidal ideation over the younger age groups is reversed at a certain point where after an increase of

Table 4.3 Main characteristics of the complete sample stratified by birth cohort.

Birth cohort	*N*	*Women (n, %)*	*East Germans (n, %)*	*Age (M ± SD)*	*Married (n, %)*	*Living alone (n, %)*	*Household equivalent income (M ± SD)*	*Reports of suicidal ideation (M ± SD)*	*Reports of suicidal ideation (n, %)*
Total	17,542	9,375 (53.4)	3,508 (20.0)	48.44 ± 18.0	8,765 (50.0)	5,410 (30.8)	1,565 ± 739	0.10 ± 0.37	1,374 (7.8)
Before 1946	3,746	2,024 (54.0)	898 (24.0)	71.92 ± 6.94	2,010 (53.7)	1,644 (43.9)	1,333 ± 546	0.12 ± 0.38	372 (9.9)
1946–1959	4,042	2,165 (53.3)	871 (21.5)	57.81 ± 6.67	2,552 (63.1)	1,240 (30.7)	1,675 ± 784	0.10 ± 0.36	312 (7.7)
1960–1969	3,424	1,875 (54.8)	598 (17.5)	46.55 ± 6.45	2,115 (61.8)	839 (24.5)	1,684 ± 802	0.10 ± 0.38	258 (7.5)
1970–1979	2,504	1,380 (55.1)	439 (17.5)	37.06 ± 6.43	1,363 (54.4)	637 (25.4)	1,620 ± 742	0.08 ± 0.33	163 (6.5)
1980–1989	2,236	1,147 (51.3)	438 (19.6)	27.59 ± 6.29	614 (27.5)	722 (32.3)	1,513 ± 729	0.08 ± 0.33	145 (6.5)
1990 onward	1,590	784 (49.3)	260 (16.4)	20.60 ± 4.59	111 (7.0)	328 (20.6)	1,568 ± 754	0.11 ± 0.42	124 (7.8)

Note: Classification of birth cohorts was based on Ahbe and Gries (2006) and Klimczuk (2015).

suicidal ideation over age is found. Figure 4.1 displays the combined effects of age and age^2 of M1.

Predicted suicidal ideation also varied by period. It showed fluctuations across the single measurement points: Predicted suicidal ideation was constant between 2003 and 2008. It increased in 2011, immediately followed by a decrease in 2012. Hereafter, suicidal ideation slowly increased again until 2020, the last survey assessment that could be included in the present study. For details on the period effect in M1, see Figure 4.2.

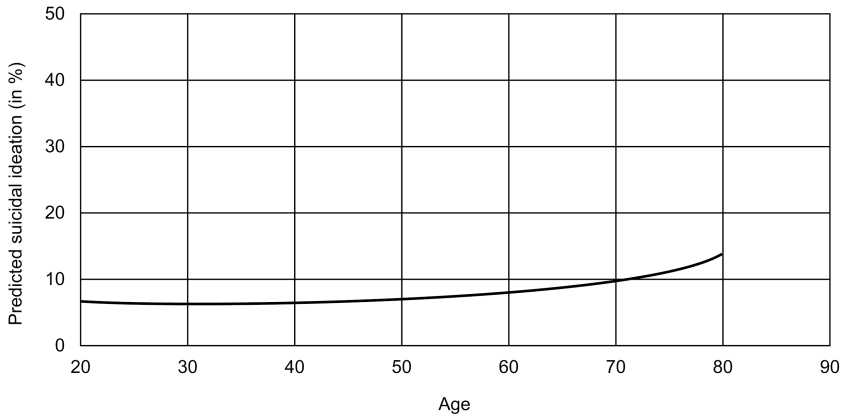

Figure 4.1 Predicted age effects on suicidal ideation controlling for period and cohort based on M1.

Note: HAPC models were applied in which age and age^2 were included as fixed-effect coefficients in the models. Period and cohort effects are based on random effect estimates.

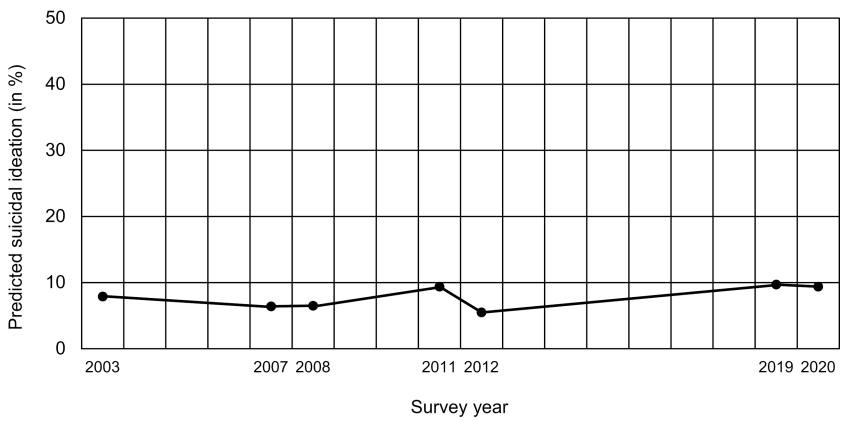

Figure 4.2 Predicted period effects on suicidal ideation controlling for age and cohort based on M1.

Note: HAPC models were applied in which period was included as a random factor. Cohort effects are also based on random effect estimates. Age effects are based on fixed-effect coefficients in models.

As to the cohort effect, the linear effect revealed predicted values of suicidal ideation to be slightly higher for the birth cohort 1960–1969 compared to the cohort born before 1946. When including the random cohort effect, predicted suicidal ideation increased from the oldest birth cohort until the birth cohort 1960–1969 and stabilized hereafter (see Figure 4.3 representing the overall cohort effect of M1). However, no significant random cohort effect was found in any of the models.

Details of these effects are also displayed in Table 4.4 (see Model 1). The proportion of variance that was explained by this model was 0.9%.

In M2 and M3, the effects of living in East or West Germany on suicidal ideation when including age, age^2, period (as random factor), and cohort (as fixed and random factor) (M2) and additionally controlling for sociodemographic and socioeconomic factors (M3) were examined (Table 4.4). Age^2 was a statistically significant predictor when examining the effects of the German region, but it lost statistical significance after sociodemographic and socioeconomic control variables were included. The negative effect of age on suicidal ideation thus disappeared. Furthermore, a random period effect remained statistically significant in all three models, which implies that region of residence and other sociodemographic and socioeconomic factors did not explain the period effect. The linear cohort effect representing higher suicidal ideation for the birth cohort 1960–1969 compared to the cohort born before 1946 disappeared in the second model but reappeared in the third model that included further covariates. The random cohort factor remained insignificant throughout all models. For details, see Table 4.4.

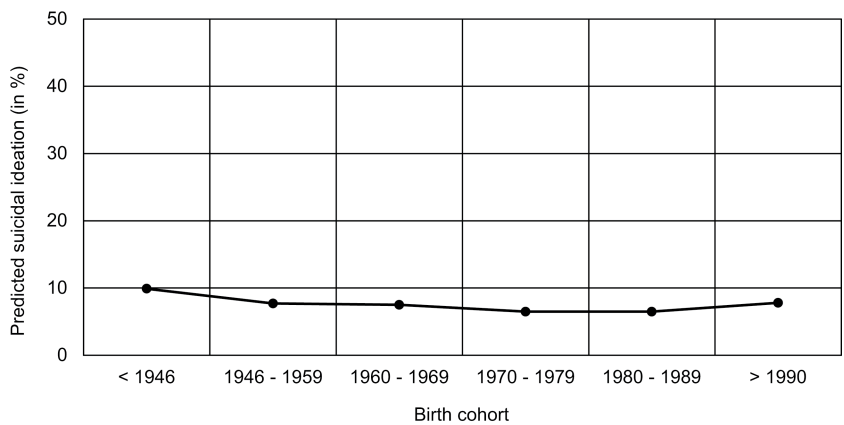

Figure 4.3 Predicted cohort effect (combined fixed and random effects) on suicidal ideation controlling for age and period based on M1.

Note: HAPC models were applied in which cohort was included as a random factor. Period effects are also based on random effect estimates. Age effects are based on fixed-effect coefficients in models.

Table 4.4 Regression results of suicidal ideation by German region and other control variables from hierarchical age-period-cohort models.

Fixed effects	*Model 1*	*Model 2*	*Model 3*
	Coefficients (95% CI)	*Coefficients (95% CI)*	*Coefficients (95% CI)*
Intercept	0.061 (0.025; 0.098)***	0.098 (0.057; 0.138)***	0.170 (0.117; 0.221)***
Main predictors			
Age	–0.003 (–0.006; 0.000)	–0.003 (–0.006; 0.000)	–0.000 (–0.003; 0.003)
Age^2	0.005 (0.002; 0.008)***	0.005 (0.002; 0.008)***	0.003 (–0.000;0.005)
Cohort (reference = before 1946)			
1946–1959	0.026 (0.001; 0.053)	0.025 (0.000; 0.052)	0.033 (0.007; 0.061)
1960–1969	0.052 (0.015; 0.091)**	0.049 (0.013; 0.088)	0.063 (0.026; 0.104)*
1970–1979	0.048 (0.000; 0.098)	0.045 (–0.002; 0.096)	0.059 (0.010; 0.113)
1980–1989	0.051 (–0.010; 0.115)	0.048 (–0.012; 0.113)	0.057 (–0.006; 0.126)
1990 onward	0.071 (–0.005; 0.151)	0.067 (–0.001; 0.147)	0.076 (–0.003; 0.162)
Region of residence (reference = West)			
East		–0.029 (–0.043; –0.016)***	–0.036 (–0.050; –0.022)***
Covariates			
Gender (reference = men)			
Women			–0.005 (–0.016; 0.006)
Living situation: single household (reference = no)			
yes			0.020 (0.003; 0.037)*
Married (reference = no)			
yes			–0.032 (–0.049; –0.016)***
Level of education (reference = general)			
high			–0.007 (–0.021; 0.008)
Household equivalent income			–0.003 (–0.004; –0.002)***

(*Continued*)

Table 4.4 (Continued)

Random effects	*Variance component*	*Variance component*	*Variance component*
Period (year)	0.0004***	0.0004***	0.005***
Cohort (birth cohort)	0.0001	0.0006	0.0002
Marginal R^2/conditional R^2	.004/.009	.005/.013	.014/.020

Note: (1) CI = confidence intervals; (2) *p <.05, ** p <.01, ***p <.001, two-tailed tests; (3) marginal R^2 describes the proportion of variance explained by the fixed factors alone, conditional R^2 describes the proportion of variance explained by both the fixed and random effects; (4) significance of random period and cohort effects was tested by comparing the fit of models without these terms with the fit of the complete model, p-values were obtained using the chi-squared distribution test; (5) continuous predictors were centered around the grand mean, reported estimates are standardized; (6) age squared and household equivalent income were divided by 100 to retrieve meaningful estimates.

In M2, significant differences according to the region of residence were found. East Germans reported 2.9% less suicidal ideation than West Germans. This finding remained statistically significant after the inclusion of socioeconomic and sociodemographic control variables, as can be seen in the results reported for M3. Respondents living alone in a household reported higher suicidal ideation compared to respondents living with other household members. In addition, married respondents reported less suicidal ideation compared to respondents who were not married. Lastly, higher household equivalent income was associated with less suicidal ideation. No significant differences in suicidal ideation in relation to participants' gender and level of education were found.

Discussion

The present work used seven population-representative surveys from all of Germany to contribute to a better understanding of temporal variations in suicidal ideation in East and West Germany. Against the background of Durkheim's theory of anomie and the life course cube model as a more contemporary conceptualization of health and vulnerability over the life span, we employed HAPCs and tested a small set of covariates that characterized a person's resources and their societal integration. These analyses indicated age effects in the sense that the overall level of self-reported suicidal ideation initially slightly decreased but started to increase around the age of 35. However, most of this effect disappeared after the statistical control of potential confounders (such as income and living situation). Furthermore, a cohort effect was found for the generation born between 1960 and 1969. This generation reported slightly more suicidal ideation compared to respondents who were born before 1946. However, in none of the models was a random cohort effect present. Furthermore, we found period effects that were independent of the effects of sociodemographic characteristics, showing a small peak in the levels of suicidal ideation in the community around the year 2011, which was instantly followed by a decrease. Between 2012 and 2019, levels of suicidal ideation increased again and almost reached their earlier peak.

The observed age effect partly corresponds to previous findings regarding suicide deaths, which were more common among older individuals (e.g., Y.-Y. Chen et al., 2021; Dogan et al., 2019; Jukkala et al., 2017; Park et al., 2016). Older individuals (especially men) are also overrepresented among those who die by suicide in Germany (Statistisches Bundesamt, 2022). However, for suicidal ideation, the age effects found in the present study were not completely stable. Rather, the results indicate that socioeconomic resources and a person's living situation play a superior role in shaping suicidal crises. More generally, they fit with the scientific debate that what is often modeled as an effect of "age per se" (for instance, on mental health and well-being) is a proxy for other factors that could be relevant in a causal fashion or constitute covariates of the construct of interest (such as biological aging,

life experience, or, in the present case, possibly gains in economic stability) (e.g., Freund & Isaacowitz, 2014; Wohlwill, 1970). Using the life course cube as a framework, these factors are readily understandable as (interacting) factors that are subject to change over time, while they are still distinct from the time variable itself. Especially within the context of suicide prevention, this should be a thought-provoking impulse: After all, a person's age by itself might be a variable that influences healthcare professionals' decisions, for example, whether to screen for suicidal thoughts and/or risk factors for suicidal behavior, but it is not a potentially modifiable variable that could constitute a target for intervention efforts. By contrast, factors such as economic insecurity (of the individual and their immediate social environment) could be addressed and attenuated. Especially against the background of total-societal crises such as the current COVID-19 pandemic, rising inflation, and increasing energy costs, it could be argued that adequate prevention and intervention efforts are located at the political rather than at the individual level. In line with possible influences of the COVID-19 pandemic, this study revealed relatively high values of suicidal ideation in 2020, the year in which the COVID-19 began, and steps were to taken (e.g., lockdowns) to decrease the spread of this still rather unknown virus. This was also found for mental distress in a previous APC study (Otten et al., 2023). Thus, returning to the life course cube model, considering the individual-action as well as the supraindividual levels lead to a better understanding of how the single person is tied into greater sociostructural changes and how forces located at higher levels can influence an individual's well-being in tangible ways.

Furthermore, our results highlighted the relevance of period effects over cohort effects within the present sample. This shows that fundamental societal challenges or changes also influence the mental health of the population at large. This implies that we must not think of prevention and intervention measures in individualized terms, that is, at the level of the individual person, but rather look at society as a whole, in line with Durkheim's approaches to understanding suicide risk at the end of the 19th century.

The peak in suicidal ideation observed 12 years ago came after the global financial crisis that culminated in the fall of 2008. In its aftermath, the European debt crisis followed, which particularly affected countries in the south and west of Europe (e.g., Karanikolos et al., 2013). Previous investigations have linked these major crises with increases in suicide risk (e.g., Madianos et al., 2014), albeit not based on APC analysis models. It is possible that increasing economic insecurity also increased general mental distress and suicidal ideation in Germany and that the population recovered after stability was restored or they had time to adapt to changed circumstances, respectively. Since then, both the global financial crisis and the European debt crisis have come to an end, but the present results show that suicidal ideation is (slowly) on the rise again. This trend during recent years could indicate larger-scale megatrends that promote suicidal crises, or it could be shaped by challenges more limited in time and region, such as the "refugee crisis"

in Germany in 2015 and 2016, when the country saw an influx of large numbers of displaced individuals from Syria, Iraq, Afghanistan, and other countries (Brücker et al., 2020). The German population's reaction was not unanimously positive; rather, people also voiced subjective impressions of threat or destabilization (Meidert & Rapp, 2019). It could be assumed that such attitudes facilitate increases in mental distress and suicidal ideation as well; however, the present study does not allow for respective interpretations, because it did not include measurement points in 2015 and 2016.

Previous studies have found highly relevant period effects with more direct implications regarding prevention efforts, for example, based on data from Sri Lanka showing declines in suicide rates after restrictions on the availability of pesticides (Knipe et al., 2014). Notably, this study focused on a motivational moderator, that is, a crucial factor governing the transition from thoughts to behavior (here, the availability of toxic chemicals). However, as noted earlier, suicidal ideation and behavior are subject to different risk factors (e.g., May & Klonsky, 2016). The present study specifically concerns the latter. As such, the available data modeled as potential risk and protective factors in the present work fit with premotivational and motivational phase variables in the IMV model, that is, the phases before/in which suicidal *thoughts* first emerge. It could be argued that the APC approach is particularly relevant in this context as suicidal thoughts tend to wax and wane (e.g., Kleiman et al., 2017), and many underlying risk factors (e.g., feelings of loneliness; McClelland et al., 2020) are more volatile than the factors shaping the risk for suicide attempts and deaths (e.g., past behavior, experiences of child abuse and neglect; Ernst et al., 2022). Furthermore, this statistical approach and the theoretical framework of the life course cube model allowed us to address influences located above the inner-individual level. The results highlighted their relevance, underscoring that not just suicide attempts and deaths but also the emergence of suicidal ideation cannot be meaningfully reduced to a medical/health issue of the individual.

The finding that the generation born between 1960 and 1969 was more often burdened with suicidal ideation compared to the generation born before 1946 contradicts our expectation of individuals who experienced WWII and the hardships of the postwar era to exhibit more suicidal ideation. A possible explanation for this could be experiencing the negative consequences of the transformation of the system after Germany was reunited, that is, unemployment (Röbenack, 2020) or other economic and social differences (Krause, 2019), with this applying above all to the former East German population. Additionally, a shift in views on mental illness might have contributed to an increase in reporting mental diseases; mental health literacy and acceptance of help-seeking from mental health professionals und utilization of psychotropic medication and psychotherapy increased since 1990 (Schomerus et al., 2012).

Interestingly, living in East versus West Germany was related to lower levels of suicidal ideation, showing an opposite pattern compared to suicide

deaths that are more prevalent in the East compared to the West (Statistisches Bundesamt, 2022). However, it must be noted that this effect of the region was the remaining effect after controlling for the influences of sociodemographic and socioeconomic differences within the same regression model, making it somewhat artificial. Therefore, because these differences capture actually existing disparities between East and West Germany, the present results indicate that a part of the variation in suicide rates between German regions results from their structural differences rather than from the inner-individual characteristics of the people living there. In more concrete terms, this means that individuals living in East Germany are *not* more vulnerable to suicidal crises (as the suicide death statistic might suggest) just because they live in East Germany but perhaps because more people are living in precarious conditions than in the West. Future research could shed more light on these diverging risk profiles by specifically targeting motivational moderators of risk that might be more present/consequential in the East German context.

Lastly, the present work must also include both a critical appraisal of Durkheim's original models of suicide risk and their operationalization in the context of the present work. Although his pioneering work laid the foundation for the whole new discipline of sociology and constitutes an important bedrock for the development of many newer conceptualizations of suicide, some assumptions included in the original conceptualization of anomie and its effects need to be critically reconsidered. They might no longer apply to current society as moral convictions change over time, for instance, because—with regard to Germany—a decrease in the importance of the church can be observed. Hence, religious values are no longer as strong a guide to individuals' actions as they were over 100 years ago. Some morally derived classifications are also no longer considered permissible nowadays, such as the analysis of suicide rates under the heading of deviant criminal misconduct. Furthermore, from today's point of view, general trends such as the softening of norms (e.g., concerning [early] marriage or the nuclear family as the prevailing ideal) must not solely be viewed in a pessimistic light as they also reflect greater freedom and opportunities for shaping one's path in modern society. In this course, it must be critically noted that the existing analyses operationalized aspects of social integration in a rather descriptive way, relying on sociodemographic information. Instead of or in addition to such objective indicators, future research should instead examine, for example, subjective social support, loneliness, or affiliation as influencing factors (which have previously been highlighted in cross-sectional investigations of German community samples; Ernst et al., 2021). Such subjective valuations can be assumed to be particularly relevant as more objective indices of singularization, such as the proportion of single households (Statista Research Department, 2021), have increased in recent decades in Germany, but these changes have—so far—not been matched by increases in suicide rates. In terms of the life course cube model (Bernardi et al., 2019), this would mean considering more information about the inner-individual layer. In the context

of the present work, this layer was solely represented by the *outcome* of interest, which was suicidal ideation. Future research could derive further insights from the investigation of the interdependencies and interactions of the different layers.

Strengths and limitations

Limitations pertain to the assessment of suicidal ideation: The PHQ-9 item that was used here assesses passive death wishes and thoughts of self-harm. It does not allow for a more nuanced risk assessment (which would, among other information, differentiate passive versus active suicidal ideation and suicide plans). It would be desirable for future research addressing the issue of changes in suicidal thoughts and behaviors over time to have access to more thorough, specialized methods of assessment. Nevertheless, the item still yields valuable information. For instance, it has previously predicted suicide attempts (Simon et al., 2013) and deaths (Louzon et al., 2016).

Furthermore, as already discussed previously, the HAPC model is, although currently often applied, still discussed as an appropriate way to analyze age, period, and cohort effects simultaneously. Not only due to the strong assumptions that have to be made about the nature of the effects (Bell, 2020) but also because simulation studies revealed an underestimation of cohort effects when using the HAPC method (Luo & Hodges, 2020). Robustness checks and sensitivity tests are a way of addressing these issues.

It is a strength of this work that the very same item was used in all surveys and that all surveys were carried out with the same, sophisticated design each year, ruling out that differences between surveys are due to method artifacts.

Within the scope of this chapter, we could not address all structural variables that differ between East and West Germany and relate to suicide risk, for example, religious affiliation/practice, employment status and history, and wealth/net worth (which must be distinguished from income alone and diverges significantly between East and West Germany; e.g., Becker, 2015). Furthermore, alternative sources for the observed differences must be considered, for instance, potential reporting biases and/or different item functioning (Schmalbach et al., 2023).

Conclusion

The present work showed that the empirical analysis of factors associated with suicidal ideation benefits from a multilayered approach that differentiates risk and protective factors at different levels. Along these lines, the use of HAPC analyses yielded new insights: While the results highlighted relevant period effects and currently rising levels of suicidal ideation in the German community, the influence of cohort effects was reduced to a sole effect for the birth cohort 1960–1969. At the same time, the random cohort effect was negligible, and age effects (that were observed in a first step of the

analyses) could mostly be explained by sociodemographic covariates. In this final model, the effects of the region (East vs. West Germany) people lived in contrasted the pattern of suicide rates in Germany as they are consistently higher in the East. Thus, differences between East and West Germany can still be detected more than 30 years after the German reunification. The present analyses offered a new perspective on them as structural factors were explicitly modeled statistically (such as the influence of, e.g., differences in income). As a consequence, they emerged as potentially modifiable risk/protective factors, showing that suicide risk is not only shaped by fixed characteristics of a person (e.g., genetic factors, personality, or previous experiences).

Therefore, the findings indicate that major crises that affect society as a whole require political responses also concerning mental health and suicide prevention. For instance, suicidal ideation as a manifestation of grave mental distress should not only be analyzed and treated in an individualized or medicalized fashion. Instead, effective prevention and intervention strategies must acknowledge structural differences and, if necessary, must make recourse to other instruments. An example of this would be fostering economic stability for larger numbers of vulnerable members of the community instead of offering mental health support for a few individuals who have to expend a lot of energy to receive support in the form of individual psychotherapy. Especially as a way of countering the most current crises, the effects of which cannot yet be seen in the data used here, such new approaches that modify risk factors at the societal level could hold great potential.

Authors' note

Appendixes mentioned in this chapter and additional supporting materials are freely available at www.routledge.com/9781032547763.

All survey procedures and contents were approved by the institutional ethics review board of the University of Leipzig (the number of the latest included survey: 474/20-ek).

The study is part of the DDR-PSYCH project, which is funded by the Federal Ministry of Education and Research (BMBF; Grant no. 01UJ1911AY).

The dataset analyzed in the current study was generated as a joint project of several different universities. Due to missing consent of all parties involved, we are unable to make the dataset publicly available. The data supporting the findings of this study will be provided by the corresponding author upon reasonable request.

The authors have no conflict of interest to declare.

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Part 2

Political attitudes

Does the wall persist in thoughts and worldviews?


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5 Influence of GDR identification before German reunification on political support 20 years later

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Introduction

Since the unification of the two German states on October 3, 1990, more than three decades have passed. Initial differences in political and sociocultural attitudes between East and West Germans have declined in some areas, but convergence has still not been achieved in others (Rainer et al., 2018). It is true that enormous economic progress has contributed to the convergence of relations in many areas between East and West (Dähner et al., 2020). Nevertheless, existing economic differences between the two parts of the country are strongly perceived and reflected in "feeling like a second-class citizen" (Pollack, 2020; Rainer et al., 2018, p. 2). While survey data show that democracy as a form of government enjoys broad support from both West and East Germans, there are more people in East Germany who are critical of democracy and dissatisfied with its implementation in Germany, even if these differences between East and West have decreased since reunification (S. Pickel & Pickel, 2020). Identification with the German Democratic Republic (GDR) among East Germans was 43% in 1991, rose to just under 70% in 2000, and has remained at a level of about 60% since then, due to disappointment with the reunification (Hidalgo & Yendell, 2021; Martens, 2020). Even 30 years after the reunification of the two German states, there is a lot of skepticism in the public debate about the existence of a common democratic culture in Germany. The success of the right-wing populist party Alternative for Germany (AfD) in East Germany (Arzheimer & Berning, 2019; S. Pickel, 2019; G. Pickel & Pollack, 1998) as well as an East–West gap in terms of right-wing violence (Michelsen et al., 2017) seem to support these opinions.

The assumption that socialization in different regimes has a lasting influence on political attitudes is one of the prominent theses of political cultural research to explain the differences in political attitudes between East and West Germans (e.g., Braun, 1993; S. Pickel & Pickel, 2020). Constructs used for examining the aftermath of a socialization in the GDR include, for example, GDR ties (Gabriel, 1999) or endorsement of the idea of socialism (S. Pickel & Pickel, 2020). However, these indicators can also reflect the current

DOI: 10.4324/9781003427469-7

sociopolitical situation. According to Opp (2018), situational factors can also contribute to GDR nostalgia due to dissatisfaction or even disappointment with the new system.

In this chapter, we investigate the question of whether a strong identification with the GDR before the fall of the Berlin Wall has a lasting influence on support for democracy and the political system later in life. The data of the Saxon Longitudinal Study (SLS; Berth et al., 2020) provides a unique opportunity to measure respondents' GDR ties even before the reunification of Germany and to test their effect on political attitudes about two decades later. To the best of our knowledge, there are rarely any studies that work with data from the GDR era and use them to explain current political attitudes. The participants involved were 14 years old when the first wave of the SLS study was first conducted in the GDR in 1987, prior to reunification, and has been ongoing to this day. This chapter uses the first three waves of the SLS that took place before reunification (1987 to 1989) to measure respondents' identification with the GDR and the 23rd wave to measure political support in 2009. In operationalizing political support, we were guided by David Easton's theory of political support (Easton, 1965, 1975).

The paper proceeds as follows: First, it deals with different initial conditions for the development of democratic attitudes in East and West Germany. Subsequently, Easton's theory of political support is briefly outlined, and research hypotheses are described. Operationalization of the variables of political support as well as the GDR identification is explained in the next section. After the description of the sample, an overview is given of the methods used to check the structures of latent factors (confirmatory factor analyses), to test the equivalence of measurements over time (test of longitudinal measurement invariance), and then to check the hypotheses (autoregressive and structural equation models). After describing the results, important findings are summarized, and limitations of the study as well as implications for further research are discussed.

Specifics of political attitudes of East Germans

German political attitudes have developed differently in East and West Germany. According to Gabriel and Neller (2000), the conditions for system-compliant attitudes arose in West Germany during the Adenauer era (1949–1963). The driving forces of cultural change were, on the one hand, the rapid economic growth that was described as an "economic miracle" (*Wirtschaftswunder*), which the population attributed to the successful government policy and the well-functioning political system. On the other hand, the generational exchange played a major role. By the end of the Adenauer era, a certain part of the population had already been socialized in a democratic system and members of the older generation with attitudes from the National Socialist era did not openly express these orientations or translated them into antidemocratic behavior (Gabriel & Neller, 2000). Thus,

democratic attitudes were already present among the majority of the citizens of the old federal states before the new federal states joined.

These prerequisites for the emergence of democratic attitudes did not exist in this form in East Germany before 1990. According to Weber (2012, p. 170), the lack of free elections, of an independent judiciary, and of separation of powers, as well as the dictatorship of the Socialist Unity Party of Germany (SED) over all areas of state, society, economy, and culture indicate that the GDR was an unjust state. Impressions of political life in the Federal Republic of Germany (FRG) were conveyed via Western television or personal contacts with West Germans (Gabriel & Neller, 2000; Veen, 1997), with these channels restricted as far as possible by the state. In this respect, Fuchs (1997, p. 94) speaks of the simultaneity of two learning processes: system-internal and system-external learning. The system-internal learning is shaped by everyday experiences with the structural frameworks in one's own country. For example, in the GDR, this was the establishment and rise of socialist organizations such as the "Free German Youth Organization" (FDJ), the de facto one-party system with the SED, the centralization of the media to propagate the views of the party, the establishment of an extensive surveillance system (the *Stasi*), limited contact options with West Germany and other capitalist states, and, in some parts of the GDR, blocked access to Western media (Opp, 2018). In this context, the emergence of democratic attitudes would be more possible through learning outside the system. System-external learning results from observing the democratic systems of other countries, which is possible by means of a relatively high level of education and mass media communication. In the case of the GDR, family ties also played a major role. The analysis by Stegmann (2019) shows that among the population living in districts near to the border, who were able to receive private visits from the West more easily thanks to a measure taken by the GDR government, there were more protests against the GDR regime during the transition period than in the regions where this did not apply. Identification of East Germans with basic democratic values through communication was thus possible even before the reunification (Veen, 1997).

The different initial conditions for reunification are also reflected in, among other aspects, the different understanding of democracy among East and West Germans. According to Fuchs (1997), the model of democracy that the citizens of Western federal states prefer is a liberal model of democracy. For this model, the idea of an equal opportunity use of the subjective freedom rights and political participation rights of all citizens is of great importance. Under the conditions of a free market and through state redistribution, an institutionalization of just principles is ensured. Citizens in the Eastern federal states prefer another model of democracy: the model of democratic socialism. According to Fuchs, this model can be understood as a radicalization of liberal democracy. This model is characterized by a controlled market, which enables a fairer distribution of social resources. In contrast to the liberal model, all social resources are distributed as evenly as possible. In

addition to fundamental liberal rights, the provision of basic social rights is crucial for democratic socialism. Moreover, comprehensive and direct citizen participation is of major significance in this model (cf. summary by Fuchs, 1997, pp. 89–90, 103).

Due to the fact that political life is complex and has several facets, orientations to such a multilayered subject are heterogeneous and multidimensional. Easton's theory of political support (Easton, 1965, 1975) plays an important role in reducing the complexity of politics to its few important components. In the following, a brief overview of this theory is given, which will later serve as a basis for the operationalization of the dependent variables in this evaluation.

Easton's theory of political support

According to Easton (1975, p. 436), "in its common usage support refers to the way in which a person evaluatively orients himself to some object through either his attitudes or his behavior." Easton calls orientation through supportive attitudes *covert* support, support through actions *overt* support. The election of a candidate, participation in demonstrations, and writing letters to the editor are examples of overt support. Covert support, for example, comes in the form of patriotism. Covert support refers to attitudes that remain stable and consistent over time. According to Easton, relevant levels of the political system and, at the same time, objects of political support are the political *community*, the political *regime*, and the *authorities*.

Easton (1965, p. 177) defines political community as "that aspect of a political system that consists of its members seen as a group of persons bound together by a political division of labor." A member of the system supports their political community to the extent that they are willing to work for the preservation of the *division of political labor* or that they are positive toward the maintenance of this structure.

The constitutional order, or the regime, is a second basic component of the political system. Withdrawal of political support for the regime by citizens poses a threat to the political system. The political order is a *ground rule* that states what is expected from members of the system, and which decisions and under what conditions they have to perceive as binding. These regulations define what goals, actions, and structures are permitted in this system. In addition, expectations are formulated about who has the power, to what extent this power is exercised, and who has to submit to it.

Easton calls the holders of power roles political *authorities*. In contrast to political roles, which usually remain unchanged from generation to generation, the carriers of these roles are interchangeable.

The population's support of the political system can be of a general (diffuse) or a specific nature. In distinguishing between specific and diffuse

support, Easton refers to the phenomenon in politics that not all signs of a population's dissatisfaction have the same potential threat to the stability of the system. For example, citizens may be dissatisfied with their own standards of living, as well as with political authorities and the policies they lead. However, as long as trust in the political regime and the feeling of identification with the system are not shaken, this is not yet a signal for fundamental changes in the political system. The current incumbents can be exchanged with the newly elected, and the existence of the system is not endangered.

Specific support is the attitude toward the everyday output of political rulers. The object of this support is political authorities as an undifferentiated entity; that is, citizens do not necessarily need to know individual politicians to judge them as part of an undifferentiated political class. Easton mentions two ways in which specific support can be generated. The first way refers to people's tendency to connect perceived outputs with their articulated *demands*. Another source of specific support is the perceived general performance of the authorities.

According to Easton (1975, p. 444), diffuse support refers "to evaluations of what an object is or represents—to the general meaning it has for a person—not of what it does." It is a "reservoir of favorable attitudes or good will," which helps to accept even unfavorable decisions of political authorities (Easton, 1965, p. 273). According to Easton, this type of support is more resistant to fluctuations and changes in the environment compared to specific support and is usually independent of short-term political outputs or a regime's performance. However, this does not mean that diffuse support does not change at all. If dissatisfaction with perceived performance takes on a long-term character, fundamental ties to the basic aspects of the political system also weaken. Another characteristic of diffuse support is that as a basic attitude, it is oriented toward both the offices and the incumbents and is also aimed at the political regime and the political community. This characteristic distinguishes diffuse support from specific support that is only directed toward political authorities.

Diffuse support can arise both in childhood and in subsequent socialization as an adult, or it can be generated by direct experience. Attitudes such as patriotism, trust in the political regime and in the elites and their perception as legitimate are already conveyed in the parental home as basic orientations. School as well as peer groups can also influence such attitudes. In adult life, these attitudes are not lost and continue to serve as an orientation toward the political system. However, they can be modified and adapted in the long term on the basis of concrete experience.

Diffuse support takes different forms depending on the object of support. Support for a political community becomes manifest in a sense of togetherness or group identification. Support for political authorities or a regime is embodied in the form of trust or confidence as well as a belief in their legitimacy.

Hypotheses

For the hypotheses regarding the possible effects of earlier GDR identification, we rely on Easton's assumptions on the genesis of political support: Diffuse support as a rather affective value-based orientation toward the system has to arise in early childhood and adolescent socialization and can be changed in the long term due to direct experiences. It would be expected that a "successful" GDR socialization and thus a strong identification with the system would not be conducive to support of the political system in the Federal Republic later on. The corresponding hypotheses are as follows:

H1: The stronger the GDR identification before the reunification, the weaker the identification with the Federal Republic.
H2: The stronger the GDR identification before the reunification, the less trust is brought to political authorities later on.
H3: The stronger the GDR identification before the reunification, the weaker the support for the regime later on.

Specific support as a rather rational result oriented attitude should depend on the daily political performance. Nevertheless, we expect that a strong identification with the system has shaped a benchmark by which political output is later evaluated and supported. The corresponding hypothesis is:

H4: The stronger the GDR identification before the reunification, the lower the satisfaction with political output later on.

Research design and measurement

Sample

The evaluation was carried out using data from the SLS. The study participants were recruited from 72 eighth-grade classes at 41 schools in the GDR districts of Leipzig and Karl-Marx-Stadt. The sample comprised 1,281 pupils and was representative of the GDR birth cohort in 1973. The first wave of the survey was carried out in 1987. After two further waves in 1988 and 1989, 587 participants agreed to continue participating in the study at the end of 1989. Since reunification, the SLS study has continued to this day. The current evaluation was based on the data from the 1st, 2nd, 3rd, and 23rd waves, carried out in 1987, 1988, 1989, and 2009 respectively. A total of 1,029 respondents took part in the first three waves; the number of study participants who participated in all four waves is 324.[1]

Table 5.1 is a description of the sample in 2009. More than half of the participants were women. At the time of measurement, about half of the respondents are married and about a third single with or without a partner. The largest group consisted of employees, followed by workers, the

Table 5.1 Sociodemographic characteristics of the sample.

Gender (in %)	
Male	47.2
Female	52.8
Children (in %)	28.2
Number of children (mean)	1.6
Family status (in %)	
Single, without partner	14.4
Single, with partner	20.1
Cohabitation	11.3
Married	48.3
Divorced	6.0
Occupational status (in %)	
Blue-collar worker	17.3
White-collar worker	50.5
Self-employed	10.2
Housewife/househusband/parental leave	6.8
Civil servant	5.3
Unemployed	5.6
Other	4.3
Net household income in € (median)	1,000 to 1,500
Migration background (in %)	
Immigrated to West Germany	23.6
Immigrated abroad	2.2
Lives in East Germany	74.2

Note: N = 324, measured in 2009.

self-employed, civil servants, and the unemployed. The median net household income for the 2009 sample was 1,000 to 1,500 euros per month. Less than a quarter of these people immigrated to West Germany.

Operationalization

The analysis model of political support measures support for political authorities, political regimes, and the political community.

In this evaluation, diffuse support of the political community was measured with the item "I feel like a citizen of the FRG" with answer options 1 (*yes, fully*), 2 (*yes, somewhat*), 3 (*no, not really*), and 4 (*no, absolutely not*). Support for political authorities is provided by the dimension of political trust, which is indirectly measured by trust in the federal government and in governing parties at the time of implementation of the field phase of the 23rd SLS wave (see Tables 5.2 and 5.3). We did not take into account trust in opposition parties, as we considered only parties that formed the government as direct carriers of political decisions and thus as responsible for political outputs. In the survey, respondents were asked to what extent they have confidence in the specific parties or institutions. In the evaluation, answers for Federal Government, as well as for SPD[2] and CDU/CSU,[3] were taken into

Table 5.2 Operationalization of the dimensions of political support.

Dimensions of political support	*Measurement items*	*Measuring scale*
Diffuse support of the political community	I feel like a citizen of the FRG	(1) Yes, fully (2) Yes, somewhat (3) No, not really (4) No, absolutely not
Diffuse support for political authorities	To what extent do you have confidence in the following parties or institutions: • SPD • CDU/CSU • Federal government	(1) Very strong (2) Strong (3) Weak (4) Not at all
Diffuse support for the regime	What would you say about the idea of democracy compared to other state ideas?	(1) Very supportive (2) Rather supportive (3) Somewhat supportive (4) Somewhat opposed (5) Rather opposed (6) Very opposed
Specific support for political authorities	How satisfied are you with the following? • Health policy • Educational policy • Wage policy • Social policy • Family policy • Pension policy • Political system in the FRG	(1) Very satisfied (2) Satisfied (3) Less satisfied (4) Dissatisfied

Table 5.3 Distribution of the measurement indicators of the factor political trust (in percent).

	(1) Not at all	*(2)*	*(3)*	*(4) Very strong*	*Missing*
To what extent do you have confidence in the following parties or institutions?					
SPD	30.9	59.9	8.3	0.3	0.6
CDU/CSU	27.2	47.2	23.1	1.9	0.6
Federal government	21.9	55.2	22.2	0	0.6

N = 324, measured in 2009.

account (Cronbach's alpha = 0.800, omega = 0.824). Response options were 1 (*very strong*), 2 (*strong*), 3 (*weak*), and 4 (not at all).

The measurement of diffuse support for the regime was carried out by the item "What would you say about the idea of democracy compared to other state ideas?" whose response scale ranged from 1 (*very supportive*) to 6 (*very*

opposed) (see Table 5.2). We chose this item, because it is intended to measure the abstract support of the regime, in our case democracy, independent of its concrete functioning in Germany.

Specific support for political authorities was measured as satisfaction with their achievements. In the SLS, respondents' satisfaction with the following policies was queried: health policy, education policy, wage policy, social policy, family policy, and pension policy. In addition, satisfaction with the political system in the FRG was queried. The response scales for all items were 1 (*very satisfied*), 2 (*satisfied*), 3 (*less satisfied*), and 4 (*dissatisfied*) (see Tables 5.2 and 5.4). Satisfaction with political output is understood as a latent factor, which is measured with these seven items (McDonald's omega = 0.832, Cronbach's alpha = 0.831).

The operationalization of the latent construct of GDR identification before the German reunification is based on Berth et al. (2010). The scale of GDR identification comprises ten items, which are basically essential characteristics of a "socialist personality" defined in the Youth Law of the GDR[4] of 1974. This scale with ten items had a high reliability in all three waves (Cronbach's alpha ≥ 0.896, McDonald's omega ≥ 0.900). An overview of the items and information about their distribution can be found in Table 5.5.

For the evaluation, all items were recoded so that high values stand for higher approval.

Furthermore, the explanatory model of political support also controlled for influences of important determinants of political attitudes known from empirical social research, as far as the data were available.

The sociodemographic factors are measured by the variables gender, household net income, and occupational status. Age was not taken into account in the evaluation as the sample is age-homogeneous. The household net income was measured using a scale that ranges from the lowest level 0 (*no income*) in 500€ intervals to the category "5,000€ and more." Gender

Table 5.4 Distribution of the measurement indicators of satisfaction with political outputs (in percent).

	(1) Very dissatisfied	*(2)*	*(3)*	*(4) Very satisfied*	*Missing*
How satisfied are you with the following?					
Health policy	22.2	54	23.5	0.4	0
Educational policy	25.0	50.6	24.1	0.3	0
Wage policy	36.7	46.9	16.0	0	0.3
Social policy	27.5	50.6	21.6	0.3	0
Family policy	26.5	49.7	23.5	0.3	0
Pension policy	32.1	51.2	16.4	0.3	0
Political system in the FRG	14.8	47.5	37.3	0.3	0

Note: $N = 324$, measured in 2009.

Table 5.5 Descriptive statistics of the items for measuring GDR identification.

	1987				*1988*				*1989*			
	Mean	*Standard deviation*	*Skewness*	*Kurtosis*	*Mean*	*Standard deviation*	*Skewness*	*Kurtosis*	*Mean*	*Standard deviation*	*Skewness*	*Kurtosis*
I am proud to be a member of the FDJ	3.84	1.09	–0.90	0.21	3.42	1.25	–0.55	–0.71	3.11	1.19	–0.30	–0.84
Reasons to learn: because a socialist citizen must be educated all-around	3.97	0.96	–1.10	1.18	3.53	1.10	–0.63	–0.98	3.28	1.16	–0.62	–0.40
The future belongs to socialism, despite temporary setbacks	4.32	0.85	–1.44	2.37	4.13	1.03	–1.23	1.10	3.84	1.06	–0.77	0.14
Marxism–Leninism helps me to find a correct answer to all important questions of life	3.45	1.05	–0.74	0.19	2.99	1.17	–0.36	–0.87	2.59	1.15	–0.03	–1.17
I feel closely connected to the GDR as my socialist motherland	4.26	0.84	–1.32	2.17	3.95	0.98	–0.86	0.39	3.70	1.02	–0.79	0.296
I am ready to defend the GDR at any time with all my strength	4.35	0.80	–1.38	2.29	4.04	0.99	–1.01	0.80	3.77	1.03	–0.70	0.05
I feel closely connected to the Soviet Union	3.56	1.02	–0.79	0.33	3.22	1.19	–0.43	–0.74	2.95	1.19	–0.21	–0.99
I have a secure future in the GDR	4.74	0.54	–2.59	9.45	4.64	0.65	–2.39	7.73	4.51	0.74	–2.07	5.90
Life goal: to take on responsible tasks in the management of socialist society	3.54	1.03	–0.65	0.15	3.42	1.16	–0.65	–0.29	3.18	1.15	–0.42	–0.58
Life goal: to represent the Marxist–Leninist worldview	3.57	1.04	–0.48	–0.39	3.22	1.20	–0.52	–0.55	2.97	1.26	–0.19	–1.02

Note: Response options for all times ranged from 1 (*not at all*) to 5 (*completely*).

was queried with categories "female" and "male." The occupational status was measured by the categories "blue-collar worker," "white-collar worker," "self-employed," "civil servant," "housewife/husband/parental leave," "unemployed," and "other." Due to the small number of cases, the last three categories were combined in the model calculations as a category "no work/other."

The status as internal migrant was also considered in the evaluation, since emigration to the West Germany and the new socioeconomic situation there could influence political attitudes. In the survey, respondents were asked where they were currently living. As response options, 1 (*East Germany*), 2 (*West Germany*), and 3 (*Abroad*) were offered.

Political ideology or left-right self-classification was also regarded as a determinant. Political worldview was measured in the survey using a scale that ranges from 1 (*left*), 2 (*rather left*), 3 (*neither/nor*), 4 (*rather right*) to 5 (*right*). For the evaluation, categories 1 and 2 were combined as "left political worldview," categories 4 and 5 as "right political worldview," category 3 remained as "middle." This was done to assess separately the effects of a right and a left political orientation.

Method

In the evaluation, we proceeded as follows. First of all, measurement models of the dimensions of political support and GDR identification were examined with simultaneous confirmatory factor analyses. For the construct GDR identification, the equivalence of measurement over time (1987 to 1989) was tested. Then, an autoregressive model was calculated, in which later measurements of GDR identification were predicted by previous measurements. The hypotheses were then tested in an overall model in which the dimensions of political support were added as dependent variables and possible determinants of political attitudes as control variables to the autoregressive model of GDR identification.

Simultaneous confirmatory factor analyses were carried out using the program Mplus (version 7.3, Muthén & Muthén, 1998–2017) to test the whole underlying measurement model (Brown, 2015). For the model, evaluation the χ^2 test, the comparative fit index (CFI), the Tucker–Lewis index (TLI), the root mean square error of approximation (RMSEA), and the standardized root mean squared residual (SRMR) were used. The following traditionally recommended cut-off values have been taken into account to indicate good (acceptable) fit between the theoretical model and empirical data: the p-value of the χ^2 test should be > 0.05 (0.01), CFI/TLI > 0.97 (0.95), RMSEA smaller than 0.05 (0.08), and SRMR smaller than 0.05 (0.10) (Schermelleh-Engel et al., 2003; West et al., 2015). We used the maximum likelihood mean-variance adjusted (MLMV) and weighted least square mean and variance adjusted (WLSMV) methods for the estimation depending on whether dependent variables were scaled ordinal or metric.

Results

Measurement model of political support

There are four latent factors present in the measurement model of political support (see Figure 5.1). Satisfaction with political outputs was measured by seven and political confidence by three indicators. Identification with political community and support for democracy were measured with one item each, whose residual variance was fixed to zero.[5] Based on the modification indices and to improve the model fit, two residual correlations were specified in the model. On the one hand, there was a positive residual correlation between the items satisfaction with health policy and satisfaction with education policy. The second pair of items with the negative residual correlation was satisfaction with family policy and satisfaction with wage policy. In the perception of the respondents, these two items have something in common that is not taken into account in the model. Notably, respondents' dissatisfaction with wage policy was the most pronounced compared to other policy items, probably due to the decline in real gross and net wages since 2000 (Lesch, 2010). Further studies are needed to explain residual variance between these items. After these modifications, the model showed an acceptable fit to the data.

Measurement invariance of GDR identification over time

First, separate confirmatory factor analyses were carried out for each measurement time for the GDR identification construct. Each time, modification indices have pointed to residual correlation between the items "I feel closely connected to the GDR as my socialist motherland" and "I am ready to defend the GDR at any time with all my strength." Since these items came one after the other in the survey, we may have to deal with the halo effect here as well. After specifying these error correlations, a significant improvement in model fit was achieved for all three measurement points.

Subsequently, longitudinal invariance was tested (see Table 5.6). We used the maximum likelihood mean-variance adjusted (MLMV) estimator. Cases were included for which data were available at three measurement points (n = 880). Longitudinal measurement invariance was tested for respondents of the first three waves in order to have more cases available. The hypotheses were tested on a smaller sample, which includes only cases that occurred in both the first three and 23rd waves of the SLS. The longitudinal measurement invariance holds also for the smaller sample.

According to the step-up approach (Brown, 2015; Kleinke, 2017), in the first step, we calculated a baseline model in which model parameters were freely estimated. An autocorrelation of the measurement errors was specified. Intercepts of the first indicators were set to zero; other intercepts and latent means were freely estimated. A good fit was achieved for this model. In the

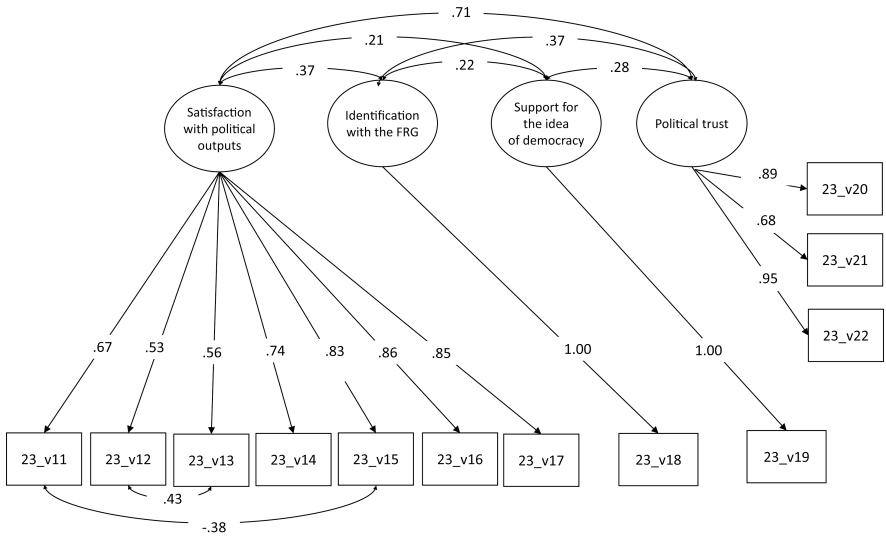

Figure 5.1 Measurement model of political support.

Note: χ^2 = 138.727 (*df* = 48, *p* <.001), RMSEA = 0.075, CFI = 0.977, TLI = 0.968.

All coefficients are statistically highly significant. Items were measured in 2009. WLSMV estimator.

23_v11: Satisfaction with wage policy.

23_v12: Satisfaction with educational policy.

23_v13: Satisfaction with health policy.

23_v14: Satisfaction with pension policy.

23_v15: Satisfaction with family policy.

23_v16: Satisfaction with social policy.

23_v17: Satisfaction with political system in the FRG.

23_v18: I feel like a citizen of the FRG.

23_v19: Support for the idea of democracy.

23_v20: Trust in the CDU/CSU.

23_v21: Trust in the SPD.

23_v22: Trust in federal government.

Table 5.6 Fit statistics of the models for testing longitudinal measurement invariance of the factor GDR identification.

	χ^2	$\Delta\chi^2$	*CFI*	*ΔCFI*	*TLI*	*RMSEA*	*SRMR*
Baseline model	646.059 (*df* = 369, *p* <.001)		0.967		0.961	0.029	0.034
Metric invariance	698.990 (*df* = 387, *p* <.001)	73.927 (*df* = 18, *p* <.001)	0.963	0.004	0.958	0.030	0.046

(*Continued*)

Table 5.6 (Continued)

	χ^2	$\Delta\chi^2$	*CFI*	*ΔCFI*	*TLI*	*RMSEA*	*SRMR*
Scalar invariance	799.688 (*df* = 405, *p* <.001)	167.681 (*df* = 18, *p* <.001)	0.953	0.01	0.949	0.033	0.051
Scalar invariance (with free intercepts of v02)	765.196 (*df* = 403, *p* <.001)	106.686 (*df* = 16, *p* <.001)	0.957	0.006	0.953	0.032	0.049

second step, metric measurement invariance was tested. For this purpose, a model was calculated in which corresponding factor loadings were equated in three measurement points and this model was compared with the baseline model. Again, the model fit was good. Although the χ^2 difference test was significant, the difference in the CFI value was < 0.01, which is an indication that the model solution does not deteriorate compared to the previous one (Cheung & Rensvold, 2002). For the test of the scalar measurement invariance, all corresponding intercepts were equated over time. For this model, the model fit was good, but the χ^2 difference test compared to the previous model was significant and the difference in CFI value was 0.01. Based on the modification indices, the corresponding intercepts of item v02 were freely estimated. In this model, the difference of the CFI value with the previous one was less than 0.01, and thus, a partial measurement invariance of the scale of the GDR identification over time could be considered as confirmed. The RMSEA value was below 0.05-Nievau for all models and thus indicated a good fit to the data.

The autoregressive model (see Figure 5.2) shows that the stability of GDR identification over time is moderate. Interestingly, the latent means decrease over time: On a scale ranging from 1 to 5, factor averages are 3.69 for 1987, 3.26 for 1988, and 2.87 for 1989. The model with latent means equated between three measurement points shows a much poorer fit to the data. Thus, it could be concluded that the identification of the respondents with the GDR in 1989 was weaker than in 1987.

Hypothesis test

Hypothesis testing was performed using a model with latent factors of political support added to the autoregressive model of GDR identification as dependent variables. In addition, covariates were added to the model to control for independent effects of the factor "GDR identification." Since information on covariates was only available at the fourth measurement point, covariance relationships between covariates and GDR identification from 1987 were specified.

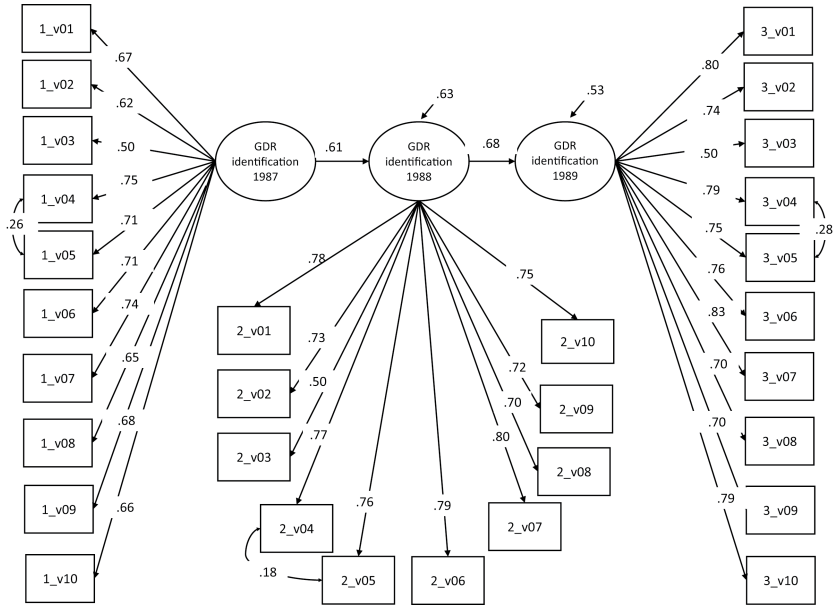

Figure 5.2 Autoregressive model of GDR identification 1987 to 1989.

Note: Completely standardized coefficients, estimator MLMV. All coefficients are statistically highly significant. Residual autocorrelations are not shown.

_v01: Life goal: to represent the Marxist–Leninist worldview.

_v02: Life goal: to take on responsible tasks in the management of socialist society (e.g., through functions in the FDJ, member of a conflict commission, member of parliament).

_v03: I have a secure future in the GDR.

_v04: I feel closely connected to the GDR as my socialist motherland.

_v05: I am ready to defend the GDR at any time with all my strength.

_v06: I feel closely connected to the Soviet Union.

_v07: Marxism–Leninism helps me to find a correct answer to all important questions of life.

_v08: The future belongs to socialism, despite temporary setbacks.

_v09: Reasons to learn: because a socialist citizen must be educated all-around.

_v10: I am proud to be a member of the FDJ.

An acceptable fit was achieved for this model (see Figure 5.3).

The effects of GDR identification were not significant for any of the dimensions of diffuse support. On the other hand, the data showed that the specific support, that is, satisfaction with political outputs, was influenced by earlier GDR identification. Thus, only Hypothesis 4 could be confirmed: the stronger the GDR identification before the reunification, the more dissatisfaction with political outputs is expressed later on.

Furthermore, we made the following interesting observations for which no explicit assumptions were made.

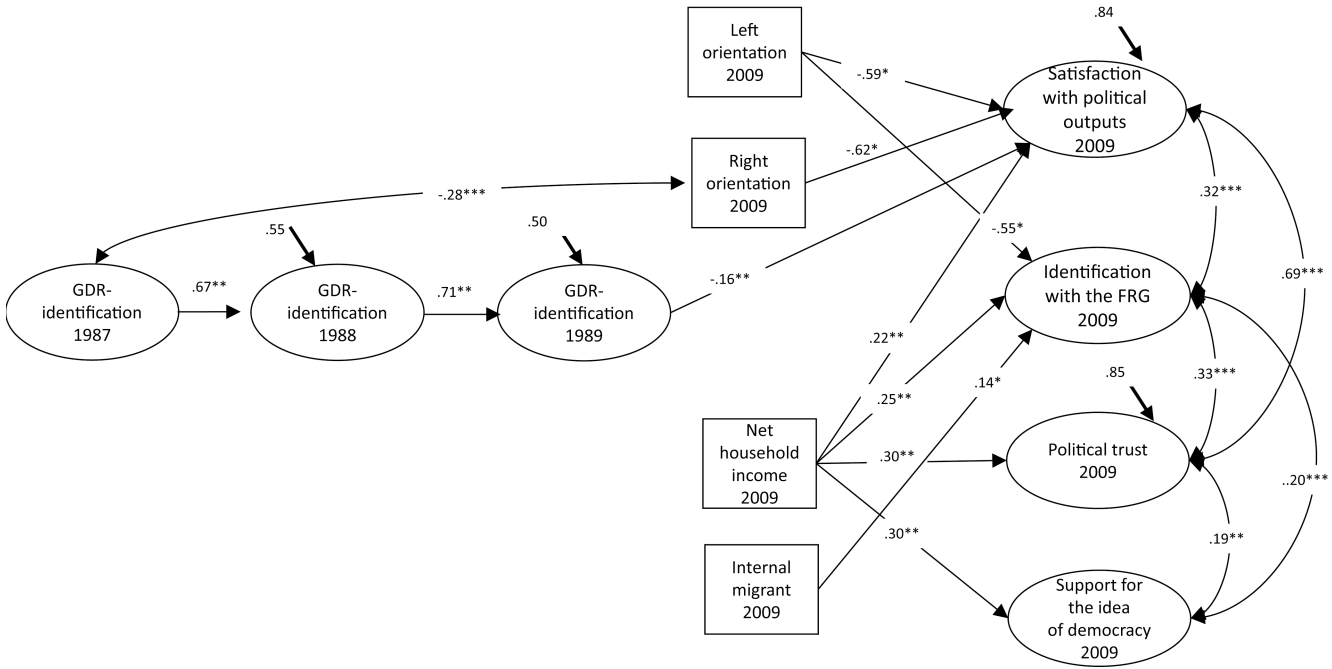

Figure 5.3 Explanatory model of political support with former GDR identification and sociopolitical characteristics.

Note: *, **, ***Significant on 10%, 5%, or 1% level. WLSMV estimator.

The measurement models of the latent factors and not significant paths are not shown here. Residual variance of the factors "Identification with the FRG" and "Support for the idea of democracy" are not shown here, as they were only measured by one item each.

For continuous covariates, fully standardized estimates (StdYX) are shown, for binary variables, StdY-standardized coefficients are shown.[6] Because of the different standardization, they can not be compared directly.

Household net income proved to be an explanatory determinant for both specific and diffuse types of support. A high household income goes hand in hand with great satisfaction with political outputs, with a high level of trust in political authorities as well as a great approval of the idea of democracy and a strong identification with the FRG.

Weakly significant effects (at 10% error level) were found for left-right ideological orientation with regard to satisfaction with political achievements and identification with the FRG: Compared to the middle group, both right- and left-oriented people are less satisfied with political achievements. Politically more left-oriented people identify less with the FRG than the middle group.

Results also revealed a significant negative correlation between political right-wing orientation and former GDR identification.

The model was able to explain 12–16% variance of political support factors, with this value being highest for satisfaction with political outputs and lowest for support for democracy.

Discussion

In this chapter, we investigated the question of whether a strong identification with the GDR before the German reunification has a lasting impact on support for the political system and democracy. Using the data of the Saxon Longitudinal Study, we had a unique opportunity to measure the system attachment of the respondents while the GDR was still in existence and did not have to do so retrospectively.

Study participants were 14 years old when the first wave of the SLS study was conducted. According to the crystallization theory, the earlier political values and attitudes are learned, the more stable they are, and their crystallization takes place in adolescence (Bock, 2000). In the first three waves of the SLS study, the largely crystallized political attitudes of young people before the collapse of the GDR were queried, with social desirability probably playing a role in the survey. Nevertheless, it was interesting to see that the system identification of young people decreased on average between 1987 and 1989. This reflects the situation that led to the peaceful revolution in the GDR in 1989. For the people who took part in the survey again 20 years later, we were then able to check the assumption that their system identification during the GDR era effects their current orientation toward the political system.

Our results show that two decades after reunification, effects of identification with the GDR can only be found in terms of specific political support. According to Easton, specific support is generated on the basis of the perceived general performance of the authorities. The results of this study show that also political attitudes crystallized in adolescence can subsequently influence the evaluation of everyday political outputs. A strong system connection with the GDR seems to have shaped an evaluation standard. This standard may now be used to evaluate and compare current political achievements

with those from the GDR era. This finding is consistent with studies arguing that the majority of East Germans associate the reunification of Germany and German democracy with many losses, especially in relation to social issues, such as employment, protection of children and young people, safety and equality for women, and legal abortion (Körber-Stiftung, 2019; Montada & Dieter, 1999; Thumfart, 2001).

In the sense of David Easton's theory of political support, one would more likely expect an influence of political socialization with regard to affective, value-based orientation to the political system. Our results show that diffuse support is not affected by the former GDR identification. A "successful" political socialization in the GDR, an indicator of which could be considered a strong system identification, thus plays no role in terms of basic orientation to the political system and controls neither the support of democracy nor the identification with the Federal Republic of Germany and trust in political elites. In current political discourse, some people argue that a GDR socialization could be the cause for antidemocratic attitudes even decades after the reunification, as East Germans may not have fully "arrived" in democracy (see e.g., FAZ.net, 2021). Based on our results, the existence of this "wall in the heads" ("Mauer in Köpfen") could not be confirmed with regard to support for democracy. In this context, it was interesting to see that earlier GDR identification and political right-wing orientation correspond, but with a negative sign. This means that those who previously identified strongly with the GDR are less likely to orient themselves politically to the right but rather to the middle. Best et al. (2014), based on a representative survey of the East German state of Thuringia, concluded that a positive perception of the GDR and a critical perception of the status of East Germans in unified Germany strengthen right-wing extremist attitudes. The retrospective positive assessment of the GDR can also reflect dissatisfaction with unification and its consequences (Opp, 2018) and can therefore differ significantly from the attitude toward the GDR during the existence of the system. However, since we have not considered politically extreme right-wingers as a separate group, we cannot explain this connection further at this point. This is a limitation of our study, since an affinity for extreme right-wing parties and also the tendency to authoritarianism can influence the support of the political system (see, e.g., S. Pickel et al., 2022). The follow-up research can continue here to find out in what context a strong GDR identification stands before the German reunification with later extreme right-wing political orientation and the affinity for right-wing parties.

Further limitations of our study concern the lack of representativeness and small sample size. Due to the fact that the sample was age-homogeneous, no conclusions could be drawn about possible effects of age. Also, the education of the respondents could not be taken into account in the evaluation. Since education was only collected in earlier waves of the SLS, the consideration of this variable would make the sample even smaller due to a lack of data for all participants.

Authors' note

This research was funded by the German Federal Ministry of Education and Research, Berlin, grant number 01UJ1911AY.

The study was approved by the ethics committee of the TU Dresden (protocol EK8012011 from February 11, 2011).

The analyses are based on the Saxon Longitudinal Study. The data of the Saxon Longitudinal Study are archived at the Leibniz Institute for the Social Sciences (GESIS) and can be obtained for research purposes from https://search.gesis.org/research_data/ZA6249, https://search.gesis.org/research_data/ZA7841 (accessed on September 30, 2023).

The authors declare no conflict of interest.

Notes

1 The longitudinal measurement invariance was tested using the first three SLS waves. The hypotheses were tested with a smaller sample which included cases with participation in both the first three and the 23rd waves of the SLS (n = 324). The tested longitudinal measurement invariance holds also for the smaller sample.
2 Social Democratic Party of Germany.
3 Christian Democratic Union of Germany/Christian Social Union in Bavaria.
4 Law on the Participation of the Youth of the GDR in the Shaping of the Developed Socialist Society and on its All-Round Promotion in the GDR (Volkskammer der Deutschen Demokratischen Republik, 1974)
5 We specified identification with political community and support for democracy as latent constructs with only one measurement indicator in order to obtain comparable correlation coefficients between all factors.
6 We used StdY-standardized coefficients for binary covariates, because a standard deviation change of a binary variable is not meaningful. The StdY-standardized coefficient is interpreted as the change in y in y standard deviation units when x changes from 0 to 1 (Muthén & Muthén, 1998–2017, p. 800).

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6 Antisemitism in East and West Germany

Three decades after the wall: a comparative longitudinal study considering age-period-cohort effects

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Introduction

About three decades ago, international politics and the world press looked with serious concern at the events in unified Germany. The shocking and cruel pictures of outbreaks of violence and arson attacks on foreigners and refugees or the assault on the synagogue in the town of Lübeck in 1994 went around the world. But also recently, there have been hostile attacks toward Jews, such as the one at the synagogue in the town of Halle in 2019, which almost ended in a catastrophe. In 2022, the German authorities recorded a new all-time high of attacks and discriminative actions against Jews (see RIAS, 2022), indicating that antisemitism is a lasting momentous societal problem becoming increasingly visible again, not only in the form of hate crimes but also ideologically, for instance, during the coronavirus pandemic (e.g., Gunz & Schaller, 2022).

The unification of the two German states in 1990 was partly not welcomed worldwide but also accompanied by fears of a too powerful and nationalistic Germany (Rödder, 2009, pp. 156ff.). Therefore, when the German Democratic Republic (GDR) joined the Federal Republic of Germany (FRG), two surveys were immediately conducted to examine whether the concerns about authoritarian and antisemitic attitudes among the Germans were justified—especially regarding the population in the East. Consistently, both studies showed a much lower prevalence of antisemitism in the East compared to the West including cohort differences (Wittenberg et al., 1991; Jodice, 1991), a result confirmed by surveys up to 1996. Later studies showed a gradual convergence of antisemitic attitudes in East and West Germany, whereby clear cohort differences were also evident. Another central example of fluctuations of antisemitic attitudes is the increase during the Second Intifada (2000–2005). Within this period, antisemitism rose sharply but settled back to its lower level before this event after a few years. Also here, differences have been detected depending on age groups.

DOI: 10.4324/9781003427469-8

Nevertheless, all these studies cover only annual spotlights or relatively short period changes of antisemitic attitudes. The reasons for the different trends depend on not only life-cycle effects, societal or political events but also system effects stemming from different socialization processes in East and West Germany, which have been extremely diverse and complex. Furthermore, all these effects of age (life cycle), period, and cohort (socialization) are frequently interrelated.

Further striking problems for long-term empirical research are the different survey instruments used, a lack of proof for measurement equivalence, and inconsistent generation typologies, especially regarding the divided postwar Germany. Therefore, our study is to be seen as a first short overview of the possibilities and problems in the empirical analysis of antisemitic attitudes in a long-term perspective. The basic guiding question of this study is how the mentioned temporal differences between East and West come about and to what extent age-period-cohort effects (APC) play a role here. To the best of our knowledge, studies on long-term trends in the development of antisemitic attitudes applying comparable modeling approaches have not yet been conducted (e.g., Smith & Schapiro, 2019). Therefore, this study aims to fill an existing research gap and investigates the following research questions:

1. Can APC effects on antisemitism approval be disentangled empirically?
2. Do APC effects differ regarding the approval of classical and secondary antisemitism?
3. Do model results show different effect patterns regarding the approval of antisemitism among generations socialized in East or West Germany?

To deal with these questions, we first define the two forms of antisemitism under the scope of our study: classical and secondary antisemitism. Afterward, considerations on possible APC effects are presented, which might be responsible for attitude changes and temporary fluctuations. We then give an overview of antisemitism research in unified Germany from the 1990s until today. The theoretical section closes with the explicit formulation of general hypotheses. They serve as a principal orientation for the interpretations of our empirical analyses.

In the empirical section, we first elucidate our databases and the operationalizations, necessary data preprocessing, preliminary tests on survey mode effects as well as the analysis strategy. Next, we will start with a short descriptive overview of antisemitic attitudes in East and West Germany based on data from 19 representative surveys during the period from 1991 to 2021. Thereupon, we present APC analyses which allow to investigate possible effect patterns with respect to different temporal dimensions. Additionally, robustness tests are done by integrating a set of control variables. We close this study with a short summary and critical questions regarding further empirical research and limitations of our study.

Theoretical section

Forms of antisemitism

In the following, the latent attitude constructs considered here are briefly defined. The focus of our study is to examine the two basic forms of antisemitic attitudes in Germany, that is, classical and secondary antisemitism (for other facets of antisemitic attitudes, e.g., Israel-focused antisemitism vs. a critical attitude toward Israel, see Heyder et al., 2005; Bergmann, 2021).

Classical antisemitism as an attitude is defined as social prejudice against Jews based on traditional derogatory stereotypes and therefore attributed negative characteristics (Bergmann & Erb, 1991). Over the course of centuries of Jew-hatred, various functionally instrumental images conveying hostility to Jews have interwoven into myths that serve to promote social and political discrimination against Jews, their expulsion or, in the extreme, murder and genocide. Examples of such myths include the images of the murderer of Christ (a clerical myth), the avaricious Jewish usurer, and the Jewish world conspiracy (secular myths).

In the scientific literature, secondary antisemitism is treated as a specific form of antisemitism that was able to develop because of—and not despite—the Holocaust (Bergmann & Erb, 1991, 1986). It is characterized by the relativization and sometimes even denial of the Nazis' crimes against the European Jews (*Auschwitzlüge*) and by the demand for a line to be drawn (*Schlussstrich*) under that chapter of German history (Heyder et al., 2005; Bergmann & Erb, 1991). This relativization of German crimes is generally accompanied by a reversal of victim and perpetrator, which is in turn based on classical antisemitic stereotypes following an argumentation that by virtue of their worldwide power (world conspiracy; *Weltverschwörung*), the Jews were exploiting their victim status (shrewdness; *Gerissenheit*) to gain financial and political advantage (greed for money; *Geldgier*). Secondary antisemitism embodies the uncomfortable and unresolved issue of guilt, which sets a fundamental barrier to the desire for an untainted and positive German identity (Haury, 2001).

Life cycle, period, and cohort effects on attitudes

Regarding these two forms of antisemitism, observed temporary fluctuations or steadiness over time are often associated with actual age in a narrower or broader sense. Scrutinized as an important criterion for attitudinal development, three basic effects are distinguished in relation to this type of influence: life cycle, period, and cohort effects (Mayer & Huinink, 1990; Glenn, 1977).

Life-cycle effects

Those attitudinal changes related to the aging process itself and specific to individuals are life-cycle effects. Recently discussed theoretical assumptions

pose that individuals' attitudes are both rooted in early imprinting through biological make-up and dispositions as well as changed by their personal experience through life course transitions. Furthermore, individuals' attitudes are subject to fluctuations influenced by temporary environmental factors, while also being shaped by their past biographical experiences when they adapt their attitudes, values, and beliefs (Lersch, 2023). For instance, an empirical study in eight European countries found a positive relationship between increasing life age and growing antisemitic and other racist attitudes (see Zick et al., 2011).

Period effects

Those effects generated by external influences related to a specific time period that affect all age groups at the same time but at different ages are called period effects (Glenn, 1977, p. 11). The age difference is based on the age-specific effect and evaluation of current social events and conditions such as social, political, and economic developments and ideological shifts. For example, this is valid for the system change experiences in East and West Germany in the 1990s, which had different consequences for different cohorts. In addition, there is a specific period effect, which is called epochal effect. Here, such events are age-invariant across several age groups and thus have a homogeneous effect on a society as a whole (Bengtson & Cutler, 1976; Fogt, 1982).

Cohort effects

These effects are caused by influences related to the membership of a birth cohort. Cohort effects are due to the fact that similar birth groups "experienced a certain common period in time or experienced a certain event" (Mayer & Huinink, 1990, p. 445; Ryder, 1965, p. 845). Mannheim (1928) understands the term generation in this sense. According to this, the specific social experiences up to adolescence and their processing are decisive for attitude formations (Gorodzeisky & Semyonov, 2018). In principle, however, events occurring during life after adolescence can also be cohort-constituting.

All these basic effects are responsible for attitudinal and ideological differences (regarding the distinction between ideologies, prejudicial attitudes, and stereotypes, see Heyder et al., 2022). In our case, they are crucial for changes in antisemitic attitudes in the East and West German population and corresponding cohorts over time. Of course, several individual-level factors and the respective period of socialization, historical events, and societal as well as political developments are also highly relevant for such effects (for a historical comprehensive overview of antisemitism in Germany, see Longerich, 2021).

Antisemitism research in unified Germany

In the following, we will give a short overview of antisemitism research in Germany and discuss the state of research for potential life cycle, period, and cohort effects. Several studies have analyzed the development of antisemitic attitudes in West and East Germany based on the respective available empirical survey data. Some start with the surveys from 1991 onward but only included studies up to the early 2000s (Wittenberg & Schmidt, 2004; Leibold & Kühnel, 2009), others only started there and range until 2022 (Group-Focused-Enmity [GFE] and right-wing extremism, cf. Zick & Küpper, 2021; and the Leipzig Study on Authoritarianism [LAS], cf. Decker et al., 2022), while still others only offered a comparison of two points in time (Bergmann & Münch, 2012). None of them used statistical methods to disentangle age, period, and cohort effects, but they did contain different theoretical explanations why antisemitism varies over time.

Leibold and Kühnel's study (1991 to 2008) shows consistently higher agreement with antisemitic items among West German respondents for classical antisemitism, with a convergence between East and West Germans over time. The parallel development of antisemitic attitudes in East and West Germany, however, does not show a consistent decline, but rather a decline until the late 1990s was followed by a renewed increase from 2002 onward, only to continue to decrease after 2006 until 2020. At the same time, patterns of antisemitic attitudes in East and West Germans continue to converge (Leibold & Kühnel, 2009). For secondary antisemitic attitudes, a different developmental trajectory emerges for the years 2003 to 2008. Approval not only is significantly higher among East and West Germans compared to classical antisemitism but also shows a growing gap between East and West. Like classical antisemitism, secondary antisemitism also shows a decreasing trend during this period (Leibold & Kühnel, 2009). Of interest for our study is the influence of age and education (as an indicator for different socialization experiences) on the correlations between nationalist and classical antisemitic attitudes. While the bivariate correlations from 1991 to 2008 are consistently significantly higher for West Germans, this effect almost disappears when the variables of age and education are included. While differences in education make an impact on the influence of nationalism on antisemitism among East and West Germans in the same way, the age effect is much more pronounced in the West (Leibold & Kühnel, 2009).

Wittenberg and Schmidt (2004) refer to four studies from the years 1994, 1996, 1998, and 2002 to examine the development of antisemitic attitudes among West and East Germans. First, they compare two items (influence of Jews on world events; instrumentalization of the Holocaust for the benefit of Jews living today), and second, they constructed an antisemitism index from the sum of the affirmation of anti-Jewish affective expressions in the respective studies. For Germany as a whole, they found an almost linear decline in antisemitic attitudes over this period (from 19.1% to 11.3%). This development

runs parallel for East and West, although the gap between East and West Germans remains large (7% to 14.2%). However, for the indicator "instrumentalization of the Holocaust," they note an agreement almost twice as high among East Germans compared to the West in this period. For Germany as a whole, they found a continuous increase in antisemitic attitudes with age, whereby the influence of age was greater among West Germans for all age groups. For 1996 and 2006, Bergmann and Münch (2012) also found differences between the population of the former GDR and that of West Germany on the basis of the General German Social Surveys (GGSS): "First, antisemitic attitudes are still less widespread among [East Germans], second, due to the more homogeneous social and educational structure in the GDR, age as well as educational and professional careers had less influence on attitudes toward Jews" (p. 331). In East Germany, too, the oldest generation (survey 1996: born in 1936 and older; survey 2006: born in 1961 and older) showed the largest proportion of anti-Jewish attitudes, albeit at a lower level than the same generation in the West. This difference could be due to the influence of the anti-fascist policies of the GDR on the older generation, but, as some authors have recently pointed out, they could also be due to the fact that there were already "substantial differences in economic structures, political preferences, cultural traits and gender roles between what later became East and West Germany" in the period before 1945: the working-class share was higher in the East, and the people were politically more often left-wing oriented (Becker et al., 2020, pp. 144–151). While attitudes in this generation remained stable from 1996 to 2006, they increased most significantly in the youngest cohort and were even higher than in the same West German age group. While the anti-fascist orientation of the GDR still lingered in the older generations, it lost influence in the youngest postunification cohort, which was predominantly socialized in Germany after 1990 (Bergmann & Münch, 2012, p. 337; for a discussion about the formation of generations in the GDR, see Schüle et al., 2006).

The GFE and LAS (Zick et al., 2019; Decker & Brähler, 2020) have found a slow decline in classical antisemitic attitudes for the German population from 2006 onward, with a clear break starting in 2014. The LAS reveals an interesting pattern regarding East–West differences: While East Germans show substantially lower approval in 2002, which doubles by 2012 and exceeds the approval rate of West Germans for the first time, only to fall back to the declining West level in 2022. Moreover, the age structure does not show a continuous increase with age but rather higher approval rates among the group of 31- to 60-year-olds compared to the youngest and oldest age groups. The highest approval ratings are found in the 35- to 45-year-old age group, whose members spent their childhood and adolescence at the time of unification (Wende). Decker et al. (2020) attribute a massive increase in antisemitic attitudes among East Germans in the years 2008 to 2012 to the financial and economic crisis.

The Group-Focused-Enmity (GFE) studies showed a decline in antisemitic attitudes for classical antisemitism over the entire period from 2006 to 2018, but this did not occur continuously. From 2002 onward, there was

a noticeable increase, only to remain at a level of 8–9% between 2006 and 2014, before the significant decline to 5.8% in 2016 (2018/19: 5.1%; 4.9% West, 5.6% East). The age distribution shows a decrease for the population across all age groups (Zick et al., 2019).

As previously stated, the empirical overlap of the age and cohort concepts makes it difficult to differentiate between the two effects. Some authors argue that due to different socialization experiences, cohort and period effects are far more likely to explain increasing agreement in older age groups than life-cycle effects. Using the GGSS 1996, Heyder and Schmidt (2002) confirmed the overall trend of increasing mean values across the age groups for four antisemitism items, with West German respondents consistently showing higher mean values compared to the East Germans, with one exception in which the East German age group up to 21 years has (more than) matched that of the West Germans. Overall, the mean values of East and West German adolescents show smaller differences in three of the four antisemitism items than in the following higher age groups, indicating an approximation between East and West. The authors also see the socialization-theoretical assumption as confirmed "that older people are fundamentally more antisemitic—both in East and West Germany for respondents aged 50 and over" (2002, p. 121), "because younger respondents are significantly less antisemitic than older respondents due to, among other things, the liberal political climate of recent decades as well as the influence of school as a socialization instance" (p. 122).

This theoretical assumption of cohort effects, that is the replacement of older cohorts with younger ones, rather than natural aging is also supported by the findings of Zick et al. (2017), who found that in 2002, the oldest cohort (65+) was still significantly more antisemitic than the younger cohorts. This cohort effect has faded over the years. In regression analyses, the age variable is partly no longer significant; sometimes it still shows significant minor effects. The East–West difference is also negligible for a more precise characterization of antisemitism for all three facets (classical, secondary, and so-called anti-Israel antisemitism). Although people from the new federal states generally show somewhat less clear agreement with antisemitic statements in these surveys, the differences in the mean values were overall not statistically significant. These results indicate an approximation of the amount of antisemitism in the old and new federal states.

General hypotheses

Based on these theoretical considerations and previous empirical results, we will test the following general hypotheses:

H1 (life-cycle hypothesis): The older the respondents, the higher the degree of antisemitic attitudes.

H2a (cohort hypothesis): Younger generations express less antisemitic attitudes in comparison to older generations.

H2b (cohort hypothesis): In East and West Germany, antisemitic attitudes differ less among the younger generations socialized in united Germany in comparison to generations exposed to the different political systems in their formative years.

H3 (period hypothesis): Historical and political events as well as ideological shifts have an influence on the degree of antisemitic attitudes among all age groups at the same time.

H4 (conceptualization hypothesis): The prevalence of classical and secondary antisemitism varies differently over time with respect to East/West Germany as well as age groups.

In addition, regarding our robustness tests using control variables, we formulate:

H5 (robustness hypothesis): Compared to the pure model, the covariate models yield only slightly different patterns with respect to life cycle, period, and cohort effects.

Empirical section

Data and operationalizations

After an extensive investigation of accessible representative data fielded across the whole country, we identified two items that were surveyed over three decades from 1991 to 2021 and, therefore, are eligible for a repeated cross-sectional analysis. One question is tapping into the dimension of classical and the other of secondary antisemitism. While the item wording varies to some extent, the core message is identical (for a new generalized antisemitism scale, see Allington et al., 2022). In total, we have 18 data points for classical and 16 for secondary antisemitism available with varying time intervals in between (see Table 6.2. and Appendix 6.1).

Unfortunately, the survey from 1991 has inconclusive values for respondent age, and this is why we use this data only for descriptive analyses. Each survey was drawn from a representative sample of the German population aged 13, 16, or 18 years and older and conducted with pen-and-paper personal interviews (PAPI), computer-assisted telephone interviews (CATI), computer-assisted personal interviews (CAPI), computer-assisted web interviews (CAWI), or in a combination of these methods following a multimode design. A comprehensive overview of all data used in this study, the time of data collection, item wording, response scales or codes, and respective univariate statistics can be found in Appendix 6.1. Later, we present our central dependent variables (DV) with the question wordings that have been chosen most often in the conducted surveys (item wording variations in parentheses):

Classical antisemitism: *Jews have too much influence in Germany (. . . in the world).*

Secondary antisemitism: *Today, many Jews try to take advantage of the past of the Third Reich (. . . and make the Germans pay for it).*

Table 6.1 A generation typology approach and respective sample characteristics.

Generation	*Birth years*	*Frequency (%)*	*Cases (n)*	*Observed periods*	*Observed age*
Federal Republic of Germany (FRG)					
(1) Lost generation	1887–1938	14.0	5,720	1992–2021	54–90
(2) WWII generation	1939–1945	10.5	4,312	1992–2021	47–82
(3) Postwar generation	1946–1964	37.1	15,204	1992–2021	28–75
(4) Generation X	1965–1982	29.3	12,018	1992–2021	18–56
(5) Generation Y	1983–1994	7.9	3,224	2002–2021	18–38
(6) Generation Z	1995–2003	1.3	519	2016–2021	18–26
German Democratic Republic (GDR)					
(1) Lost generation	1887–1938	14.7	5,708	1992–2021	54–90
(2) WWII generation	1939–1945	10.9	4,226	1992–2021	47–82
(3) Postwar generation	1946–1970	50.6	19,649	1992–2021	22–75
(4) Youth during unification	1971–1980	13.3	5,162	1992–2021	18–50
(5) Child during unification	1981–1989	7.7	2,985	2002–2021	18–40
(6) Postunification generation	1990–1994	1.9	731	2008–2021	18–31
(7) Generation Z	1995–2003	1.0	378	2016–2021	18–26

Note: Calculations are based on a pooled dataset of all representative data utilized in this study; the reported generation characteristics rely on a selected sample with valid values on at least one of the two dependent variables.

Regarding cohort classification, we follow Mannheim's (1928) conceptualization and rely on the work of Ahbe and Gries (2006; see also Kubiak & Weinel, 2016) for East Germany, whereas the classification provided by Klimczuk (2015) is considered as a suitable benchmark for West Germany. In accordance, our generation typology approach accounts for the time before, during, and after the division of Germany and is characterized as shown in Table 6.1. However, it should be noted that these (among others) generation approaches have been derived from a theoretical perspective and that they lack supportive empirical evidence. Nonetheless they can serve as an indication of whether effects undergo changes during presumed generational transitions.

Data preprocessing and preliminary analyses

As mentioned earlier, we faced the challenge presented by the fact that the surveyed questions on antisemitism are quite heterogeneous. Nowadays, several quantitative techniques for cross-survey data harmonization exist (e.g., Singh, 2021), but considering the scope of this contribution, we decided not to walk this path in preparing the data. Instead, to make the survey measures comparable, we initially recoded the central dependent variables (DV) into a consistent format which summarize item responses into a categorical

variable with the four categories: "fully disagree," "tend to disagree," "tend to agree," and "fully agree."

Therefore, where four answer codes were possible, no further transformation was adjusted. For five-point scales, we set the middle category (3) to missing and matched the other responses into the categorical format. Regarding seven-point scales, we decided to specify the outermost scale points as full disagreement respectively agreement, and the intermediate scale points 2–3 as well as 5–6 were specified as tend to disagree respectively tend to agree. Again, the middle scale point (4) was treated as an indifferent response and was set to missing. Other coding approaches would certainly be possible, but we argue that it makes more sense to harmonize content-coherent and only code full agreement versus disagreement as one category, even though this leads to smaller sample sizes within the categories.

When present, design weights were adjusted to account for the oversampling in the Eastern federal states. Furthermore, considering the sampled data with unalike age thresholds, we decided to exclude outliers to avoid biased estimation due to extreme skewness in the age distribution. In Table 6.2, the valid *n* after case selection and relative frequencies for the combined agreement categories are presented for each data point.

Of course, this pragmatic approach of data linking has drawbacks and entails a loss of information in the database that we use for our models. Nevertheless, we are predominantly interested in the approval of antisemitism over time and therefore selected the outlined standardization approach for a first exploration as presented in this study. Moreover, cross-survey measurement invariance (MI) is still not given in empirical terms when keeping in mind that we transformed the data from a theoretically driven perspective (e.g., Millsap, 2011). However, Heyder et al. (2022) carried out extensive analyses of various forms of MI and found for classical antisemitism that at least metric MI is supported by the data (within and between individuals). Furthermore, we conducted correlational analyses and discovered a moderate association between the items, suggesting that discriminant validity can be assumed. This finding aligns with previous studies with comparable survey measurements (see Heyder et al., 2005; Imhoff, 2010).

In addition, we initially conducted analyses to account for mode effects resulting from different interview techniques and the use of varying response scales (see Rothgeb et al., 2007; Tourangeau & Smith, 1996). Thus, we found that the likelihood of antisemitism approval is lower in surveys with interviewers involved (e.g., CAPI) compared to self-administered interview modes (CAWI). We interpret these findings as indicative for social desirability bias, wherein participants tend to avoid presenting themselves negatively in surveys related to sensitive topics (e.g., Groves et al., 2004; Krumpal, 2013). Moreover, the analyses revealed that surveys employing different response scales bias the approval of antisemitism items to some degree. When compared to a four-point response scale, the five-point and seven-point scales

Table 6.2 Classical and secondary antisemitic attitudes from 1991 to 2021.

Surveys and modes		*Jodice 1991 (PAPI)*	*Emnid 1992 (PAPI)*	*Falter et al. 1994 (PAPI)*	*GGSS 1996 (PAPI)*	*Forsa/Die Woche 1998 (CATI)*	*GFE 2002 (CATI)*	*GFE 2003 (CATI)*	*GFE 2004 (CATI)*	*GFE 2005 (CATI)*	*GFE 2006 (CATI)*	*GFE 2007 (CATI)*	*GFE 2008 (CATI)*	*GFE 2009 (CATI)*	*GFE 2010 (CATI)*	*GFE 2011 (CATI)*	*GGSS 2012 (CAPI)*	*GGSS 2016 (CAPI)*	*GGSS 2018 (CAPI)*	*GGSS 2021 (CAWI)*
Agreement to classical antisemitism: Jews have too much influence in Germany (. . . in the world).																				
Sample size		1,513	–	3,052	2,716	1,594	2,884	2,832	2,897	1,908	1,938	1,894	1,937	1,926	1,954	1,939	2,650	2,600	2,630	2,600
Full	*T*	10.8	–	5.1	11.0	10.5	5.4	7.9	7.7	7.5	4.6	4.4	4.6	4.5	5.2	4.4	9.7	9.3	4.4	3.0
	W	12.7	–	5.8	12.1	11.2	5.4	7.7	7.9	7.4	4.9	4.6	4.7	4.6	5.2	4.3	9.8	8.7	4.4	2.7
	E	3.8	–	2.5	6.2	6.6	5.9	9.2	6.8	8.5	3.2	3.6	3.9	3.8	4.7	5.3	8.9	11.8	4.4	5.1
Partial	*T*	26.2	–	15.7	21.4	16.4	12.6	13.2	11.5	10.5	7.3	10.1	8.2	8.4	8.5	8.9	19.3	20.9	8.6	12.2
	W	28.9	–	17.6	22.9	16.2	13.4	13.9	12.0	11.1	7.1	10.1	8.2	8.4	8.4	8.9	19.6	21.0	8.5	12.3
	E	16.1		8.0	14.5	17.4	8.5	9.8	9.0	7.7	8.7	10.0	8.5	8.5	8.9	8.7	17.9	20.3	9.2	11.6

(*Continued*)

Table 6.2 (Continued)

Surveys and modes		*Jodice 1991 (PAPI)*	*Emnid 1992 (PAPI)*	*Falter et al. 1994 (PAPI)*	*GGSS 1996 (PAPI)*	*Forsa/Die Woche 1998 (CATI)*	*GFE 2002 (CATI)*	*GFE 2003 (CATI)*	*GFE 2004 (CATI)*	*GFE 2005 (CATI)*	*GFE 2006 (CATI)*	*GFE 2007 (CATI)*	*GFE 2008 (CATI)*	*GFE 2009 (CATI)*	*GFE 2010 (CATI)*	*GFE 2011 (CATI)*	*GGSS 2012 (CAPI)*	*GGSS 2016 (CAPI)*	*GGSS 2018 (CAPI)*	*GGSS 2021 (CAWI)*
Agreement to secondary antisemitism: Today, many Jews try to take advantage of the past of the Third Reich (. . . and make the Germans pay for it).																				
Sample size		–	2,855	–	2,712	1,616	2,912	2,859	2,873	1,905	1,929	957	1,912	1,899	1,916	1,922	2,671	2,667	–	2,577
Full	*T*	–	16.5	–	26.4	24.3	17.2	20.1	16.8	17.5	14.6	11.1	11.9	11.4	11.7	11.7	21.8	17.9	–	9.7
	W	–	20.1	–	28.2	25.0	17.4	20.3	17.0	17.7	14.9	10.9	12.0	12.0	11.7	11.9	22.0	17.4	–	9.3
	E	–	8.5	–	18.3	21.5	16.2	19.2	15.9	16.2	12.9	12.1	11.2	8.4	11.7	10.2	20.6	20.1	–	12.0
Partial	*T*	–	39.1	–	31.7	27.2	27.5	29.2	25.5	22.3	22.2	17.3	22.1	22.4	22.8	23.2	33.1	31.3	–	21.8
	W	–	41.5	–	32.0	26.1	28.0	30.3	26.4	22.9	22.3	17.3	22.5	22.8	22.6	23.6	32.9	31.0	–	21.8
	E	–	35.1	–	30.2	29.5	24.9	23.6	21.1	18.8	21.8	17.6	19.7	20.2	23.9	20.8	34.1	32.9	–	22.1

Notes: The survey labels entail either the respective principle investigators, the polling institute, or the survey programs as well as the year of data sampling; in case the data is published, data references can be found in the online Appendix 6.1; Rounded percentages; T = Total sample, W = West German sample, E = East German sample, PAPI = paper and pencil interview, CATI = computer assisted telephone interview, CAPI = computer assisted personal interview, computer assisted web interview.

elevate the likelihood of choosing agreement-based scale options significantly. Taken together, while life cycle and cohort effect patterns are quite robust, those traced back to time period are considerably subject to systematic measurement bias. Given these circumstances, we interpret all findings with caution and address the implications more detailed in the course of the interpretation.

Not only the surveyed forms of antisemitism and underlying questions vary considerably but also measures of sociodemographics and other well-known explanatory factors for outgroup derogation and antisemitic attitudes. To account for at least a minimal set of impacting correlates (IVs) of antisemitism as robustness tests, we were able to reasonably harmonize and include respondents' educational level (trichotomous), sex (dichotomous), household income (five categories), left-right-placement as ideological component (trichotomous), and perceived economic outlook (dichotomous) in our study.

Analysis strategy

First, we begin with a short overview based on univariate frequencies of the standardized agreement categories. Strictly speaking, only the results of the GFE surveys (2002–2011) can be compared with confidence here, as the sampling as well as measurements are identical. Nevertheless, fundamental tendencies can be recognized over the long period of time, although interpretations must remain speculative to some extent.

Second, we present model-based APC analyses within the repeated cross-sectional data setting to analyze temporal trends more profoundly. Recently, there have been substantial developments in statistical APC modeling making this approach more and more applicable also for research in the broader field of social science (e.g., Yang & Land, 2013; Fosse & Winship, 2019; Bell, 2020a). A major challenge for estimation is the identification problem accompanying APC analyses; that is, the difficulty is to isolate the effects of age, period, and birth cohorts on a given outcome with regard to the multicollinearity of these three factors (e.g., Fu, 2018; Bell, 2020b). Nonetheless, there have been methodological advancements and a wide range of applications to overcome the identification problem by introducing certain model constraints. Due to these consequential assumptions, empirical findings should always be interpreted carefully (see Bell, 2020a). We will not elaborate on the statistical details in depth but concentrate on the chosen modeling strategy for analyzing APC structures in the following.

In the given context, we applied generalized additive regression models (GAM) based on different subsamples (full sample vs. East/West Germany separately). Unlike linear models, which assume the relationship between the dependent and independent variables to be in a linear relationship, GAMs use an additive function (Wood, 2017). However, the implementation of GAMs offers a wide range of generalized ridge regression with multiple smoothing parameter estimation making this modeling approach applicable

to cross-sectional data with unequal intervals of sampling (see Wood, 2017; Gascoigne & Smith, 2021). The flexibility of this estimation procedure allows us to investigate nonlinear APC effect structures (pure models) and to account for additional covariates in the model structure for robustness tests (covariate models). More precisely, we use semiparametric additive logistic regressions to model the four categories of the standardized DVs as binary outcomes, a strategy comparable to a multinomial modeling approach (see Weigert et al., 2021, for a detailed outline of the underlying method).

In GAMs, the number of knots (i.e., the basis dimension) affects the model performance and the ability to estimate nonlinear relationships considerably. Therefore, to determine the appropriate number of knots for our data and respective model solutions, we used generalized cross-validation (GCV) in combination with a visual inspection of the model plot results. Additionally, to evaluate the model performance, we refer to the area under the curve (AUC) values (Japkowicz & Shah, 2011). These values range from.63 up to.68 including covariates (models "tend to agree") and.65 to.73 (models "fully agree") for the DV classical antisemitism, and from.57 to.62 including covariates (models "tend to agree") and.60 to.74 (models "fully agree") for the DV secondary antisemitism. Considering AUC scores close to 1 as implications for models providing good predictions, it can be concluded that the models for classical antisemitism as well as the category "fully agree" demonstrate a better fit to the data.

Finally, as an outcome, we obtain marginal effects from each model interpreted as odds ratios (OR). An OR of 1 indicates no association between the independent variable (e.g., birth cohort) and the respondents' choice of response categories. OR values greater than 1 indicate a higher probability, while results lower than 1 indicate a lower probability of choosing a category compared to the reference (Hosmer et al., 2013).

For presentation and interpretation of the model results, we use visualizations containing the plotted OR for the specific APC dimensions. In these plots, we included only the predictions for both agreement categories of classical and secondary antisemitism allowing us to draw direct comparisons of effect patterns in order to keep it simple. Furthermore, we have embedded vertical lines in the plots representing certain generation thresholds, which we typologized according to the decisive socialization periods in West and East Germany.

The data preprocessing, linking, and all statistical analyses were carried out with the open-source software R (R Core Team, 2022), using the three packages, mgcv (Wood, 2022), ggplot2 (Wickham et al., 2023), and APC tools (Bauer et al., 2023), which combines GAM estimation (mgcv) with plotting (ggplot2) and provides code examples (see also the GitHub repository from Weigert et al., 2020).

Descriptive findings

For a short introductory empirical overview, we will only discuss particularly striking findings here and begin with a very astonishing result for the whole

German sample (see Table 6.2). The approval rate of classical antisemitism in 2016 fell from 30% to 13% in 2018 (sum of fully and partially agree responses). One reason for this is a possible survey method effect (see, e.g., Rothgeb et al., 2007) linked to a different response categorization in the GGSS 2018 that included an explicit "neither/nor" category and thus may have led to a response shift. This finding will also show up in the model-based APC analyses.

On the background and in contrast to this example, the higher level of agreements to classical antisemitic statements in the period 2002 to 2005 (2002: 18%; 2003: 21%; 2004: 19%; 2005: 18%) in comparison to the decrease in 2006 (12%) is much more plausible (here, with identical item formulations and rating scales). During the Second Intifada (2000–2005), politics and, especially, the media were preoccupied with the bloody events that were currently taking place with thousands of attacks, warlike military conflicts, and murdered people. In Germany, this was intensively reported on in the media, partially on a daily basis (see Jäger & Jäger, 2003; Heyder et al., 2005). Events like these can be interpreted in the sense of period and/or epochal effects.

Age-period-cohort models

All these descriptive findings vary considerably in relation to age groups in East and West Germany. In the following, we will discuss this in a more differentiated way within the context of further findings based on the results of the APC models as shown in Figure 6.1. A detailed overview of the central model results (e.g., minimum/maximum OR for certain models) can be found in Appendix 6.2. In the following, we will also refer to the cohort typology outlined in Table 6.1.

Life-cycle effects

The models show a systematic pattern for antisemitic attitudes regarding life age effects, which supports our life-cycle hypothesis (H1). Consistently for both forms and regardless of East or West Germany, the chance for agreement choices decreases continuously under an age in the mid-50s while it increases in the life phase afterward. Overall, the association is more strongly pronounced for full in comparison to partial agreement. Moreover, we found some differences in the approval tendencies between classical and secondary antisemitism; that is, the likelihood for agreements over the lifespan shows stronger divergence with respect to secondary whereas the maximum age effects in early or late adulthood are stronger for classical antisemitism.

Cohort effects

Considering generational dynamics in antisemitic attitudes, first, we found that the maximum respective minimum cohort effects in our models as well

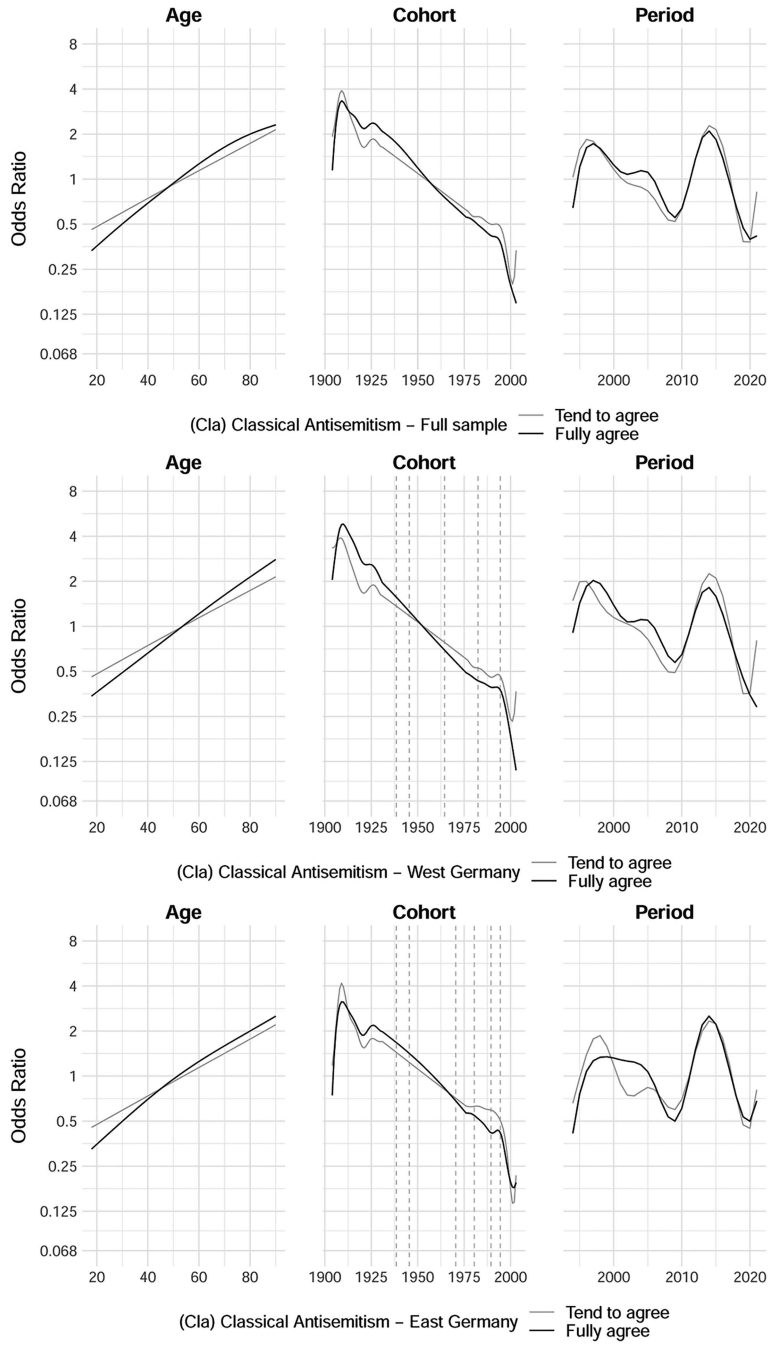

Figure 6.1 Plots for the pure APC models (fully and tend to agree responses).

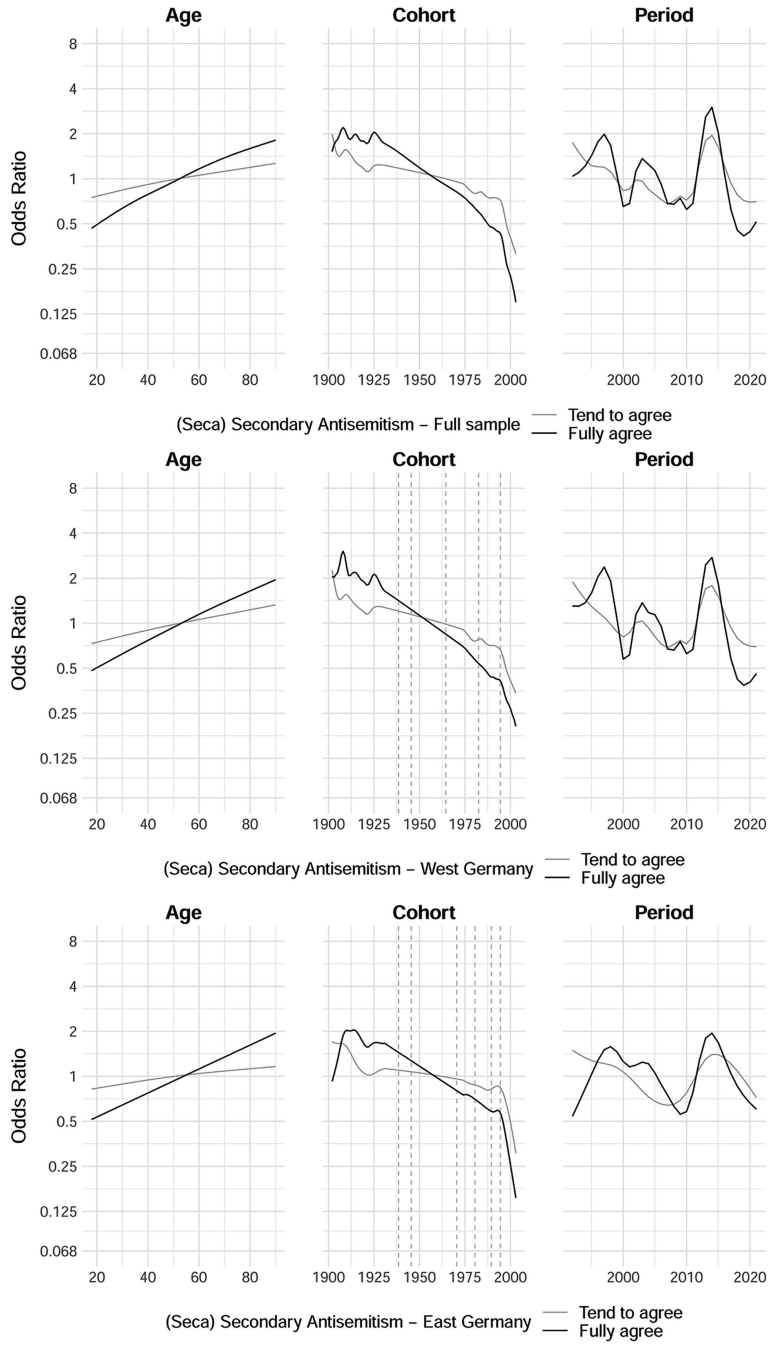

Figure 6.1 (Continued)

as the trajectories are more pronounced for classical than for secondary antisemitism. Furthermore, the effect patterns highlight that younger generations have on average a lower likelihood for agreement choices compared to the older generations born before the German division, supporting our first cohort hypothesis (H2a). Likewise, we found no systematic effect variations for individuals of the lost generation as well as the WWII generation between East and West Germany, for which a positive association with agreement choices is present, thus lending support for the second cohort hypothesis as well (H2b).

Additionally, regarding East–West differences, the cohort-dependent shift from a positive to a negative association occurs comparatively later in the Eastern postwar generation compared to the West, particularly for complete agreement. The results reveal also that negative associations with agreements to antisemitic statements are more present in the younger West cohorts (Generations X and Y) compared to the East cohorts (youth or childhood during unification).

In other words, the generational downward trend of agreement probability slows down more in the East among generations that intensively experienced the German unification in comparison to Generation Y in West Germany. Noteworthy, these patterns level for Generation Z, born in unified Germany, where observed effects seem to align in both parts of the country. However, an important difference between the two forms of antisemitism is that the effect pattern of partial agreement differs noticeably from full agreement for secondary antisemitism. Comparatively, in terms of cohort-related negative or positive associations, partial agreement is less pronounced.

Period effects

As previously mentioned, mode biases are especially noteworthy when examining period effects. Hence, in Appendices 6.3 and 6.4, we provide additional figures for models with mode covariates compared to the pure models. Bearing this in mind, the probability of approval reaches a peak in the late 1990s and early 2000s in the case of classical antisemitism. Following this peak, the likelihood gradually decreases. However, around 2015, a reversal in this trend occurs. This resurgence of approval probability is notably more pronounced in Eastern compared to Western Germany, making it a crucial point of distinction. Interestingly, the rise in the likelihood of approval around 2015 is not observed regarding secondary antisemitism. Contradictory to the descriptive results, the models show rather a consistent decline since the turn of the millennium.

Given these findings, some implications concerning our period (H3) and conceptualization hypotheses (H4) can be derived. In principle, the influence of historical and political events as well as ideological shifts on antisemitic attitudes can be observed but underlying causes must remain elusive to some extent. However, caution is warranted when interpreting period effects,

especially in APC analyses relying on cross-sectional data with varying time intervals and collection methods. Furthermore, period effects are additionally influenced by other confounding factors as will be demonstrated in the next section, meaning that the pure period effect seems to be underestimated until 2011 and overestimated from 2012 onward compared to covariate models (see Figure 6.2).

APC models with covariates

Considering the scope limitations of this chapter, we will only briefly address the impact of confounding factors in the sense of a robustness test. A detailed overview of the model results can be found in Appendix 6.5. In general, either no significant relations were found, or findings are predominantly in line with the pertinent research stating that antisemitism may depend, for instance, on sociodemographic or socioeconomic factors. That is, the probability of approval of classical and secondary antisemitism is increased when respondents ideologically self-position themselves as center or right-wing compared to left and are male and is decreased when respondents have higher education compared to low, relatively more household income, and a rather good than a poor economic outlook. These findings reveal most consistently in the full agreement models.

To gain an impression of how these confounding variables affect the APC structures discussed earlier, we refer to the comparison plots (pure vs. covariate) for the full agreement models as shown in Figure 6.2. In these models, smoother effect patterns are obtained, and the maximum APC effects are less pronounced when controlled for third variable effects. Although the findings basically point in the same direction, we found also some remarkable differences lending only limited support for our robustness hypothesis (H5).

Thus, the APC effects are overall more robust for classical antisemitism with one major exception regarding cohort effects. If accounting (mainly) for socioeconomic individual characteristics, it is shown that the downward trend of the likelihood for agreement stops within Generation Y (birth years 1983–1994), while it then again flips over for Generation Z (birth years 1995–2003) in the West into an enlarging negative association. Moreover, the negative association does not become more pronounced for the Generation Z in the East but decreases again. Nevertheless, an overall negative association for younger cohorts is still evident. Comparatively, larger influence of the control variables is present for secondary antisemitism, particularly regarding the period effects. Here, the maximum effects as well as the amplitude shape, with prominent peaks, diminish noticeably.

Summary, limitations, and discussion

This study aims to get some empirical grip on the massive problems of the comparability of several representative surveys over a period of 30 years

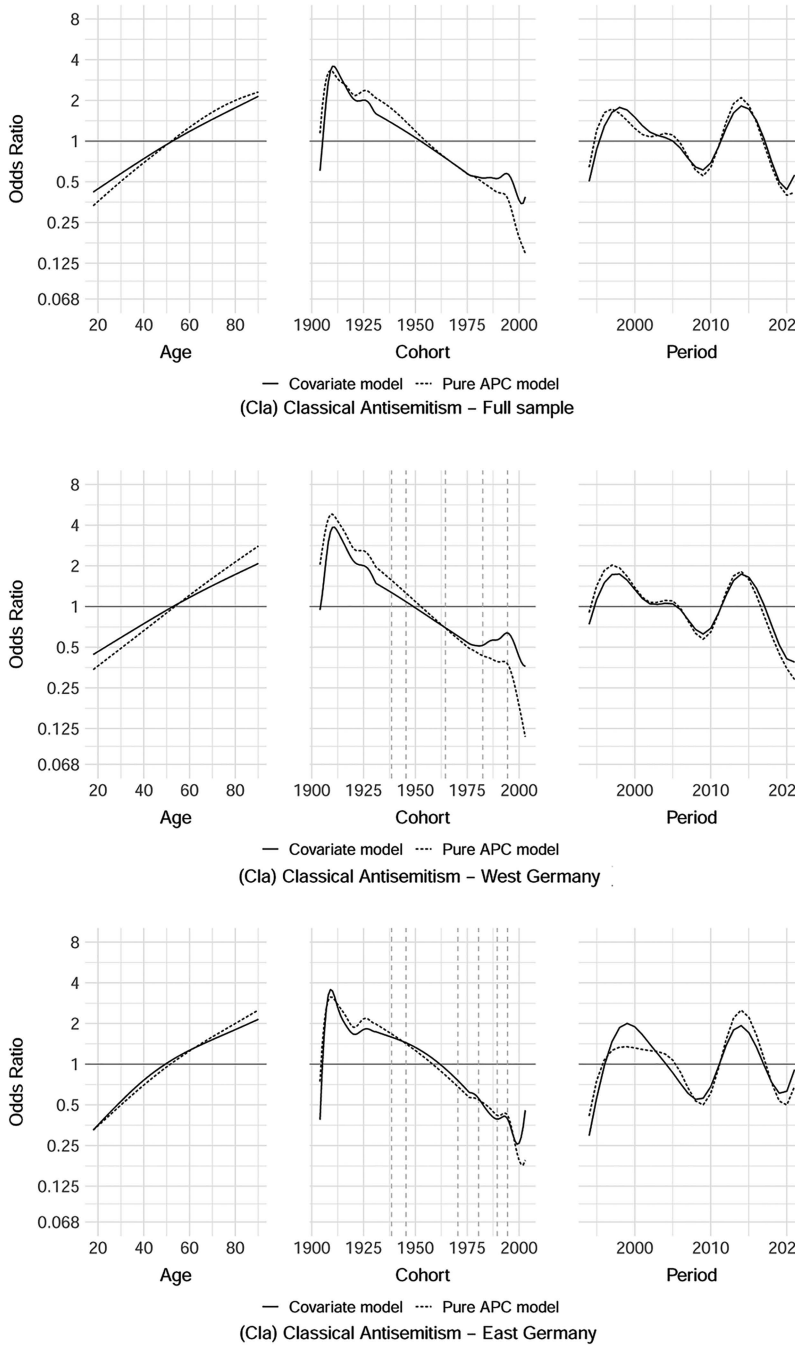

Figure 6.2 Plots for the pure versus covariate APC models (only fully agree responses).

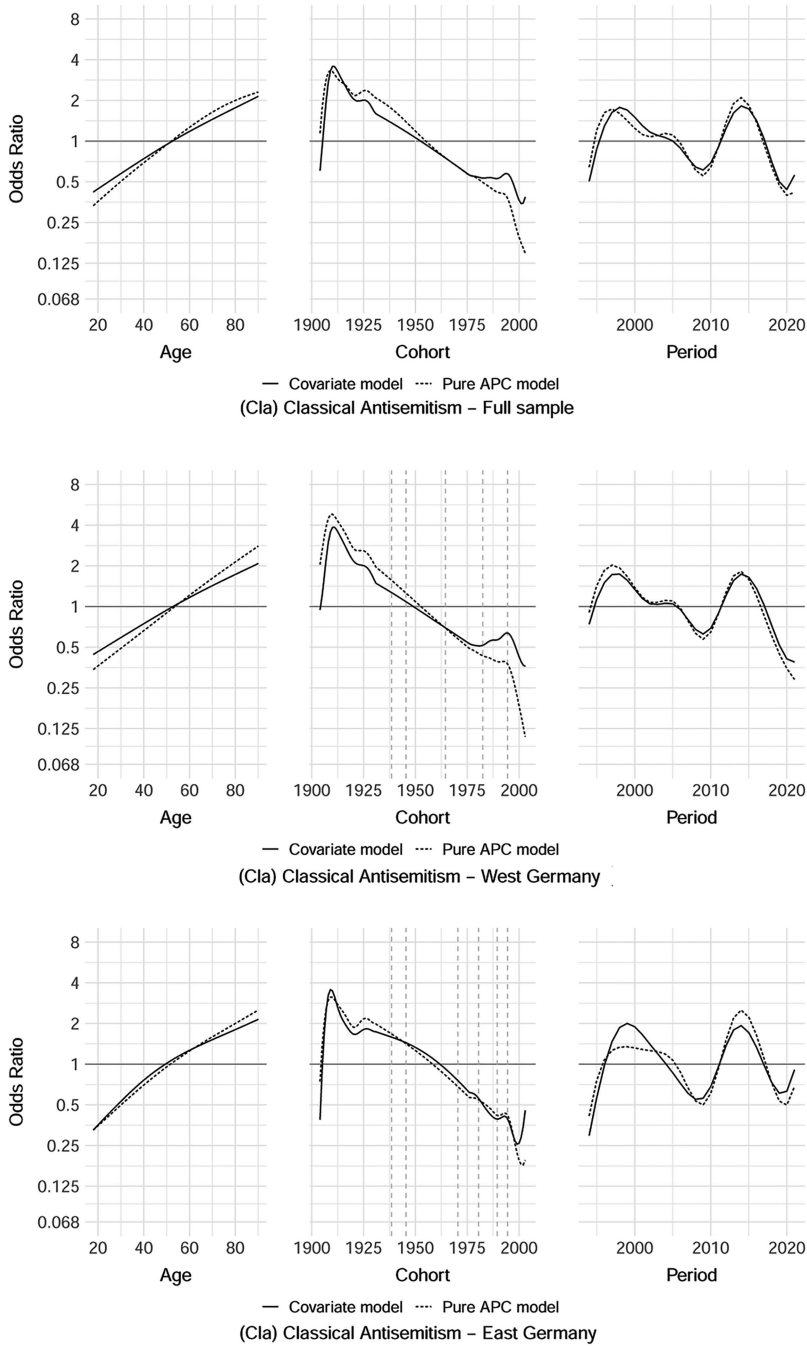

Figure 6.2 (Continued)

measuring antisemitic attitudes. To this end, we applied age-period-cohort analyses (APC) with flexible generalized additive regression model estimation (GAM), a method that of course cannot solve all the problems but is able to provide some systematic empirical insights regarding classical and secondary antisemitism over such a long investigation period. Against the background of the state of antisemitism research in unified Germany and theoretical considerations about APC effects, we formulated six general hypotheses that served as an orientation for the interpretations of our empirical results.

Summarizing the central findings, we were able to show that APC effects indeed play a decisive role in the attitudinal development and distribution of antisemitic attitudes in Germany. In a nutshell, the probability patterns for complete and partial agreement are similar in most cases for classical but not for secondary antisemitism. Empirical support was found for the hypothesis proposing that the probability of agreement choices corresponds with life-cycle transitions (H1). Thus, our analyses largely support earlier findings; however, more pronounced effects related to life age in the Eastern part (Leibold & Kühnel, 2009; Wittenberg & Schmidt, 2004) are not unequivocal in our models, if at all most likely for full agreement on classical antisemitism. Moreover, younger generations have, on average, a lower probability of agreement compared to the older generations (H2a), for which the effect patterns also seem to be more aligned regardless of the part of the country they are from (H2b). With respect to period effects, we are somewhat more cautious with concrete inferences drawn from the model-based analyses, although some plausible effect patterns appeared (H3). Considering the results from the pure as well as covariate models, we interpret our findings as an indication that the approval of classical and secondary antisemitism varies over time (H4) but not in a completely dissociated way. This underlines that both forms are conceptually as well as empirically distinct and should be analyzed separately to avoid potentially overlooking important differences and possible consequences.

We also made an effort to answer the question whether socialization imprints stemming from the German division have had an influence on antisemitism approval (H2b). Hence, we highlighted the special role of the three transformation generations in East Germany and, according to our findings, clearly show that their generational disposition expresses itself through a different pattern of antisemitic attitudes. This might be additionally interwoven with short-term political or societal (period) effects and thus promote stronger antisemitism in East Germany. For example, this experienced socialization can lead to greater vulnerability during the episode of post-transformation, financial and euro crisis, or greater perception of fear or threat. Consequently, for a comprehensive understanding of antisemitism in unified Germany, the specific socialization background in the West or East of the country should be considered whenever possible to avoid obfuscating inferences. Overall, our results extend earlier findings, for instance, those of Bergmann and Münch (2012). The anti-fascist orientation of the GDR not only lost its influence within the postunification generation but also for all

three East German generations that were impacted by the German unification. It is therefore not surprising that Decker and Brähler (2020) found the highest approval rates especially within these three transitional generations in their study.

Of course, and as already intermittently addressed, our study is subject to several limitations that should be taken into consideration regarding the conclusiveness of all these findings. In general, the aforementioned strong relation of age and cohort effects is often hard to separate, not only theoretically (Mayer & Huinink, 1990; Ryder, 1965) but also empirically. Despite this, we cannot rule out biased results due to several methodological issues (i.e., different survey measures, data linking) or mode (sampling process) as well as housing effects (i.e., different polling institutes).

In addition, although we applied suitable statistical modeling, the data consist of unequal time intervals, which is especially relevant for the estimation of period effects. In this context, it has also been demonstrated that especially these effects are biased due to different survey methods, which highlights the importance of taking them into account. For example, we found that the observed rise in antisemitic attitudes from 2011 can be partially attributed to the use of different response scales in the utilized data (2011: four-point scale, 2012: seven-point scale).

Moreover, we were not able to account for other important explanations discussed in the research literature on antisemitism (i.e., social psychological concepts). All in all, these obvious and further limitations root especially, but not only, in the heterogeneous data. For example, if we had multiple items (with same wording) available for each dimension of antisemitism, then it would have been possible to consider latent measurement models within the framework of structural equation modeling and to investigate measurement invariance as a precondition for substantive theory-related assessments.

We were unable, although not only due to the lack of space, to go into detail about the diverse reasons for the identified trends and fluctuations. We have addressed some possible influential factors, such as certain events that were temporarily in the focus of the media coverage and therefore in political and public discourse (e.g., the Second Intifada from 2000–2005, the global financial crisis 2008/09; the refugee crisis 2015/2016, or the COVID-19 pandemic). Obviously, outgroup derogation and antisemitism can be mobilized during times of crisis, and this phenomenon is indeed not limited to periods of high influx as in the mid-2010s. Also recently, the COVID-19 pandemic has revealed a concerning relation between conspiracy beliefs and the emergence of antisemitism (see RIAS, 2020; Gunz & Schaller, 2022; Chapelan et al., 2023). Such societal developments are evident in the West, but especially in some East German federal states (see Anstötz & Westle, 2021; Decker et al., 2022; Decker et al., 2023).

Methodologically, solid inferences regarding the reasons for attitudinal changes must, strictly speaking, remain speculative anyway. Among other things, this would require additional surveys that can show whether the respondents have dealt with these issues at all. For example, did they indeed

follow the media coverage, and if so, how intensively? Therefore, our study must also end with the well-known conclusion, provisionally: Further (intensive) research is recommended.

Unfortunately, we could only access available data, otherwise we might have arrived at more robust results. We take this as an opportunity and close our chapter with some thoughts on the issue of free data availability and opportunities for reuse. For whatever reason, several research projects act as if they are isolated, and the culture of data sharing in the research domain is, carefully spoken, improvable. There are several, quite often good reasons why surveys were and are conducted in their own way, and the gathered data remains often unpublished (i.e., comparability of measurements over time, funding, particular media attention for sensitive topics, and so on). Basically, the FAIR principles (Wilkinson et al., 2016), which put specific emphasis on the findability, accessibility, interoperability, and reusability of data, could function as a guide to enhance synergies in empirical research on antisemitism and maybe, more importantly, over the borders of specialized, often small research teams. In the German case, a traditional outstanding example is the GGSS surveys since 1980—accessible to all researchers and documented in detail for reuse. Hopefully, the open science philosophy will prevail among more researchers in the future. They should not continue to sit on their valuable eggs like the hens do.

Authors' note

We thank the editors and the reviewers of this article for their fruitful comments.

Appendixes mentioned in this chapter and additional supporting materials are freely available at www.routledge.com/9781032547763.

The presented analysis is based on 19 different surveys. The studies "General German Social Survey" (ZA5276/ZA5280), "Study on Antisemitism in Germany" (ZA3074), "Political Attitudes, Political Participation and Voting Behavior in Reunified Germany" (ZA4301), and "Attitudes towards Jews and other Minorities" (ZA2418) are archived and released for academic research and teaching at GESIS—Leibniz Institute for the Social Sciences (www.gesis.org). The surveys "Group-Focused Enmity" (GFE) were financed by a consortium of foundations headed by the Volkswagen Stiftung (ZA4391/ZA5568—ZA5576) and are archived at GESIS—Leibniz Institute for the Social Sciences (www.gesis.org). They are only released for academic research and teaching after the data depositor's written authorization. For this purpose, the Data Archive users provide detailed information on their analysis intention and study specifications, and written permission is granted by Data Archive. Requests to access these datasets should be directed to info@gesis.org. The two older data sources (Jodice, 1991; Emnid, 1992) were never archived or published. However, enquiries about this data set can be directed to the corresponding author.

The authors have no conflict of interest to declare.

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7 Religiosity, non-denominationalism, and their political consequences in East and West Germany after the upheaval of 1989

Gert Pickel and Susanne Pickel

Introduction—religion as the chief difference between East and West Germany?

If looking for differences between West and East Germany, we quickly find them in religion (Pickel et al., 1998). Although there have been continuous processes of religious disintegration in West Germany since the late 1960s, with researchers discussing these processes as evidence of advancing secularization (De Graaf, 2013; Meulemann, 2009; Müller et al., 2012; Pickel, 2009, 2017; Pickel & Sammet, 2011; Pollack, 2002; Pollack & Pickel, 1999, 2007; Sherkat & Ellison, 1999; Stolz, 2020), the level of church membership and religiosity in East Germany at the time of reunification was much lower than that in West Germany. The socialist regime had succeeded in pushing back the Christian churches and religion (Pickel, 2009, pp. 102–103; Pollack, 2002, p. 373; Stolz et al., 2020, p. 629). During the upheaval, the important role that the churches played as a meeting place and initiator of protest was deceptive. With the normalization of a unified Germany, the strong difference became clear: while in West Germany, there existed a "culture of denominational affiliation" characterized by the strong presence of church and religion, in East Germany, there exists to this day a "culture of non-denominationalism" (Pickel, 1998, p. 207) that identifies religion as a space for minorities. Current events, such as the abuse cases in the Catholic Church, only accelerate the process.

Another process in the religious field in Germany is religious pluralization in the sense of a stronger presence of religious communities other than the mainstream Catholic or Protestant churches. While at the beginning of the millennium, religious pluralization was still interpreted as a return of the religious or religion (Pollack, 2009; Riesebrodt, 2001), today religious pluralization is more likely to be seen as triggering political disputes. Unlike in the early days of the sociology of religion (Durkheim, 1915; Glock & Stark, 1965; Simmel, 1906), religion today is often classified as a factor of social conflict. Religious communities can be the source as well as the target of conflicts (Öztürk & Pickel, 2021; Pickel & Yendell, 2016). This development

DOI: 10.4324/9781003427469-9

in particular has consequences for political culture and connect religion and politics.

Considering the different results in the interpretation of the religious sector since 1989 and the ongoing differences between West and East Germany, it is worth asking the following research question: How have the differences between West and East Germany developed in the religious field since 1989—and what does this mean politically?

Various theories from sociology of religion are used for interpreting empirical data: this includes the secularization theory, the individualization, and, in some parts, the market model of religiosity (Huber & Huber, 2012). Having accompanied the development of religion in Germany over the past 40 years, the data from the German General Social Survey (Allbus; since 1990) are suitable for the analysis. Additional data are used in isolated cases. Time series models were not used because of the limited number of data points and the loss of information due to aggregation.[1]

Theoretical interpretations

In order to interpret developments in the religious field, we use three central theories of religious development. They serve to explain both the current situation and how the situation might develop in the future. In the sociology of religion, three approaches are suitable: secularization theory, the individualization theory of religion, and the market model (Pickel, 2009, pp. 90–93; Pollack, 2002, pp. 374–375; Pollack & Pickel, 2007; see Table 7.1).[2] All three approaches offer contrasting interpretations of developments in the religious field and start from different premises with regard to the relationship

Table 7.1 Theoretical explanatory approaches in the sociology of religion.

	Secularization theory	*Individualization thesis*	*Market model*
Representatives	Bryan Wilson; Steve Bruce; Karel Dobbelaere; David Voas; Detlef Pollack; Gert Pickel	Thomas Luckmann; Grace Davie; Danielle Hervieu-Léger; Hubert Knoblauch	Rodney Starke; Roger Finke; Laurence Iannaccone; William Sims Bainbridge
Core assumption	There is a tension between modernity (modernization) and religion that leads in the long run to a loss of social significance for religion	Individual religious orientation as an anthropological constant leads together with dechurching to a transformation of the religious	Individuals' constant need for religion, with differences in religious practices, indicates relevance of what religion offers

	Secularization theory	*Individualization thesis*	*Market model*
Reference theory	Modernization theory	Individualization theory	Supply-oriented market theory
Main hypothesis	Continuous decline in the significance of religion as a source of meaning and social authority	Decline in the significance of institutionalized religion; existence of private forms of religion	Religious market determines extent of religiosity and church religiosity
Forecast for Germany	Downward trend for all religious forms and for (Christian) ecclesiasticism	Transformation of the religious via a differentiation of private religiosity with a decline in ecclesiasticism	Religiosity develops as a function of the range of religious providers in society
Significance for relationship West-East religion	Decline in religiousness and slight rapprochement between West and East Germany	Decrease in ecclesiasticism, same level of subjective religiosity; increase in extra-ecclesiastical religiosity and spirituality	Stronger religious pluralization, with religiosity still declining for the time being

Source: Own compilation.

between modern society and religion. Since much has already been written about all three approaches, their premises, and statements, they will only be briefly described here.

Secularization theory assumes a certain tension between the manifold processes of modernization and religion. Secularization is unfavorable to the spread of religion and entails a loss of social significance on the part of religion in modernizing societies. Supporters of secularization theory do not postulate that religion will disappear. Rather, they predict that the significance of religion for people's everyday lives will decline. However, some supporters of secularization theory go further. For, if religious institutions are crumbling, less is being said about religion, and it is suffering a decline in significance, then it is not far-fetched to surmise that these developments will have a negative effect on personal religiosity. The decline of religious community, religious knowledge, and ecclesiastical commitment will then also undermine the clarity of personal faith and lead at least to a diffusion of faith and religiosity. But the loss of the relevance of ecclesiastical authority in the interpretation of life must also be taken into account (Chaves, 1994).

It is important to keep in mind that secularization is not an irreversible or even fatalistic process. Secularization is always linked to changes in the wider social framework. So far, these have been characterized by modernization. On the basis of the multiple crises that have recently been observed, however, a rupture can also occur there that makes a return to religion possible. The problem is that this requires the ability to connect with religious language and rites. Unsurprisingly, studies in various European countries then tend to view processes of religious individualization and pluralization as a transitional phase on the path to secularization (Pickel, 2011, 2010, 2017; Pollack & Pickel, 2007; Voas & Crocket, 2005; Voas & Doebler, 2011). However, this impact on personal religiosity is not a necessary component of secularization theory.

Thesis 1: Ongoing secularization should gradually bring the religious situations in West and East Germany together, since religiosity is declining in West Germany.

The privatization or individualization thesis of religion outlined by Luckmann (1967 casts doubt on the prognosis that secularization will simply continue. Pointing to the underlying human need for religion, adherents to this thesis argue that, rather than there being secularization, the religious field has simply undergone a change of form. Although people are becoming less attached to the (Christian) churches (membership is declining, the number of people attending church services is falling), private subjective religiosity remains in a growing variety of forms. There is an increasing amount of patchwork religiosity. The new forms of religiosity often remain invisible to external observers and, especially, to adherents to secularization theory, who are (allegedly) fixated on church religiosity. This gives the (false) impression of secularization.

Thesis 2: There is an individualization of religiosity in Germany, this becoming manifested in both West and East Germany in a decline in church religiosity and an increase in non-church religiosity and spirituality.

But we would also have to assume that alternatives to church religiosity are on the rise, especially in East Germany.

The market model of religion comes from the United States. Its adherents focus on the dependence of religious vitality on supply in an open religious market. This supply-oriented approach is based on the idea that there is a constant demand for what religion offers. Action and behavior alone are important for adherents to the market model, which is why they focus on religious vitality, that is, on religious action (Stark & Bainbridge, 1987). Religiosity should therefore not be equated with religious vitality. Religious vitality depends on the situation in the religious market, which varies as what the religious providers offer varies (Stark & Iannaccone, 1994). A plural supply of competing religious providers is best suited to meeting the diverse and exclusive needs of those demanding religion. What religion offers improves in competition, with the religious providers becoming more active and engaged. The "struggle" for religious customers leads to a high level of

religious vitality, which is why the mechanism of competition is as central to the market model as a free religious market. If this free religious market were restricted by the state, and in the most rigid case by a state religion, then religious vitality would decline. Thus, not only political systems hostile to religion are detrimental to religious vitality but also systems that promote one or more religious communities over others. A negative example frequently cited by adherents to the market theory is the traditional preference for individual religions and an entanglement of state and church in Europe (Froese & Pfaff, 2001, 2009; see also the critical review in Chaves & Gorski, 2001).

Thesis 3: Due to a limited free market, we find a decline in religious vitality and in the number of people looking for religious offerings in West Germany, while a more diverse religious vitality is emerging in East Germany.

All three approaches can serve as a guide in interpreting developments in the religious field. However, their explanatory power is unlikely to be equally strong when compared with one another. The individual explanations may have different explanatory powers (Pickel, 2009). In addition to discontinuation processes of the religious, religious pluralization is discussed in secularization theory as well as in the market model. On the one hand, it becomes manifest in the pluralization of religious milieus and lifestyles, in a greater variety of religious communities chosen by citizens, or in an increase of people in previously small religious communities (Pickel et al., 2017, pp. 280–290). Most significant for social and political development is religious pluralization as the differentiation of religious affiliations. As unproblematic as the process is in itself in liberal democracies, its handling raises social discourses. This concerns attitudes and attributions made to members of religious groups by the dominant society, as well as attitudes toward religious people or unreligious people or atheists. Some of these debates shape the public view of religion today—and often in a negative way. Religious pluralization and the increasing visibility of other religious communities bring to light existing prejudices against other religious communities and their members.

Thesis 4: The prejudices against other religious communities and their members that religious pluralization makes visible are more pronounced in East Germany.

In this context, a higher rejection of religions is to be expected in the more secular East Germany due to the greater distance that people have from religion. However, it is also possible that processes at the level of political culture are having their effect. For example, the feeling of disadvantage vis-à-vis West Germany and relative deprivation (Pickel & Pickel, 2022) may also have an impact on religiosity. East Germans can perhaps be proud that they have something (non-religiosity) that places them ahead of their Western counterparts, who have not yet discarded religion.[3] This is expressed in a so-called East German identity (Pickel et al., 1998).

The four theses developed from the theories and observations of society serve us when we come to our empirical examination of how religion has developed in West and East Germany.

Religious development—evidence of secularization?

When it comes to religious development, it makes sense to start with the figures for religious or denominational affiliation.[4] Although they do not help to distinguish between the secularization and individualization theses, which are largely unanimous in their prediction that the large Christian churches will see a decline in membership, they do provide an initial indication of how relevant the claim of dechurching is. And this can be clearly demonstrated with the Allbus data (see Figure 7.1). Both the Catholic and Protestant churches have experienced a continuous process of decline since 1990, a process that began in the late 1960s (Liedhegener, 2014; Pollack & Pickel, 1999, 2007). Virtually mirroring the decline in church membership, the number of Germans describing themselves as non-denominational has increased. In addition, there has been a visible increase in the number of Muslims (of various denominations, but mostly Sunni) and Orthodox Christians during the period under study. Thus, secularization and dechurching at the membership level are accompanied by religious pluralization in terms of people's affiliation to a religious community.[5]

Figure 7.1 basically mirrors a West German development. Following forced secularization, the religious field in East Germany has undergone little change since 1990 (Wohlrab-Sahr & Burchardt, 2012). At the same time, with its high level of non-denominationalism and its extremely low proportion of Muslims, the values for East Germany change the values for Germany overall. This influence has been relatively constant since 1990 and, in combination with the smaller population of East Germany (about 20%), has a limited influence compared to West Germany. The central rupture in membership of Christian churches occurred before 1991 and was primarily due

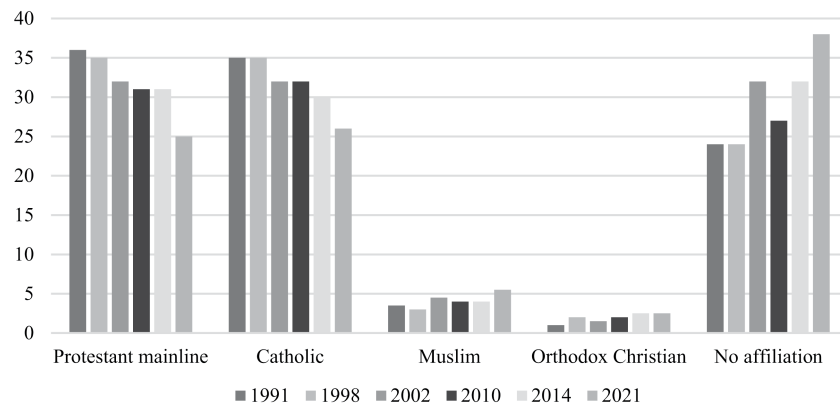

Figure 7.1 Affiliation to a religious community in unified Germany.

Source: Own calculations; Allbus data series 1980–2021, in percent. The first Allbus survey in Germany took place in 1991.

to the anti-religious policies of the SED regime (also Pickel, 1998, 2009; Pollack, 1994; Stolz et al., 2020), although East Germany also experienced modernizing currents that can be interpreted as secularization (Pollack, 1994). There has been a further slight decline in membership of Christian churches in East Germany since 1991 (see Figure 7.2). It is clear that the original expectations harbored by the Christian churches that the political upheaval would be followed by an upswing and a return of religiosity in East Germany has not been met. Rather, the rupture before unification seems to have laid the path for what happened after 1991. A small number of religious parents or grandparents who can bring their children or grandchildren up religiously are not enough to manage to hold the level of church membership.

In other words, non-religious socialization is on the rise in East Germany today (Lois, 2011; Pickel, 2012, p. 147). This consolidates the low level of denominational affiliation and contributes to a slight further decline in denominational affiliation. It is not foreseeable when the process of discontinuation will reach the end point assumed by various secularization theorists (Bruce, 2002). The developments in West Germany have been characterized by a high degree of dechurching since the late 1960s (shown here with Allbus data since 1980). Given the long history of the Christian churches in Europe, there has been a rapid decline in membership as well as an increase in non-denominationalism and religious pluralization (see Figure 7.3; Pickel, 2009; Stolz et al., 2021, p. 92; also Stolz et al., 2020).[6] We could almost say that West Germany is converging with East Germany here, which might be due to the long-overdue effects of secularization.

At the same time, there are variations according to specific socioeconomic conditions. Thus, we can refer to different phases, such as when there was stronger repression in East Germany, financial crises or church crises

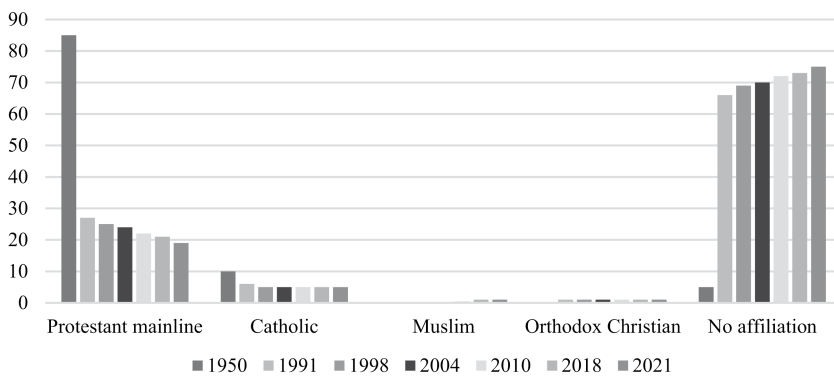

Figure 7.2 Affiliation to a religious community in East Germany.

Source: Own calculations; Allbus data series 1991–2021. East Germany in percent; for 1950 values, see Pollack, 1994.

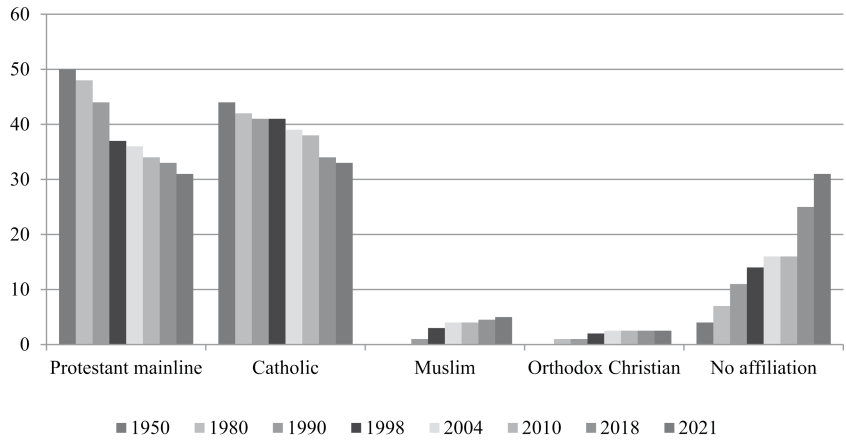

Figure 7.3 Affiliation to a religious community in West Germany.

Source: Allbus data series 1980–2021. West Germany in percent; 1950 from Wolf (1999, p. 12).

(Pollack & Rosta, 2018, p. 77; Stolz et al., 2021, p. 92). This also fits into the theory of the path dependency of religious development (Martin, 1978; Pickel, 2009, 2011). Echoing Marc Chaves (1994, p. 770), we can also speak at this point of secularization as the loss of interpretive sovereignty on the part of religious authorities.

This process of decline is not peculiar but has been the norm in Western and Eastern-Central Europe for years (Müller & Pollack, 2022; Pickel, 2010, 2012, 2017; Pollack & Rosta, 2018). Germany occupies a middle position in Europe with regard to the current state of denominational affiliation (see Figure 7.4). The proportion varies across European countries according to path dependencies, these being based on different political conditions with regard to the state's relationship with religions, on cultural differences (e.g., dominant religion; which religion; relationship between religion and politics) and on identity processes (Liedhegener et al., 2021).

While Martin (1978) was early to mark the first two starting points of path dependencies, it was not until more recently that researchers revealed the positive effect that processes of identity assurance have on religiosity (Bruce, 2002; Pickel et al., 2020). Bruce (2002) offers cultural defense and cultural transition as two identity processes that promote religious vitality. While cultural defense addresses the drawing together of national attachment and religious identity due to the perception of an external threat to one's culture, cultural transition is the survival of traditions in groups after their migration. An example of cultural defense is Poland with the relevance of Catholicism to identity-formation and the defense of this faith and of the Polish nation (also Pickel, 2012, p. 141); an example of the latter is the preservation of strongly

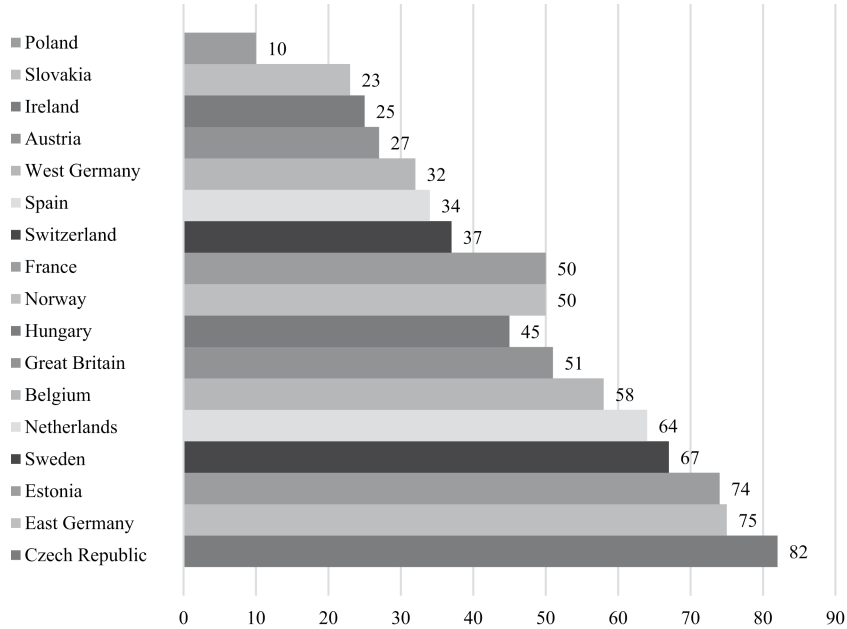

Figure 7.4 Non-denominational people in Europe (self-assessment in percent).

Source: ESS calculations "Do you consider yourself as belonging to any particular religion or denomination?"; cumulative 2012–2020.

religious groups in the United States (Schneider, 2020). What is important is that, whenever there is an identitary entanglement between nation and religion, religious vitality and identification increase. Let us return to the German situation. Belonging entails only limited action of one's own, which means that it is important to consider religious practices as an indicator of the religious situation, too. In this context, attendance at church services can be used as a collective practice and personal prayer as a private religious practice. Let us start with attendance at church services since the 1980s.

The Allbus data show a continuous decline in attendance at church services even before 1989. People still attended church services for an average of 12 times per year in West Germany in 1980, but this figure had dropped to four times per year by 2021. In addition, there has been a consistently low level of attendance at church services in East Germany since 1991 (also Lois, 2011). However, this has changed only marginally since 1990 (see Figure 7.5). In terms of religious practices, we can speak of a process whereby West Germany has adapted to East Germany.

But it is not only collective practices that are in decline, individual practices have also declined since 1991. Unfortunately, though, since they have not been surveyed as frequently over time as attendance at church services, there are as many points of comparison. Nevertheless, it is clear that the

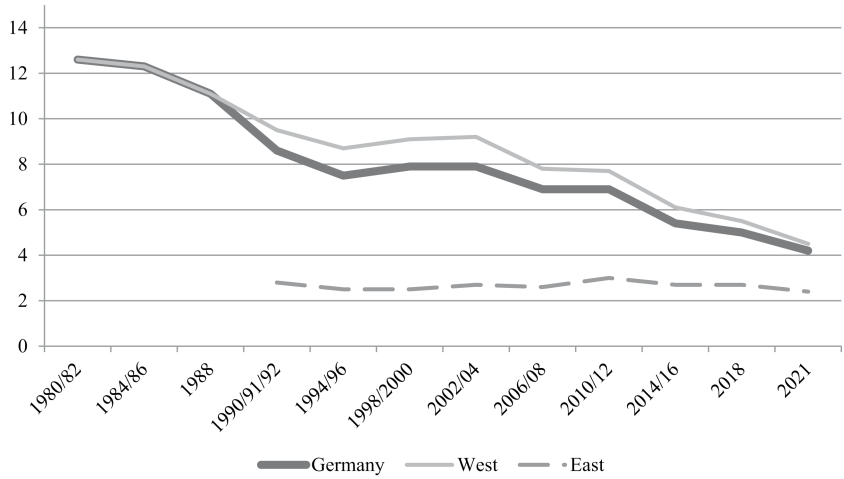

Figure 7.5 Development of church service attendance in Germany since 1980.

Source: Allbus data series 1980–2021. Average frequency of attendance at church services; average on scale between 0 (never) and 52 (once a week or more).

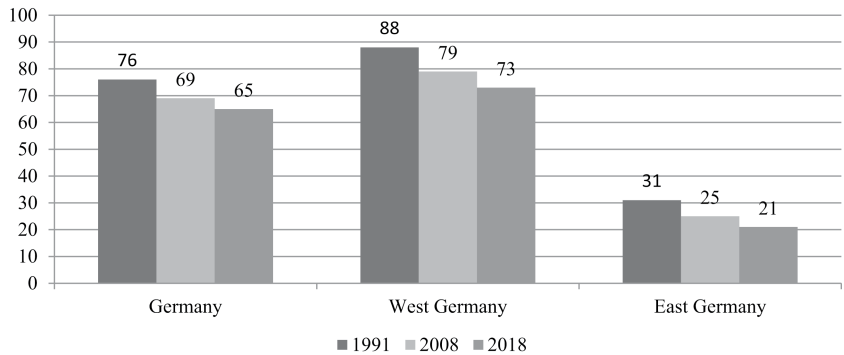

Figure 7.6 Frequency of prayer in Germany since 1980.

Source: Allbus data series 1980–2021. Frequency of personal prayer; transformed into a continuous scale; average on scale ranging from 0 (never) to 365 (once a day or more).

number of people who pray in Germany has been in continual decline, in both West and East Germany (see Figure 7.6).[7] In addition to the average number of times that people pray per year, it is also interesting to note that 47% of Germans did not pray at all in 2018. Although the number of Christians who pray exceeds the number of worshipers, private religious practices also show a discontinuation process that is similar in West and East Germany, albeit at different levels.

Summarizing the findings, we can see that a process of dechurching is taking hold in all areas of religion and of practices associated with the church. This finding speaks for an ongoing process of dechurching and the discontinuation of the use of church-inspired practices in both West and East Germany. Thus, thesis 1, which expected West Germany to converge with East Germany, can be confirmed for dechurching. Even if the previous findings tend to support secularization theory, the results still leave room for the persistence of an individualized religiosity (see Luckmann, 1967). And, given the broad processes of individualization, is it not to be expected that traditional church religiosity will transform into a colorful patchwork religiosity?

But individualization and "Believing without Belonging"?

Luckmann (1967) was quick to point to the necessity of distinguishing between church membership and private religiosity. Davie (1994) then translated this insight into the formulation Believing without Belonging, that is, an individual, private religiosity without the person belonging to a religious community. Accordingly, adherents to the individualization theory of religion claim that church religiosity transforms itself continually into a free subjective religiosity. However, Figure 7.7 contradicts this claim for Germany, at least as far as the individual classification of religiosity is concerned.

First, non-denominational people are clearly less religious than church members. It is true that, while there are also religious people among the non-denominational group, these are few in number. Particularly in East Germany, where we have reached the second and third generations of non-denominationalism, the number of non-denominational people who consider

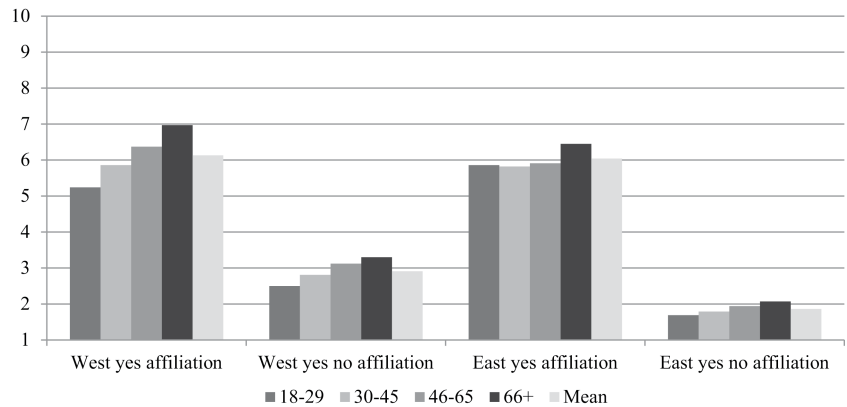

Figure 7.7 Generational discontinuation of subjective religiosity (average).

Source: Own calculations; Allbus 2018. Subjective religiosity; mapped average on scale ranging from 1 (not religious) to 10 (very religious).

themselves religious is low. The somewhat higher level of religiosity shown by non-denominational people in West Germany can be attributed to the fact that most first left the church themselves but still received religious socialization of some kind. Conversely, it is also the case that by no means, all church members are religious. They either will remain in church on account of the social life that it provides or may leave the church in the near future. There is still a difference between the more religious members of a church and those denominational people who are non-religious. Religiosity does not exceed church religiosity in either West or East Germany.

Second, the breakdown by age groups points to a decline in subjective religiosity across the generations that observed for decades. But, since members change over time (or, more precisely, those who have left are not included in the next measurement), this result represents the often-described process of a change in values that takes place over cohorts (Inglehart, 1977; Norris & Inglehart, 2005). And this process continues in West Germany. In East Germany, which is already much more secular, the number of religious people seems to have consolidated at a relatively constant level more recently. But we can no longer say now whether this indicates an end to secularization in East Germany.[8]

The results suggest that subjective religiosity is not independent of denominational affiliation. Bivariate correlations confirm that church affiliation and subjective religiosity are consistently and closely connected ($r = .58$). Religion is perceived by most Germans as a church religion, with people interweaving their own religiosity, religious practices, and affiliation—in both West and East Germany. This finding is consistent with longitudinal studies that also highlight the close relationship between believing and belonging and that identify believing without belonging as relevant only for a small group (Aarts et al., 2008).

This is also shown by the form of belief in God in the Allbus data from 2018. The differences between West and East Germany that can already be found in the denominational affiliation are also reflected in the forms of belief in God (see Figure 7.8). In East Germany, around 50% believe neither in God nor in a supreme being, a figure that was just at 15% in West Germany in 2018. However, this does not mean that all the remaining Germans believe in God. Looking at the picture longitudinally, we can see a kind of process of diffusion taking place, one that moves from belief in a personal God, via belief in a more obscure higher power, to agnosticism or temporary faith. Developments are similar in West and East Germany, although the dynamics seem stronger in the former. Overall, there is a variation of beliefs that is slowly diffusing in the direction of non-belief and that is taking a similar course in West and East Germany. This confirms the picture of a rather secular East Germany. West Germany, though, is not so much a devout part of the country as a religious landscape in transition. Clearly, not only church religiosity is losing social relevance but also faith.

But why are the Christian religion and church membership losing their popularity? It is primarily factors of modernization that are seen as opposing

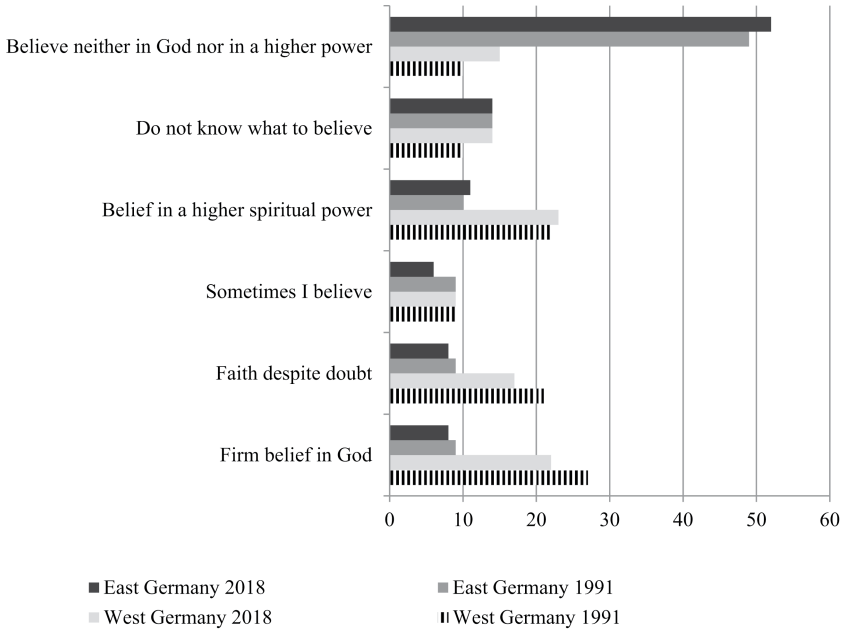

Figure 7.8 Forms of belief in God in 1991 and 2018.

Source: Own calculations; Allbus 1991, 2018. Number of people agreeing with the statement in percent.

religion. Although only one-third of Germans see religion as a symbol of the past, half also see it as being too powerful and even as obstructing equal rights. This view is supplemented by the belief held by three-quarters of Germans that religions are prone to causing conflict (see Figure 7.9). This is reminiscent of the argument made by Huntington (1996) that a clash of civilizations is also very strongly linked to religious conflicts. Apparently, people do not see religion as playing the same role as it used to. From this, we can read the desire for change and transformation that becomes manifest in the Catholic Church in particular in the synodal path.

People can clearly see the tension between religious tradition and the present (Pickel et al., 2020). Remarkably, despite their different religious roots, West and East Germans strongly share this view. The difference between faith and church membership is only one way of identifying individualization. Another lies in non-church forms of faith or in a spirituality that is understood as being different from faith. According to the transformation thesis, these forms would have to establish as a substitute for traditional religiosity. Table 7.2 does not suggest that this is the case, however. For example, religiosity, church attendance, and denominational membership correlate weakly with non-church religiosity. If they correlate, they are not in opposition but in correlation with faith elements. This finding also contradicts the claim of substitution. Let us add the contribution of Voas (2009), who describes the

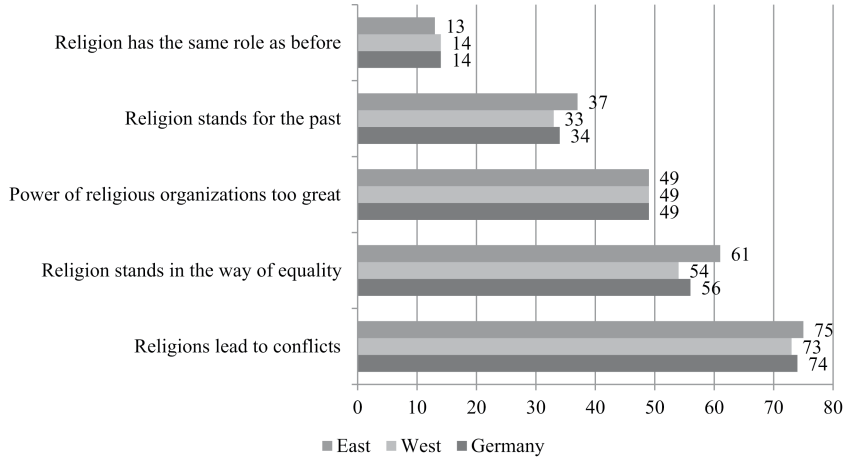

Figure: 7.9 Assessments of religion and society.

Table 7.2 Religiosity outside the church and religious indicators.

	Non-denominational	*Religious (self-assessment)*	*Attend church services*
Faith: life after death	–.37	+.60	+.40
Faith: miracles	–.26	+.43	+.28
Belief: supernatural powers through ancestors	–.16	+.29	+.07
Miracle worker	n.s.	+.18	+.05
Fortune teller	n.s.	+.16	n.s.
Lucky charm	–.09	+.09	–.09
Horoscopes	–.05	+.13	–.06

Source: Own calculations; Allbus 2018.
Note: Pearson's product moment correlations, all values significant at $p < .001$.

transition from religious to secular via the intermediate stage of a "fuzzy fidelity," that is, a state in which a person still vacillates between the religious and the secular. Voas sees this as a transitional stage that almost always ends in the secular—at least for children. Correlations below in Table 7.1 often point to this transitional state of individualized fuzzy fidelity.

A high degree of individual religiosity detached from ecclesiasticism seems to be rather rare—in West as well as in East Germany. However, beside these results, a spiritual revolution would still be possible (Heelas & Woodhead, 2005). The number of people who are spiritual but not religious does not point toward a spiritual revolution, but slight tendencies have existed since 2008 (see Figure 7.10).

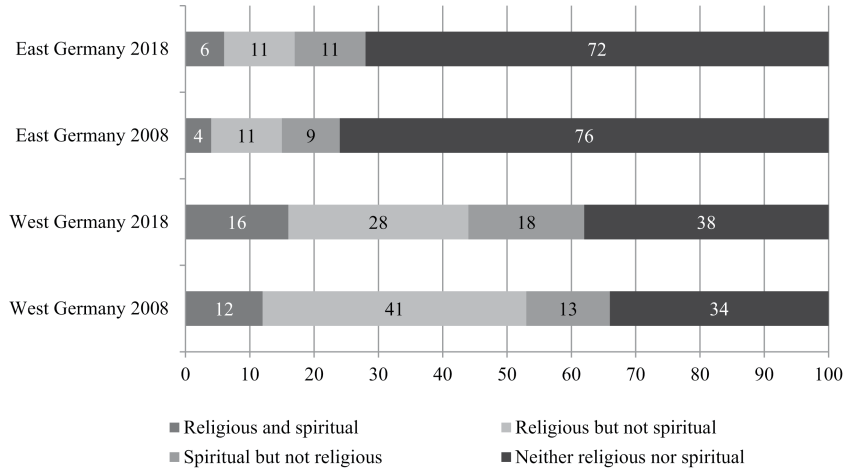

Figure 7.10 Spirituality in Germany (in percent).

Source: Own calculations; Allbus 2008, 2018. Percentage of people agreeing with the statement (belief or partial belief, on a four-point scale); West Germany.

In West Germany, both the number of people who are neither religious nor spiritual is increasing, while the number of people who are only spiritual is also increasing slightly. In East Germany, we could even speak with great caution of a slight increase in religiosity. However, this does not counteract the considerably higher self-assessment as neither religious nor spiritual in East Germany (34 percentage points higher than in West Germany in 2018). Spirituality—from belief or because people adopt it from public discourses—is slowly gaining an independent meaning among more people in Germany (Siegers, 2012; for the Netherlands, see Houtman & Mascini, 2002). This evidence of religious individualization in both parts of Germany is accompanied by a dwindling membership of Christian churches and a diffusion of faith. Our results also confirm the consistency of the East–West difference in religiosity. Especially in secular East Germany, it is impossible to speak of a personal religiosity beyond faith or a spiritual revolution. If there is such a spirituality, then it is a matter of slight movements that complement secularization. Thus, while not rejecting Thesis 2 completely, we can do so at least partly, while we must reject Thesis 3, which claims that there has been a vitalization of religion in East Germany. This means that the hopeful claims of market theorists have not been fulfilled (Froese & Pfaff, 2009, p. 141).

Conflicts between religion as a transition from religion to politics?

So far, we have said little about religious pluralization. Figure 7.2 already shows the increase in the number of people belonging to the Orthodox Christian or the Muslim faith. Figure 7.9 points to the idea that religion can cause

conflict. This idea focuses on Islam and its members, who are considered responsible for the conflicts. This is confirmed by the attitude toward members of different religious groups (see Figure 7.11). In a question posed in 2018, as many as one-third of Germans profess to having negative attitudes toward Muslims. The results are only slightly lower than in studies by the Bertelsmann Religion Monitor with regard to a potential threat posed by Islam (Pickel, 2019, pp. 80–82; Pickel, 2022). The negative assessments are marginally higher in East than in West Germany, and, of the groups studied here, they are highest among non-denominational East Germans. Thus, it appears to be less of a problem between religions and more of a rejection that is politically founded. This may not be entirely surprising given the huge campaigns organized by right-wing populists against Muslim migrants. It is also clear that there is no global rejection of religion.

However, the religious component remains significant when it comes to the categorization of Muslims. Without religious affiliation, it would not be possible to mark a group clearly as a scapegoat. These negative assessments are expressed in a critical view of the integration of Muslims in society (Adida et al., 2016; Ciftci, 2012; Cinnirella, 2012; Kaya, 2015; Pickel et al. 2022).

Thus, between 40% and 50% of Germans would feel uncomfortable at the idea of a Muslim marrying into their family (also Pickel, 2019, pp. 76–78), which is the worst value for all religious groups. The fact that this attitude is based not solely on a rejection of religion is shown by the lower values of social distance to Christians, atheists, and Jews. The low level of rejection of the Christian religion is also evident here (see Figure 7.12). The social distance from Jews, which is as high as 30% in East Germany, is also worrying given Germany's history, with members of the Jewish faith still being (negatively) categorized and often kept at a distance. The strongest social distance, however, remains toward the Islamic faith community. These attitudes

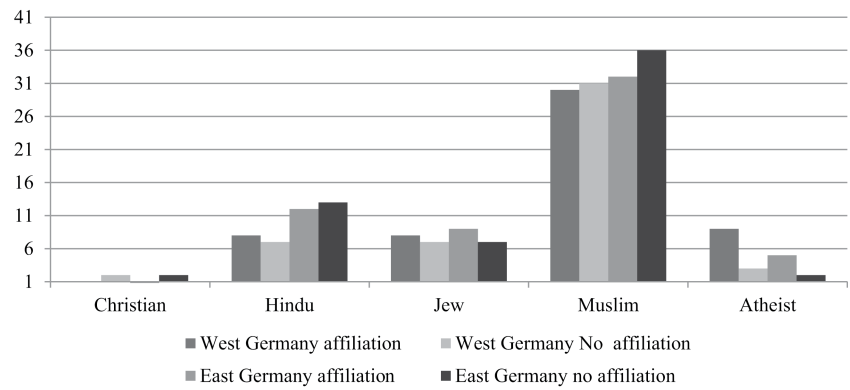

Figure 7.11 Attitude toward other religions (response: negative).

Source: Own calculations; Allbus 2018; negative and very negative attitudes (alternatively: positive and very positive attitudes, and partly/partly); in percent.

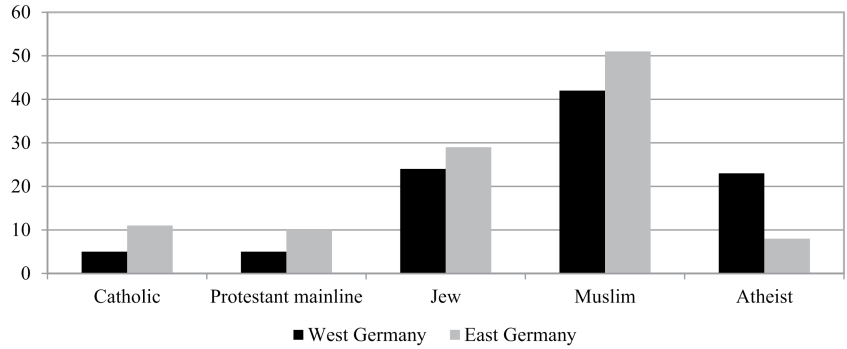

Figure 7.12 Social distance—the idea that someone from a different religion may marry into the person's own family (assessment: feeling of discomfort).

Source: Own calculations; Allbus 2002 and 2012 cumulative. Affirmative values in percent.

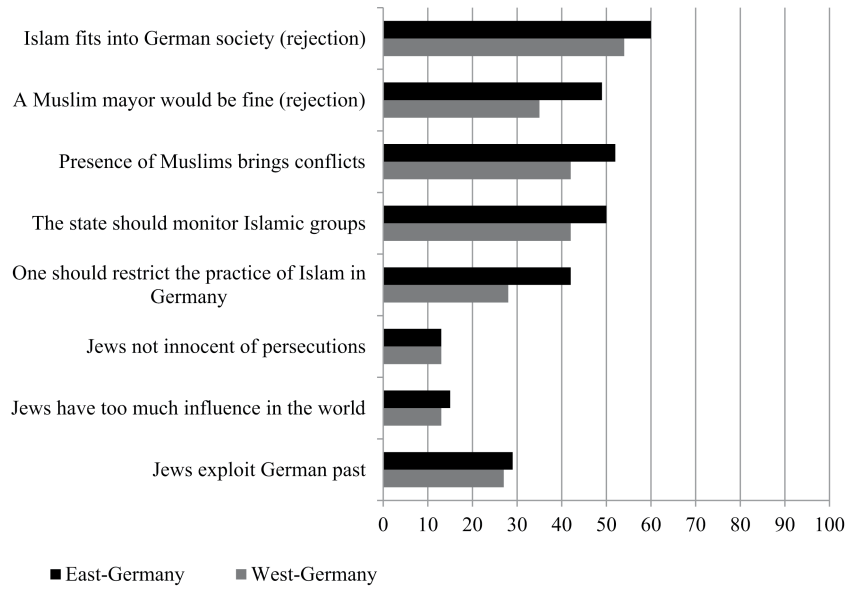

Figure 7.13 Prejudice, resentment, and racism as a religious problem.

Source: Own calculations; Allbus 2021 (values 5–7 on a seven-point scale); in percent.

are based on prejudices and racist assessments of Muslims (Halliday, 1999; Hunsberger & Jackson, 2005; see Figure 7.13).

Around 50% of Germans see the presence of Muslims as causing conflicts, and almost as many call for the state to monitor Muslims, which is a clear violation of the freedom of religion granted in Germany by the Basic Law.

The same applies to the restriction of the practice of Islam, which is supported by one-third of those surveyed. The idea of a Muslim mayor and the statement made by the former Federal President Christian Wulff that "Islam fits into German society" have slightly varying rates of rejection. Overall, there is a dichotomy of positions with regard to Islam and Muslims in Germany, with anti-Muslim attitudes being below 50% in the West and above 50% in the East. Anti-Muslim attitudes were significantly stronger in East than in West Germany in 2021. Group-related attitudes toward Jews must be judged as anti-Semitism (Allport, 1954). Especially the fact that 30% of Germans agree with the statement "Jews exploit the German past" points to secondary anti-Semitism (Beyer & Liebe, 2021; Fox & Topor, 2021; Kiess et al., 2020; Pickel & Öztürk, 2022). It is apparently easier to agree with this statement than with the two more explicit statements, where agreement is limited to about 12%.

The effect of political attitudes on attitudes toward religion has already been mentioned. For example, attitudes toward Muslims are closely linked to attitudes toward migrants (Hidalgo & Pickel, 2019; Pickel & Pickel, 2018, 2019), with the political right opposing Muslim migration in particular in an attempt to garner votes. In this regard, right-wing populism has benefited greatly from the increased presence of Muslims and Muslim migrants in Germany (Öztürk & Pickel, 2019, 2021). Right-wing populists have sought to win over voters by drawing on their dissatisfaction with the politicians of established parties who appear distant from "the people" and by embracing right-wing authoritarian nationalism (Schneider et al., 2021). Muslim migrants in particular (and then usually all Muslims) function as an ideal bogeyman, since they can be demonized as foreign, dangerous, and anti-modern (Pickel & Öztürk, 2018, 2019; Pickel & Yendell, 2016; Strabac & Listhaug, 2007; Uenal, 2016; Yendell & Huber, 2020). According to our results, this demonization is easier in East than in West Germany, which confirms Thesis 4. In this context, anti-Muslim attitudes are a central reason behind the successes of the right-wing-party "Alternative for Germany" (AfD) in East Germany (Öztürk & Pickel, 2021; Huber & Yendell, 2019; Pickel, 2018; Pickel & Yendell 2022).

Religion in a unified Germany—consistently different

The results presented confirm that the religious landscape of the unified Germany is different. East Germany still has a clear majority of non-denominational people, and we can now speak of a culture of non-denominationalism. In West Germany, on the other hand, there is still a culture of denominational affiliation, albeit one that is continuously eroding. Echoing Thesis 1, we can speak of a rapprochement between West and East Germany. This is diametrically opposed to the hopes of Christian churches in 1989 that expected that the overthrow of the anti-religious system of government in the

East would lead to an upswing in religious vitality. The lack of upswing may be due to the long-term effects of dechurching on socialization before 1989, with a tradition of non-belonging being passed on within families (Pickel, 2012). It has not been possible to use the improved conditions for religion after 1989 to revitalize religion at the individual level (Stolz et al., 2020, p. 629). Another explanation could be, however, that East Germans believe that not belonging to a religion is one of the few characteristics distinguishing them from West Germans, and this may help them to feel more rational and enlightened. It also helps in the construction of a specific East German identity (Pickel et al., 1998).

Another unmet expectation was that there would be a transformation of faith, with society comprising both the churches and private religiosity. Although we can discern processes of religious individualization, it is questionable whether these processes are permanent, since socialization then breaks down and since they only affect a minority of the population. Thus, while we cannot reject Thesis 2 completely, we can affirm that it is inadequate. Above all, it is not the case that other religious communities have been able to fill the gap previously occupied by the churches in East Germany. If a person believes without belonging to a church, then they have usually been socialized in a church-religious way. In East Germany, however, this is no longer the case for many people, even into the third generation. Thesis 3 and the assumptions of the market model of religion must therefore be rejected for East Germany.

There is one common feature shared by West and East Germany, namely, both are affected by secularization and, to a lesser extent, by religious individualization. Thus, the claims made by secularization and individualization theory seem to be at least partly correct. There is no evidence that new religious movements have spread, which speaks against the explanatory power of the market model in all of Germany. If anything, we can argue that West Germany has become more like East Germany.

In addition to the breakdown of ecclesiasticism and religiosity, there is a second process, namely, religious pluralization. This affects West Germany in particular, and especially so in the large cities there, while it remains relatively unimportant in East Germany. Although this is of little significance from a religious point of view, the rejection of a religious community has consequences for the political landscape. The rejection of Islam and Muslims is more pronounced in East than in West Germany. One reason for this may be the lower level of contact with Muslims and also with religion in general. The differences in these prejudices are not enormous, but their effect on the voting behavior and political attitudes of East Germans is nevertheless discernible. For example, East Germans are more likely to reject Muslims than West Germans (Pickel & Öztürk, 2018). Since there are also high correlations between rejecting Muslims and voting for the AfD, it is reasonable to assume that this defensive attitude toward religious pluralization is an important driver behind the AfD's significantly better election

results in East Germany. Religion thus remains one of the central markers of difference between West and East Germany.

Authors' note

Appendixes mentioned in this chapter and additional supporting materials are freely available at www.routledge.com/9781032547763.

The data to support the findings of this study are openly available at GESIS—Leibniz Institute for the Social Sciences (www.gesis.org). Used files: Cumulated ALLBUS 1980–2018: ZA5274 datafile version 1.1.0, https://doi.org/10.4232/1.13748; ALLBUS 2021: ZA5280 datafile version 2.0.0, https://doi.org/10.4232/1.14002. Additional data are openly available at www.europeansocialsurvey.org/data/.

Notes

1 An attempt at a time-series analysis can be found in Stolz et al. (2020).
2 For an attempt to explain religiosity, see Stolz, 2009.
3 There has been an attempt recently to combine the three different theoretical approaches to explaining religious development (Pollack & Rosta, 2018; Stolz, 2009). This appears to be a useful strategy, as all three approaches, in combination with changing social and economic conditions, are likely to help explain the pace and direction of religious change. However, it seems reasonable to begin by including the different approaches separately in the analysis in order to explore their respective contributions to the explanation.
4 All operationalizations and indicators used are tabulated in Appendix 7.1.
5 We corrected only the value of Muslim population in the Figure, since participation of Muslims in the Allbus 2021 was low and does not correspond to the order of magnitude of 5–8% currently estimated by the Federal Statistical Office and the BAMF.
6 Neither dechurching nor religious pluralization is taking place across the whole of Germany. Instead, each is occurring increasingly in large cities.
7 Incidentally, this also applies to members of both mainstream Christian churches, with a simultaneous consistency of greater attendance at church services and a higher frequency of prayer among Catholics compared to Protestants, with the exception of members of Protestant free churches.
8 Also, we are not able to say until yet, whether the COVID-19 pandemic intensified secularization or bring people back to religion.

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8 Putting authoritarianism in context

A multilevel analysis of regional effects on individual expressions of right-wing authoritarianism, conspiracy mentality, and superstition

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Introduction[1]

Since 2002, the Leipzig Studies on Authoritarianism (Decker et al., 2022) have continuously emphasized differences between East and West Germany regarding the prevalence of anti-modern attitudes such as right-wing extremism and authoritarianism as well as anti-feminist, anti-Muslim, and anti-Ziganist attitudes. Considering the persisting differences in terms of income and especially wealth structure (see Chapters 1 and 10 in this volume), economic development, and the prevalence of the aforementioned attitudes (Heller et al., 2020), this focus is still justified 33 years after unification. However, in this chapter, we want to go one step further and look at regional aspects below the East–West demarcation to explore contextual factors in depth. Because authoritarianism is thought to be the driving force behind various forms of anti-modern attitudes and politics, it will be the focus of this chapter.

Current research on authoritarianism mainly focuses on three dimensions/aspects of right-wing authoritarianism, namely, authoritarian aggression, authoritarian submission, and conventionalism (RWA; Altemeyer, 1988, 1996)—a set of attitudes often described with the metaphor of a cyclist who "hunches over and kicks down" (cf. Adorno, 1952/2004, p. 368). However, the so-called Berkeley group, a team of scientists working at the Berkeley Campus of the University of California (Adorno et al., 1950/2019), originally proposed nine dimensions, including *projectivity*—the belief in secret and evil plots—as well as *superstition and stereotypy*, a facet the authors described as the tendency to attribute power and control over one's life to external forces. Recently, Decker et al. (2020) proposed a new model of an authoritarian syndrome based on a confirmatory factor analysis, which added these two subdimensions to Altemeyer's RWA concept. In current research, the cooccurrence of conspiracy beliefs and (esoteric) superstition

DOI: 10.4324/9781003427469-10

is addressed with the term *conspirituality* (Ward & Voas, 2011; Asprem & Dyrendal, 2015)—a composition of conspiracy and spirituality. Based on recent observations—from posttruth Trumpism to anti-vax movements in the wake of the COVID-19 pandemic—and theoretical claims regarding the (original) centrality of projectivity for the psychoanalytic understanding of authoritarianism, we, too, suggest reintegrating the concept of RWA with superstition and conspiracy mentality and attempt a joint, yet exploratory analysis of contextual factors for these subdimensions.

The aim of this chapter is to identify and explain regional characteristics in these different facets of authoritarianism as well as to differentiate possible contextual-level from individual-level effects. Previous studies (e.g., Mau, 2019; Rippl & Seipel, 2021) have emphasized the importance of structural factors, for example, social structure, structural or economic weakness for authoritarianism—a social context that can provide an opportunity structure for existing authoritarian potential. While deprivation is a multifaceted construct (Rippl & Baier, 2005) that incorporates different dimensions of perceived versus objective, individual versus collective forms of deprivation, objective structural deprivation (e.g., education, work, income structure) of a specific region is known to be linked to several indicators of general and mental health (Michalski et al., 2022) and is assumed to be one of the roots of social fractures (Mau, 2019). In addition to the specific biographical experience that East Germans accumulated in the course of reunification and the recent history of East Germany, those structural factors could explain East–West differences. While these differences between East and West are often claimed to drive differences in authoritarianism and political attitudes, they are rarely tested statistically on a regional level. Using a multilevel analysis, we will take an exploratory approach to examine whether district-level socioeconomic characteristics are associated with higher or lower levels of right-wing authoritarianism on the one hand and superstition and conspiracy mentality on the other. To this end, we first outline the state of research and our theoretical considerations, then describe our data and approach and present the results of our analyses afterward. Finally, we discuss possible directions for future research as well as limitations and practical implications.

Authoritarianism and why context matters

The reduced "classic" authoritarianism

The classic theory of *authoritarianism* aimed to explain the development of stereotypes and prejudices with a focus on socialization. Adorno et al. (1950/2019) conceptualized authoritarianism as a "syndrome, a. . . structure in the person that renders him receptive to antidemocratic propaganda" (p. 1) thereby dealing with it as a character trait largely influenced by early childhood experiences and modeled by socialization experiences in adolescence. Fromm as well as the authors of the subsequent *Authoritarian Personality*

(Adorno et al., 1950/2019) built particularly on psychoanalytic insights, suggesting that authoritarianism was based on the need for a strong superego compensating for a weak ego as well as cultural and historical characteristics such as harshness in raising children. In Adorno et al.'s conceptualization, authoritarianism was considered a syndrome of nine subdimensions, including conventionalism, authoritarian submission, authoritarian aggression, anti-intraception (a rejection of imagination, sensitivity, and subjectivity), superstition and stereotypy, power and "toughness" (a tendency to identify oneself with authorities), destructiveness and cynicism (contempt for humanity), projectivity, and sex (a heightened interest in and concerns with sexuality) (see Adorno, 1973, p. 45). Based on scores reached on these dimensions, the authors identified different types of authoritarians: the authoritarian and the conventional types were the most frequent, but they also described the tough guy/rebel (characterized by destructive upper hand of the id), the crank (characterized mainly by projectivity), and the manipulative (characterized by compulsiveness) types (Adorno et al., 1950/2019, p. 753).[2] While Adorno et al. explicitly considered the authoritarian personality (or rather personality types) a product of society and at least Adorno himself had a materialist theoretical foundation in mind, in their studies, they did not engage with contextual variables.

In an attempt to improve the measurability of authoritarianism, Altemeyer (1981, 1988, 1996) ridded the concept of its psychoanalytic background and conceptualized it using only three dimensions: *authoritarian submissiveness* describes an individual's tendency to follow the lead of a strong ruler; *authoritarian aggression* captures the extent to which an individual seeks to punish (socially) deviant behavior; and *conventionalism* measures the willingness to adhere to established rules of conduct (Altemeyer, 1981, 1988, 1996; Beierlein et al., 2014). In this and other recent approaches, authoritarianism is viewed as a set of attitudes learned through social interactions and modified by specific situational factors and political situations (Heller et al., 2022a). While the social context of authoritarianism is thus implicitly considered in most studies today, again, it has been integrated into the empirical assessment only to a limited extent. The rise of authoritarian political movements throughout the world calls for a more explicit analysis of the political, social, and discursive contexts that may feed into authoritarian dynamics.

Our main argument is thus based on the *threat hypothesis*: Oesterreich (2005), for example, assumes that authoritarianism primarily serves as a defense against fear and insecurity, and other studies were also able to uncover a connection between high values in authoritarianism and individual, collective, and societal threat perceptions (Duckitt & Fisher, 2003; Feldmann & Stenner, 2008). In particular, the psychodynamic concept of secondary authoritarianism (Decker et al., 2013; Decker, 2019) supposes an authoritarian submission to and identification with secondary, that is, abstract authorities instead of actual authoritarian leaders. In the case of Germany, an identification with a leader or the nation is ostracized after

World War II (WWII), leading to a deferred identification with Germany's economic growth and strength. If this identification with the "economic nation Germany" and the accompanying feeling of "being someone again" is (economically) threatened, psychological destabilization may follow, which manifests itself in the longing for strong (personal) authorities as well as authoritarian aggression toward outsiders (Decker, 2019).

Conspiracy mentality and superstition

Given the ongoing political developments—the anti-vax protests during the COVID-19 pandemic and the spread of conspiracy myths in posttruth politics—it seems reasonable to inquire whether Altemeyer's RWA scale still sufficiently encompasses all aspects of the underlying authoritarian disposition. In fact, an academic discussion has (re-)gained momentum in German-speaking research on authoritarianism (see, e.g., Amlinger & Nachtwey, 2022; Decker et al., 2020; Jäger, 2022; King, 2021; Heidemeyer et al., 2022; Henkelmann et al., 2020), taking the rapidly changing societal experiences into account when measuring and theorizing authoritarianism and also arguing that the original F-scale should not be reduced to just the three dimensions proposed by Altemeyer's RWA conception.[3] With regard to right-wing extremism, Imhoff and Decker (2013) argued that RWA has difficulties explaining some of its features, such as its inherent subversiveness and the use of anti-state codes. In particular, they point to the fact that right-wing extremist groups do not want to preserve the status quo—as conventionalism in the conception of the RWA would suggest—and to the discrepancy that arises from the simultaneity of assumed authoritarian submission and de facto nonsubmission to existing democratic governments. More recently, Amlinger and Nachtwey (2022) argued, based on interviews with protestors against the measures to contain COVID-19, that projection is still central to authoritarianism today. Moreover, they observe a new libertarian type of authoritarian. This type understands freedom as an individual and reified property—social dependencies and relations are denied. For these "regressive rebels," the neoliberal promises of individual self-realization have not materialized, leading to a potential for grievance (cf., pp. 13–14). The resulting frustration is directed regressively at globalization and multiculturalism, mostly by projection in the form of conspiracy theories (cf., pp. 324–335).[4]

Following Decker et al. (2020) within this debate, we assume that the higher, second-order factor of RWA is currently accompanied by another second-order factor. These two combine and then form an authoritarian syndrome (see Figure 8.1). Referring to the original work of the Berkeley group and using confirmatory factor analysis, Decker et al. (2020) suggest that both the general belief in conspiracy theories or an ever-present existence of sinister and evil plots—a conspiracy mentality (Graumann & Moscovici, 1987)—as well as superstition, a belief in supernatural, magical but above all supraindividual powers, should be reintegrated into the concept of

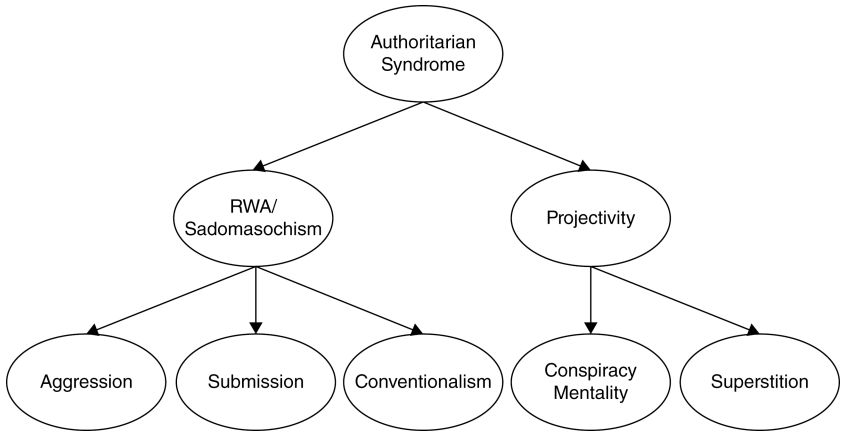

Figure 8.1 Authoritarian syndrome and lower-level constructs as proposed by Decker et al. (2020).

authoritarianism. Psychoanalytically, these dimensions are thought to be primarily based on the defense mechanism of splitting into "good" and "bad" parts and the subsequent identification with the "good" parts of oneself or one's own group and the externalization of the "bad" parts onto "others" (Decker et al. thus subsumed both dimensions under the second-order factor "projectivity"). Within conspiracy beliefs, this projection manifests when supposed conspirators become targets of aggression, while seeing the self as part of an awakened heroic resistance. In the case of superstition, the authors of the classic studies already recognized a readiness for submission as well as projectivity. They understood superstition as a "tendency. . . to attribute one's own responsibility to external forces beyond one's own control" (Adorno, 1973, p. 56)—that is, a "self-surrender to fate or other powers in the hope that one can be absorbed in their greatness and thus escape one's own powerlessness" (Decker et al., 2020, pp. 196–197, see also Adorno, 1973, p. 55) (translated by the authors).

In addition to social (e.g., need for positive identity) and epistemic motives (conspiracy theories as "tools of knowledge"), the influence of existential motives in conspiracy beliefs, such as the need for security and control, is well established (see Douglas et al., 2017): Individuals are particularly prone to conspiracy mentality when they feel personally, socially, or economically deprived (Schliessler et al., 2020; Imhoff & Decker, 2013), when they feel threatened, or when they experience fear (Grzesiak-Feldman, 2013) or a loss of control (Whitson & Galinsky, 2008). The study by Whitson and Galinsky (2008) also observed this effect for superstition. Other research on superstitious behavior and magical thinking shows that these increase under stress. For example, Keinan (2002) argues that stress reduces the individual feeling of control and magical rituals help to restore this feeling. Hence, in the current

historic situation, (perceived) (socioeconomic) threat may fuel different authoritarian reactions—in the form of the aforementioned subdimensions.

Taking context into account

Based on the literature reviewed so far, we argue that agreement to all five dimensions of the authoritarian syndrome is connected to the social context because (objective) contextual factors may fuel (subjective) threat perception and thus authoritarianism. Hence, the social context may provide a specific, spatially delineable opportunity structure for authoritarianism. In particular, we aim to show to which extent contextual factors at the district level are relevant above and beyond factors on the individual level as well as in interaction with them. Drawing from theories of structural deprivation as well as threat theories, in the following, we specify which contextual factors are most likely to influence individual authoritarian attitudes and why the East–West divide may still be of particular relevance even after almost 35 years of unification.

Feelings of deprivation are linked to existing infrastructure (Franz et al., 2018)—local public transport, medical care, police presence, shopping facilities as well as educational institutions—and are more likely to be reported by people in smaller communities. In addition to structural factors, local political and cultural milieus as well as traditions are apparently relevant for the transmission of attitudes and voting behavior. In the case of East Germany, historical and social-structural reasons for deprivation overlap. Mau (2019) ties back social fractures in the German society to the demise of the German Democratic Republic (GDR) and the (flaws of the) unification process (cf., p. 14). In addition to cultural devaluations, East Germans experienced a (relative) economic declassification, as West Germany became the new standard of comparison; even though prosperity and the general standard of living increased, it remained lower than in West Germany (cf., p. 169). In addition, the privatization of the GDR's productive assets after reunification mainly benefited West Germans, leaving many East Germans with a sense of collective expropriation (cf., pp. 174–175). As of today, there are persistent differences in income and wealth (East Germans are more often tenants; see Chapter 10 in this volume), and East Germans are underrepresented in executive positions of the public as well as the private sectors (cf. Metzing & Richter, 2019). Moreover, after the unification, many (young, qualified, and predominantly female) East Germans moved to West Germany in the hopes of better living and working conditions. Unemployment rates soared and especially the more rural areas of northeast Germany are aging and shrinking faster than the West (BMWI, 2021, pp. 72–74), even today. These structural differences may add to a feeling of being left behind (Hannemann et al., 2023)—even in a demographic sense (Kröhnert & Klingholz, 2006): Skewed gender ratios (toward more men) at an age when people are typically looking

for a partner have thus been shown to be connected to ethnocentric attitudes and dissatisfaction with democracy (Salomo, 2019).

While the connection between precarious living conditions (e.g., low education, unemployment, low income) as well as the transformation processes of structurally weak regions (aging, fewer births than deaths, and out-migration) on the one hand and electoral decisions (e.g., Manow & Schwander, 2022; Dilling & Kiess, 2021; Giebler & Regel, 2017; Franz et al., 2018; Meisner, 2019) and (far right) attitudes (e.g., Quent, 2012; Brachert et al., 2020; Best & Salheiser, 2022; Rippl & Seipel, 2021) on the other hand is well established and often discussed with reference to the modernization loser thesis (Spier, 2010), little to no research has taken the context into account when considering one of the most important predictors for right-wing attitudes and voting, namely, RWA. Based on deprivation and threat theories, we hypothesize that living in objectively deprived region, that is, regions with high unemployment rate, low average level of education, low gross domestic product, social inequality, and other structurally unfavorable characteristics may evoke the mobilization of authoritarian sentiment because these contextual factors could be perceived as threatening and bring to mind the possibility of social descent:

H1: Contextual factors of structural deprivation are linked to higher scores in RWA.

We are particularly interested in whether persisting differences in RWA between East and West Germany can be explained by these contextual factors.

In a broad study, Meuleman et al. (2020) were able to uncover a complex interaction between contextual factors, perceived deprivation, threat perceptions, and prejudice across 20 countries: Specifically, the unemployment rate had an impact on perceived deprivation and, via this, indirectly on threat perceptions. The latter, in turn, contributed to prejudice formation. We assume that such cross-level interactions (i.e., interactions between individual perceptions and objective contextual factors) may also be in play with regard to RWA. Thus, it is not necessarily contextual factors on their own, but these are at least partially related to individual perceptions of deprivation. To our knowledge, no study has looked at those cross-level interaction effects with regard to authoritarian attitudes so far. We assume that fear of economic decline in economically rather well-off regions is likely to lead to a stronger desire for leadership, maintenance of the status quo, and "kicking down":

H2: Subjective collective deprivation on the individual level and the objective household income on a district level are linked in a cross-level interaction to higher scores in RWA.

As outlined earlier, conspiracy mentality and superstition can be considered as part of the authoritarian syndrome. Similar to RWA, Uscinski and Parent

(2014) argue that "conspiracy theories are for losers" (p. 130)—"losers" not in the devaluing sense but rather in the sense of the *modernization loser thesis* of losing in the process of globalization, the neoliberal-capitalist economy or transferred to the context of East Germany: living in objectively disconnected or deprived regions. In this regard, conspiracy theories enable a kind of sense-making and coping with uncertainty and precarity—regardless of whether the uncertainty has objective or subjective sources (Adam-Troian et al., 2023). Hornsey et al. (2023) found that both the poor economic situation (on a national level) itself and the perception of it are related to more prevalent conspiracy beliefs. Consequently, they argue that "conspiracy beliefs are not just caused by intrapsychic factors but are also shaped by difficult economic circumstances for which distrust might have a rational basis" (p. 2; see also Adam-Troian et al., 2023) and suggest that this is related to epistemic, existential, and/or social needs (cf. Douglas et al., 2017). In line with this reasoning, Davis et al. (2018) showed that conspiracy beliefs are associated with a tendency to blame the entire system for one's own (social) disadvantage. In addition, cross-country comparisons identified the Gini coefficient (higher inequality) and a higher unemployment rate as potential predictors favoring conspiracy beliefs (Drochon, 2018; Cordonier et al., 2021; Imhoff et al., 2022). A notable exception, however, is Walter and Drochon (2022), who could not identify a context effect of their cross-country multilevel analysis (including Gini coefficient and GDP). Casara et al. (2022) provide a plausible explanation for these contradictory results by showing that the effect of inequality on conspiracy beliefs is fully mediated by anomie, that is, the feeling that society is falling apart. To our knowledge, however, no multilevel analysis of conspiracy beliefs exists so far that focuses on smaller, subnational social spaces like the district level. Based on the literature reviewed we hypothesize that:

H3: Contextual factors of structural deprivation are linked to higher conspiracy mentality scores.

Subjective fear of economic decline may not only be more likely to create a particular desire for leadership and for maintaining the status quo (as we assumed for RWA), at the same time, it may also increase the readiness to identify evil conspirators as a cause for that very decline—an assumption that, in return, can reduce fear and provide control:

H4: Subjective collective deprivation on the individual level and the objective household income on the district level are linked in a cross-level interaction to higher individual conspiracy mentality.

For superstition, studying contextual effects is less established. Sales (1973) used historical data to examine the assumption that scores on all dimensions of the original F-scale increase during periods of economic

uncertainty and concluded that it held true for all dimensions except projectivity and conventionalism, where he was not able to test his hypothesis due to a lack of archival data. For superstition, he could confirm that the number of astrological articles in the *Reader's Guide to Periodical Literature* increased significantly during the Great Depression in the 1930s compared to the more economically consolidated 1920s. Padgett and Jorgenson (1982) replicated Sales' assumptions about superstition for the times between 1918 and 1940 in Germany: They argue that unemployment, lower real wages, as well as industrial production explain the rise of astrological literature in Germany during that period. Hence, political and economic threats could also explain superstition with superstition being a tool for sense- and meaning-making in a seemingly incalculable or threatening personal situation. While Whitson and Galinsky (2008) showed that people tend to become more superstitious when they feel a loss of control, this may also be influenced by the immediate social environment, for example, if structural disadvantage and deprivation are more prevalent in the living environment:

H5: Contextual factors of structural deprivation are linked to higher scores in superstition.

On the other hand, the subjective fear of economic decline in affluent regions could also evoke superstitious attitudes, which in return can reduce perceived threat and provide control:

H6: Subjective collective deprivation on the individual level and the objective household income on the district level are linked in a cross-level interaction to higher scores in superstition.

Sample and methods

Sample

The data we use in this chapter was collected in early 2022 (March to May) as part of the Leipzig Studies on Authoritarianism, a series of biannual representative studies surveying authoritarian and extreme right-wing attitudes in Germany since 2002. The sample was collected using the paper-pencil method in a face-to-face setting: In the first part, sociodemographic data were collected by the interviewer; the second part was completed independently by the respondents. For randomization, Germany was initially divided into 258 sample points. The interviewers then selected households using the random-route method and determined the target persons using the Kish Selection Grid. The response rate was 41.2%; the sample included people without German citizenship but was conducted in German. Sociodemographic information on the sample can be found in Appendix 8.1.

As for contextual factors, we use the database of the Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR), which provides indicators on spatial and urban development in Germany at the district level, the smallest spatial unit with a sufficient number of cases in our data. We were able to link these spatial indicators to our data via the municipality codes (*Amtlicher Gemeindeschlüssel*) that we had available from all respondents. Of the total of 401 German districts and independent cities, 193 were covered by our respondents, after excluding those districts occupied by fewer than five people. We also excluded cases with missing information on any outcome variable (listwise deletion).[5] These steps reduced the sample for the following analyses to N = 2,313 individuals.

Measures

Based on previous studies on the influence of contextual factors on political attitudes, we were particularly interested in describing deprived regions. Variable selection was based on the Robert Koch Institute's deprivation index (Kroll et al., 2017) and the German Index of Multiple Deprivation (GIMD; Hofmeister et al., 2016; Bauer & Maier, 2018). However, because we are taking an exploratory approach, attempting to include a variety of different structural factors in order to empirically test which of these factors might have the greatest influence, we have also added variables beyond the indices mentioned earlier. For an overview of our approach to variable selection, see Appendices 8.11 and 8.12.[6] We combined this theory-driven, top-down variable selection with a data-driven, bottom-up approach, as we decided to delete variables causing variance inflation due to strong interrelationships among variables.[7] Finally, we included the following contextual factors in the analysis: (1) the unemployment rate, (2) the number of school leavers with general university entrance qualifications, (3) average gross domestic product per capita, (4) average household income to capture objective economic deprivation, (5) an index summarizing the inhabitant-weighted linear air distance to various places of daily need (pharmacy, bus stop, supermarket, and elementary school) intended to depict infrastructural connectivity, and (6) the migration balance, that is, the number of people moving to a district minus the number of residents leaving the district per 1,000 inhabitants to measure growth of individual districts. Because it has been shown in the past that a high proportion of partnerless men in a region can be associated with the feeling of being demographically "left behind" (Salomo, 2019; Kröhnert & Klingholz, 2007), we included (7) the ratio of female to male residents between the ages of 20 and 40. We also included (8) economic inequality within districts by subtracting the share of high-income households (> 3,600€) from the share of low-income households (<1,500€) (squared). Last, we included (9) the percentage of refugees in the population.[8] Table 8.1 provides an overview of all contextual indicators considered in our analyses.[9]

Table 8.1 Overview of the analyzed contextual factors.

Contextual factors at the district level	*M*	*SD*	*Min*	*Max*
Share of unemployed in the civilian labor force in %	4.69	2.10	1.35	12.83
Proportion of school leavers with higher education entrance qualification in %	32.69	8.59	10.53	63.96
Gross domestic product in €1,000 per inhabitant	38.54	16.95	16.61	188.29
Average household income in € per inhabitant	1,960.43	231.45	1,420.67	3,514.12
Local supply index	1,101.15	534.57	326.25	2,781.50
Migration balance (inflows minus outflows per 1,000 inhabitants)	4.07	3.23	–7.03	17.80
Ratio of female to male inhabitants aged 20–40 in %	47.88	1.28	43.55	52.88
Squared absolute inequality	134.47	180.92	0	1,754.77
Share of refugees in population in %	2.07	1.25	0.24	14.98

Source: The table was taken from Heller et al. (2022b).
Note: The indicator on inequality was supplemented. [a] The table refers to all 401 German districts and independent cities. Within the final sample (N = 2,313), there are 193 districts with at least five respondents. Compared with the distribution for Germany as a whole, there are only minor differences.

In addition to the contextual variables, we also included the following individual-level variables: age (metric), gender (binary), education (university entrance qualification: yes/no), current unemployment (yes/no), and equivalent household income (metric) as well as the current place of residence in East or West Germany (Appendix 8.1). For the prevalence of authoritarianism, we assume that socialization effects (as indirectly captured by education and age) play an important role. To model the influence of objective contextual influences versus individually perceived deprivation experiences, we also included perceived political deprivation and perceived individual and collective deprivation.

Regarding our outcome variables, RWA was assessed using the Short Scale for Authoritarianism (KSA-3; Beierlein et al., 2014). Three items each were assigned to the dimensions of authoritarian aggression, authoritarian submission, and conventionalism. Conspiracy mentality was assessed using a three-item short form of the Conspiracy Mentality Scale (Imhoff & Bruder, 2014). Superstition was assessed using four items that have previously been included in the German General Social Survey (ALLBUS).

An overview of all the items, their wording, response options, and reliability estimates are documented in Appendices 8.2 and 8.3. In addition, a correlation table of the dependent variables of the authoritarian syndrome is presented in Appendix 8.4.

Statistical analyses

In a first step, we examined the mean differences between East and West Germany along the five dimensions of authoritarian attitudes using *t*-tests. Next, we statistically estimated and modeled the effect of contextual factors using (hierarchical) multilevel models. Unlike classical methods (such as linear regression models), these models take into account the fact that groups of people may differ systematically. In our case, we assumed individuals to be nested within districts. Intraclass correlation (ICC) values of the null model ranged between .25 (superstition) and .40 (authoritarian aggression; see Appendices 8.6–8.10 for all models), indicating that the use of multilevel models is appropriate (Muthén, 1994; Lai & Kwok, 2015; Hox et al., 2017). Further variables were included stepwise: First, we added the variables on the individual level (Model 2), then the variables on the district level (Model 3). Finally, we defined cross-level interactions (Model 4). We compared the models using a likelihood ratio chi-square (χ^2) test. To assess model fit we refer to R^2 values, which indicate the explained variance by the predictors in the model (marginal R^2) and by predictors and district membership (conditional R^2), respectively (Hox et al., 2017).

Results

Differences in authoritarian mean values in East and West Germany

Our starting question was whether East–West differences in political attitudes are connected to persisting sociostructural differences. Indeed, respondents in East Germany show higher authoritarian aggression than respondents in West Germany. The same holds true for authoritarian submissiveness. Conspiracy mentality and superstition, on the other hand, are more pronounced in West Germany. No differences were found for conventionalism (see Appendix 8.5).

In Table 8.2, we summarize the results of our multilevel analyses for RWA, conspiracy mentality, and superstition as outcome variables. Remarkably, the aforementioned East–West differences disappear altogether—except for the effect on superstition—if further variables are added while district membership is controlled. Whereas the East–West differences in conspiracy mentality and submission disappear when individual variables are added, this is the case in authoritarian aggression only when contextual variables are added.

Individual level

In line with previous studies, we find significant age effects: Older individuals are more likely to hold RWA positions than younger individuals. Conspiracy mentality and superstition, on the other hand, are more prevalent among

Table 8.2 Final models for each outcome variable.

		Aggression	*Submission*	*Conventionalism*	*Conspiracy mentality*	*Superstition*
	Final model:	Model 4 (L1 x L2)	Model 4 (L1 x L2)	Model 3 (L2)	Model 4 (L1 x L2)	Model 2 (L1)
Model 1	Intercept	9.31***	7.74***	9.69***	10.26***	7.51***
Model 2	East–West	0.17	0.16	–0.17	–0.97	–0.61*
Level 1	Age	0.26***	0.12*	0.40***	–0.24**	–0.13*
(person)	Education	–0.78***	–0.62***	–0.77***	–1.05***	–0.45**
	Sex	–0.32**	–0.16	–0.08	–0.47**	2.04***
	Equivalent household income	0.02	0.06	–0.11	0.14	–0.05
	Unemployment	–0.76**	0.14	0.33	1.22*	0.40
	Pol. depr.	0.29***	0.23***	0.27***	0.23*	0.13
	Individual subjective deprivation	–0.01	0.09	–0.05	0.60***	0.09
	Collective subjective deprivation	0.10	0.22**	0.16*	1.12***	–0.13
Model 3	Sex ratio	–0.44*	–0.54**	–0.50**	–0.38	
Level 2	Inequality (squared)	0.44**	–0.16	0.14		
(district)	Unemployment share	0.64*	0.48	0.27	0.13	
	Share of university entrance qualification	0.18	0.21	0.19	0.06	
	GDP	–0.13	–0.05	–0.02	0.35	
	Local amenities	0.07	–0.15	–0.04	0.34	
	Migration balance	0.07	0.00	–0.14	0.20	
	Share of asylum seekers	–0.32 [p = .061]	–0.27	–0.27	0.33	
	Average household income	0.49	0.27	0.71**	–0.19	
Model 4	Household income x					
(L1 × L2)	collective deprivation	0.23***	0.19**		0.42***	
	ICC	.314	.337	.301	.294	.222
	Marginal/conditional R^2	.121/.435	.068/.405	.119/.420	.140/.434	.125/.348

Note: ***p <.001; **p <.01; *p <.05; REML = restricted maximum likelihood; GDP = gross domestic product; L1 = (individual) level 1 variables; L2 = (contextual) level 2 variables. Metric independent variables are centered at the grand mean.

younger individuals. In addition, we find a mitigating effect of higher formal education for all five dimensions of authoritarianism investigated here. This effect is especially pronounced for conspiracy mentality. Gender differences are also apparent: Whereas authoritarian aggression and conspiracy mentality are more pronounced among men, superstition is particularly strong among women. Even though we do not observe an effect of individual household income, we do find significant effects regarding current unemployment: It is a predictor for conspiracy mentality, while authoritarian aggression is mitigated by unemployment. This at first glance perhaps counterintuitive effect will become more plausible when looking at contextual effects (see below). Political deprivation predicts all authoritarian attitudes except superstition. Individual feelings of economic deprivation are only significant for conspiracy mentality while, at the same time, there is no effect of actual household income. However, the feeling of collective economic deprivation is a stronger predictor for conspiracy mentality, authoritarian submission, and conventionalism. All these individual effects remain significant when contextual variables are added, and the χ^2 tests show that all five models with individual variables explain the data much better than the null models (additional information on Models 1 and 2 for each subdimension can be found in Appendices 8.6–8.10).

District-level effects and cross-level interactions

The inclusion of contextual factors leads to a significant improvement in model fit for all dimensions except superstition. Together, the predictors can explain between 6.6% (submission) and 13.4% (conspiracy mentality) of the variance (marginal R^2). Taking the district structure into account, the proportion of explained variance increases to around 40% (conditional R^2; see Appendices 8.6–8.10 for detailed information on explained variances). This means that there is still residual variance between the districts that the current predictors do not capture. Nonetheless, our contextual variables explain a significant amount of the variance of RWA (**H1**). For conspiracy mentality and superstition, the results are mixed: For the latter, counter to our expectations, we do not observe a contextual effect nor the interaction effect, thus we have to reject hypotheses **H5** and **H6**. For the former, we observed a significant interaction effect that we will discuss later.

Regarding RWA, the gender ratio has a significant influence on the three dimensions: the greater the proportion of women aged between 20 and 40 in the district, the less pronounced is RWA—regardless of the individual respondent's gender. A high proportion of men is thus related to stronger agreement with authoritarian statements among women and men alike. Authoritarian aggression is the only dimension where inequality and unemployment share on a district level are significant: Higher absolute inequality and unemployment on the district level is associated with a stronger belief that troublemakers should be made to feel that they are unwelcome in society,

that "misfits and slackers" should be severely punished, and that social rules should be enforced without compassion, while individual unemployment reduced authoritarian aggression.

These effects point toward a certain fear of social decline that is especially operative regarding authoritarian aggression and that may be underlined by the results of our hypothesized cross-level interaction (**H2**): Including the interaction between subjective collective deprivation, that is, the individual assessment of Germany's economic situation and average household income at the district level, leads to an improvement in model fit. The effects follow our assumptions: In districts that are particularly wealthy, subjective collective deprivation has an especially strong effect on the approval of authoritarian aggression (see Figure 8.2). Hence, particularly in affluent regions, fears of social decline can form a breeding ground for authoritarian aggression. The cross-level interaction is also significant regarding authoritarian submission: As expected, the longing for strong leadership is particularly pronounced among individuals who live in affluent districts but tend to rate the economic situation in Germany poorly. The subdimension of conventionalism captures a longing for maintaining traditions and customary behaviors. Our analysis reveals that such attitudes are particularly pronounced in regions with a high average household income. However, there is no interaction with subjective collective deprivation in regard to this subdimension.

While the addition of contextual variables did not lead to a significant model improvement for conspiracy mentality (**H3**), adding the cross-level interaction did (**H4**)—and the effect is similar to the interactions reported for authoritarian submission and aggression: Individuals who fear an economic decline of Germany while living in prosperous districts are more prone to see evil and dark forces at play.

Discussion

In this chapter, we aimed to deepen our understanding of persisting East–West differences by analyzing contextual factors for authoritarian attitudes. Our analysis indeed reveals significant regional differences regarding five dimensions of authoritarian attitudes in Germany. These can partly be explained by contextual variables: While higher unemployment and inequality in a region are associated with higher authoritarian aggression, high household income is associated with conventionalism. Presumably closely related to the subjective experiences of deprivation (see Kröhnert & Klingholz, 2007), the gender ratio plays an important role for all three RWA dimensions. Districts with a surplus of 20- to 40-year-old men apparently provide particularly favorable conditions for the emergence of authoritarian attitudes. Conversely, it could also be the case that (young) women leave districts in which authoritarianism is more widespread. Except for household income (which is higher in the West), all relevant structural characteristics are more likely to be found in East German districts than in the West (see Appendix 8.5). It is thus obvious

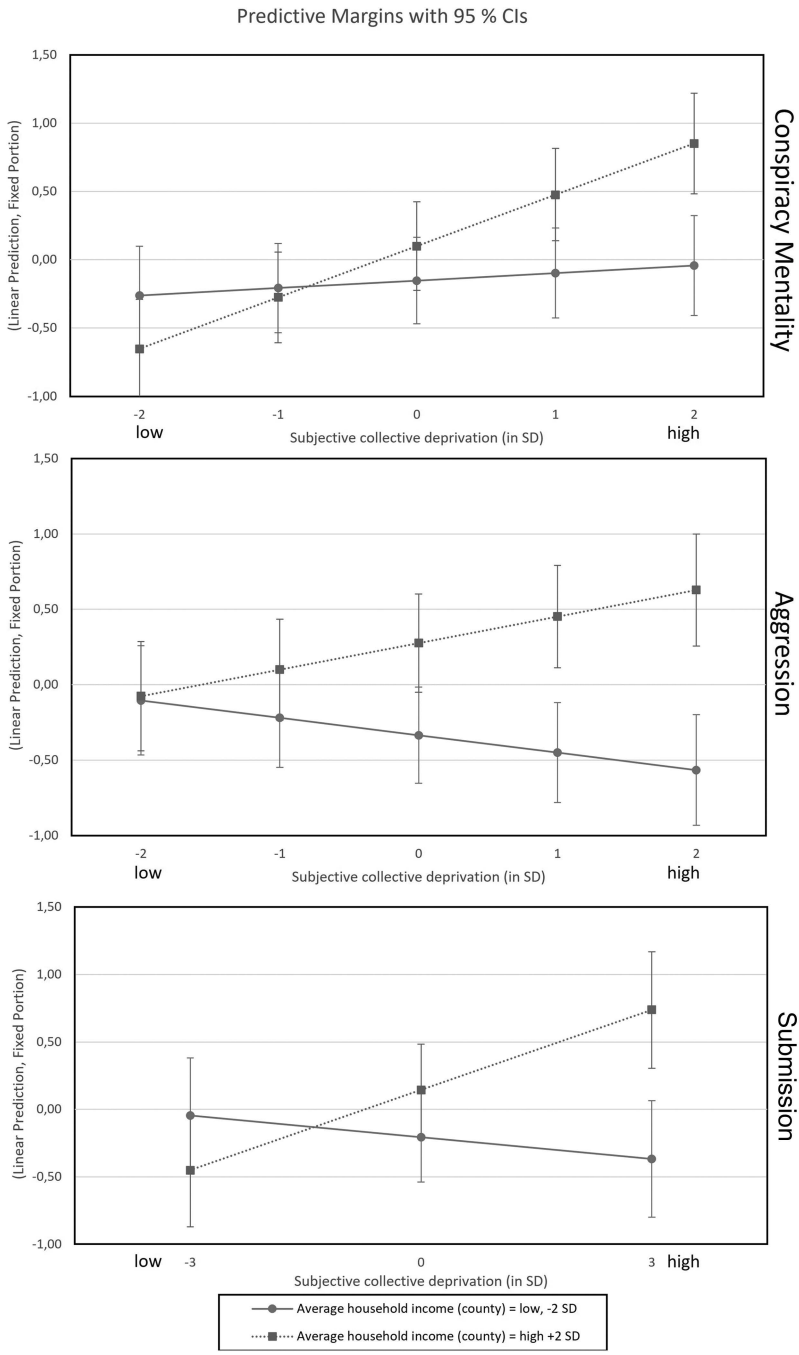

Figure 8.2 Cross-level interaction effects.

Note: CI = confidence interval; SD = standard deviation.

that the regional differences are partly due to or reflected in structural differences between East and West Germany. This especially illustrated by the fact that the influence of the East–West variable in the subdimension authoritarian aggression disappears when contextual factors are considered (other East–West differences already disappeared when adding the individual variables while district membership is controlled).

The effects on the individual level were in line with previous studies.[10] For RWA and conspiracy mentality in particular, we note that individual perceptions and judgments of a situation are more crucial than actual, objective deprivation (e.g., the individual household income). However, these subjective perceptions are not independent of actual structural deprivation: Fear of decline and narcissistic experiences of grievance (see Decker et al., 2013), measured as collective experiences of deprivation, interact with average household income on the district level, and this interaction helps predict authoritarian aggression and submission as well as conspiracy mentality. The latter is in line with Adam-Troian et al's (2023) argumentation that disadvantaged social positions can be described subjectively and objectively.

Nevertheless, we note that, overall, individual variables explain more variance than the contextual ones. This is particularly evident in conspiracy mentality and superstition, where, contrary to our hypotheses, we did not find any significant effect of just our contextual variables. In the case of conspiracy mentality, this highlights the importance of individual factors (higher unemployment, lower formal education, male gender, and perceived individual, collective, and political deprivation) and cross-level interactions. With reference to Uscinski and Parent (2014, p. 130), we conclude that conspiracy mentality is especially prevalent in perceived losers (and those in fear of social decline). This leads back to Walter and Drochon's (2022) argument that "[h]eterogeneity in conspiratorial thinking seems to be largely a function of individual traits" (see also Douglas et al., 2023). Contextual factors and their influence on conspiracy mentality may have to be thought of primarily in interaction (and possibly dependence) on individual factors. Therefore, other cross-level interactions could be a future avenue when researching the effects of context on conspiracy mentality.

For superstition, we did not observe any significant effects beyond sociodemographic characteristics (lower formal education, lower age, and especially female gender). Moreover, West Germany seems to be significantly more superstitious—an effect that we cannot resolve by means of our contextual or individual variables.

It is conceivable that the level of districts and district-free cities chosen here is, on the one hand, too far away from the respondents; that is, it is still a very large social space with a heterogeneity that should not be underestimated. On the other hand, our level of analysis may not be far enough away from the respondents to observe subtle level differences as can be observed in cross-country comparisons, for example, for the Gini coefficient (higher inequality) and the unemployment rate (Drochon, 2018; Cordonier et al.,

2021). Further research on this, including more small-scale and sociospatial research, would be desirable (on effects of using different spatial units in multilevel analyses, see also Pottie-Sherman & Wilkes, 2017). However, district membership still plays an immense role that we could not explain entirely. Other factors not considered in our model are thus also relevant for the expression of all five dimensions of authoritarian attitudes. For example, we did not include the security dimension of the GIMD because the BBSR does not provide data on crime. We suggest including this factor in subsequent studies. Beyond the scope of our data, historical contextual as well as longitudinal (long-term) analyses could provide differentiated insight into the milieu structure of individual districts, and, finally, smaller scale analyses on neighborhood structures or peer groups could help to link the mobilization and spread of authoritarian attitudes to contextual factors.

Our results illustrate that authoritarian dynamics are expressed differently depending on the individual and the context and that there is no single "lever" for prevention. Nevertheless, it can be deduced from our results that establishing equal living conditions everywhere (Article 72 paragraph 2 of the Basic Law for the Federal Republic of Germany) can also contribute to the prevention of authoritarianism: Authoritarianism is more prevalent in contextual conditions that nurture it. On the one hand, this refers to the individual, who has a more or less pronounced disposition, and also to sociostructural factors. "Accommodating lifeworlds" (Habermas, 1991, p. 25) [translated by the authors], that is, democratic spaces that enable genuine participation and codetermination and convey democratic values, may inhibit authoritarian dynamics and strengthen democracy.

Authors' note

Appendixes mentioned in this chapter and additional supporting materials are freely available at www.routledge.com/9781032547763.

The dataset analyzed in the current study was generated as a joint project of several different universities. Due to missing consent of all parties involved, we are unable to make the dataset publicly available. The data supporting the findings of this study will be provided by the corresponding author upon reasonable request.

The authors have no conflict of interest to declare.

Notes

1 This paper is a theoretical and empirical advancement of Heller et al. (2022b), who used a partially different set of variables.
2 Types are nowadays formed with person-centered methods such as cluster analyses, while dimensionality is checked using variable-centered methods such as factor analyses. In its reception in the scientific community but also by the Berkeley group itself this is not always clearly separated.

3 The dimensionality of Altemeyer's RWA scale has also been highly debated as Altemeyer proposed a one-dimensional construct with three aspects that could not be reproduced empirically (cf. Funke, 2005). Following Altemeyer's proposition, subsequent research focused on adequately capturing the three aspects while eliminating item overlap with outcome variables and reducing possible response biases by using balanced scales (cf. Heller et al., 2020).
4 They refer to a conspiracy-believing type as a regressive rebel following Merton's (1949/1995) anomie theory, seeing Adorno et al.'s "crank" and "rebel" types—which we mentioned above—as precursors of libertarian authoritarianism.
5 Because the missing values for each indicator do not exceed 5%, we assume that exclusion did not bias our results (Schafer & Graham, 2002).
6 We omitted the dimensions "environmental" and "security deprivation" of the GIMD because they were only weighted at 5%. Furthermore, the BBSR does not provide information on crime statistics.
7 High multicollinearity of the predictors can lead to a strong bias of the results (Aiken et al., 1991). It can be checked via an analysis of the variance inflation factor (VIF) of the predictors. In our final analysis, the highest VIF was below 5 and thus within the acceptable range.
8 The contact hypothesis (Allport, 1954; Pettigrew & Tropp, 2006) also discusses whether the size of outgroups influences authoritarian attitudes (e.g., Dhont & Van Hiel, 2009).
9 All contextual factors are as of 2019, with the exception of the local supply index (pharmacies and supermarkets are from 2017; bus stops and elementary schools are from 2018).
10 For RWA see, for example, Decker et al. (2018) and Heller et al. (2022), for conspiracy mentality, e.g., Schliessler et al. (2020), van Prooijen (2017), Freeman and Bentall (2017), Uscinski and Parent (2014), and Douglas et al. (2017), for superstition, e.g., Ward and Voas (2011), Darwin et al. (2011), Botvar (2009), and Schliessler et al. (2020).

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Part 3

Work and family in and after the socialist reality


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9 The (fe-)male breadwinner? Beliefs about gender roles in East Germany

An age-period-cohort analysis

Ayline Heller, Laura Altweck, Stefanie Hahm, and Niels Michalski

Introduction

Men's and women's presumed roles and responsibilities have been subject to gradual but constant change over the past century in many European societies. According to traditional gender roles—like the male breadwinner model—women run the household and care for the family, while men go to work and provide income for the family. In general, younger age cohorts tend to hold more egalitarian views, endorsing female employment and an egalitarian division of household tasks (Brooks & Bolzendahl, 2004; Lück, 2005). Literature states that individual beliefs about gender roles and perceived gender norms are mainly formed through general political and societal circumstances as well as critical historical events witnessed during formative years in youth and early adulthood (Mannheim, 1928). Experiences in these formative years (i.e., 17–25 years of age) shape the mindsets and belief systems of the concerned cohorts in a similar way (Mannheim, 1928) and influence certain beliefs and norms for the rest of the life course (Ryder, 1965). As younger generations gradually replace older ones in the adult population, gender role beliefs are replaced as well.

After the fall of the wall, people in the former socialist Eastern European countries experienced drastic changes in the political system and underwent a process of societal adaptation. In the case of Germany, the East German population, which endorsed more liberal and egalitarian gender role beliefs, was integrated into West German society where more traditional gender norms were common. For the analysis of gender role beliefs, the examples of postsocialist countries—and East Germany in particular—are of special interest and therefore we focus on the latter in our study. The socialist regime propagated gender equality in the public domain to promote women's participation in the labor force (Brunnbauer, 2002). Not only was female employment established as a citizen's basic right in all socialist countries, in several countries, women were even obliged to take up employment (Sackmann et al., 2000). State policies and organizational practices were designed to support women to combine their roles as mothers, housewives, and workers more easily

DOI: 10.4324/9781003427469-12

(Robila & Krishnakumar, 2004; Stöbel-Richter et al., 2012). Consequently, female employment rates in postsocialist countries were substantially higher compared to Western countries (Kornai, 1992).

However, studies conducted in the period following the collapse of the socialist regimes did not consistently find more egalitarian beliefs about gender roles in these countries. Lück (2005), for instance, used cross-national data from the International Social Survey Program to examine beliefs about gender roles in 1994 and found that individuals from former socialist countries showed high endorsement of the male breadwinner model, much higher than Western European and North American countries (40–80% vs. 15–40%). East Germans (i.e., former citizens of the German Democratic Republic [GDR]) proved to be noteworthy outliers, as they showed less support of the traditional family model (15%; Lück, 2005). This was confirmed by other studies examining beliefs about gender roles during the postsocialist transition period (Robila & Krishnakumar, 2004), as well as for more recent years (Stavrova et al., 2012), with more egalitarian views reported in East Germany compared to other former socialist, European countries. The GDR can be considered a flagship among countries on which the Soviet Union exerted influence (Zedilin, 1995), as it implemented socialist policies to a great extent and reached high female employment rates with widespread cultural acceptance (Rudolph, 1990). However, a clear trend toward liberalization from 1994 to 2002 was also visible in the data across all countries; East Germany was a noteworthy exception as its population actually became more traditional (its endorsement of traditional values increased to 20%; Lück, 2005). This retraditionalization, evident in assessed family models and values, may also be reflected in similar changes in attitudes and beliefs about gender roles.

Despite this apparent slight revival of traditional values in East Germany's younger generations, recent studies showed that East Germans still reported more egalitarian beliefs about gender roles compared to West Germans (Bauernschuster & Rainer, 2012; Benthaus-Apel & Eufinger, 2017; Blohm & Walter, 2016; Cornelißen, 2005; Mays, 2012; Möhwald, 2002). To put this in perspective: 75% of East Germans endorsed egalitarian while only 25% endorsed traditional views; in contrast, 43% of West Germans reported egalitarian and 57% traditional views (Wirth, 2014). Wenzel (2010) examined beliefs about gender roles in East and West Germans for different age cohorts in a 2008 sample. They found that the youngest East German age cohort reported significantly more traditional beliefs than an older cohort socialized during the existence of the GDR. Similar results were found by Benthaus-Apel and Eufinger (2017): More traditional beliefs were reported by those born before the foundation of the GDR and less support for traditional beliefs was found in the subsequent cohorts, but a slight "backlash"—that is, a return to more traditional beliefs—was observed in the youngest cohort (born after the dissolution of the GDR). The finding that only cohorts that were not socialized in the GDR report more traditional gender role beliefs

(Benthaus-Apel & Eufinger, 2017; Wenzel, 2010) indicates that the socialist policies left a lasting imprint on the cohorts socialized in this system. In turn, birth cohorts socialized after the German reunification appear to show an adaptation to the more traditional West German gender role norms.

Such findings illustrate that beyond investigating beliefs about gender roles across countries and across time, it is necessary to examine differences between generations that were socialized into societies under socialist regimes and to compare them to those generations who were born before and after such experiences.

Generations of East Germany

The most widely accepted generational classification of East Germany was proposed by Ahbe and Gries (2006) and consisted of six generations; a seventh generation was later added by Kubiak and Weinel (2016) to cover the time after reunification (see Table 9.1 for an overview). The two oldest generations proposed were born and socialized before the GDR (the *suspicious patriarchs* and the *postwar generation*). Both generations were involved in political altercations and conflicts (Ahbe & Gries, 2006; Wierling, 2009). The suspicious patriarchs experienced World War II (WWII) in the later stages of their formative years or shortly after, while WWII was the dominant event during the childhood and adolescence of East Germans of the postwar generation. For both generations, the foundation of the GDR offered new prospects (Wierling, 2009).

The succeeding three generations spent their formative years in the GDR (the *functioning generation*, the *integrated generation*, and the *generation*

Table 9.1 Overview of the East German generations proposed by Ahbe and Gries (2006).

Formative years	*Generation*	*Birth years*
Before the GDR	Suspicious patriarchs ("Misstrauische Patriarchen")	1893–1916
	Postwar generation ("Aufbaugeneration")	1925–1935
During the GDR	Functioning generation ("Funktionierende Generation")	1935–1948
	Integrated generation ("Integrierte Generation")	1950–1959
	Generation beyond borders ("Entgrenzte Generation")	1960–1972
After the GDR	Children of change ("Wendekinder")	1973–1990
	Postreunification generation ("Post-Wende-Generation")	1991–now

Note: The postreunification generation was more recently added to the classification by Kubiak and Weinel (2016).

beyond borders). The functioning generation was born and raised into the postwar turmoil as well as the foundational, early stages of the GDR (Ahbe & Gries, 2006; Ferchhoff, 1993). The other two post-WWII generations grew up completely within the established socialist state, with its rising standards of living, yet irrespective of the fact the socialist economies were already struggling to keep up with Western economies, and especially with West Germany. While the integrated generation showed a prosocialist mindset, the generation beyond borders was already torn between everyday life in the GDR and the Western world (as experienced through the media), resulting in rising aversion toward a political system that could not keep up economically.

Lastly, the *children of change* experienced the socialist political system only through parents and grandparents (Ahbe & Gries, 2006; Kubiak & Weinel, 2016). The conflicting mindset of their families between the socialist state ideology and achievement-oriented capitalism resulted in uncertainty about their roots as well as their future. Expanding on Ahbe and Gries' (2006) classification, Kubiak and Weinel (2016) subsequently defined the *postreunification generation*, which has never identified with the former socialist GDR but shows traces of a diffuse East German identity based on regional attachment and shared family experiences, which are narratively transmitted and collectively perceived.

In sum, the suspicious patriarchs and postwar generation were born before the construction of the GDR; the functioning generation, the integrated generation, and the generation beyond borders can be classed as the GDR generations, and the children of change as well as postreunification generation as the post-GDR generations (Ahbe & Gries, 2006; Kubiak & Weinel, 2016).

Research focus and hypotheses

We have made the case that depending on whether the generations went through their formative years before, during, or after the socialist regime, East Germans show traditional gender role beliefs. However, for a profound analysis, other temporal aspects also need to be considered—that is, time period of the observation and natural age—which are known to be related to gender role beliefs as well. Period effects account for the historical context or sociostructural changes influencing all cohorts alike while effects due to age are related to the stages within personal life cycles (i.e., biological, social, or psychological aging).

Recent decades have witnessed a decrease in traditional beliefs while egalitarian beliefs of gender equality are becoming more widespread (Brooks & Bolzendahl, 2004; Lück, 2005). Indeed, the gender employment and pay gap is closing (Eurostat, 2019), and female employment has become politically desired as well as socially and culturally accepted (Esping-Andersen, 2011). In the same vein, consistent age effects are visible regarding beliefs about

gender roles, where older individuals report more traditional beliefs (Brajdić-Vuković et al., 2007; Brooks & Bolzendahl, 2004; Lück, 2005). Older age is associated with a decrease in executive functioning, which may lead to a certain reluctance to change (Stewart et al., 2009; von Hippel et al., 2000). Therefore, we assume effects of period and natural aging independent of cohort membership.

One common problem when analyzing cohort effects across time in cross-sectional data is the exact collinearity of age, period, and cohort, because which is a well-known *identification problem* (Bell, 2021). As a result, these three aspects cannot be easily estimated simultaneously as linear and additive fixed effects, which often leads to obfuscation or overestimation of effects. Advanced statistical methods have addressed this identification problem, for example, by implementing a multilevel structure to simultaneously estimate the three effects. Hierarchical age-period-cohort analysis (HAPC; Yang & Land, 2013) is the most established of these methods, which leaves age as a fixed effect on the individual level and introduces time period and cohort as nonlinear, random effects of two (possibly separate) contexts individuals are clustered in. The model thus considers individuals to be nested within time and cohort specific contexts while cross-classification of the clusters is allowed (Bell, 2021).

With a focus on generational differences of beliefs about gender roles, addressing the identification problem is central to the present study as it has not been sufficiently considered in other studies. The only other study estimating all three temporal factors on differences in beliefs about gender roles in Germany was conducted by Lois (2020). He employed a mechanism-based age-period-cohort analysis to examine gender role beliefs in the four groups of East and West German men and women, which did not include age effects directly but via indirect effects (e.g., family formation). They found independent effects for all three temporal factors, but only weak cohort effects were observed in the East German samples. It is noteworthy that Lois (2020) used a cohort classification based on the very same five-year birth cohorts for both the East and West German samples. The literature has stressed, however, that generations are formed through similar experiences during formative years (Mannheim, 1928; Ryder, 1965).

Because the political systems and social practices of the former divided East and West Germany were fundamentally different and generational definitions based on historical events from the two regions would not align, a comparison of generations between East and West might be overly ambitious (Ahbe & Gries, 2006; Ferchhoff, 1993; Huinink & Mayer, 1995). Therefore, the present study focuses solely on East Germans and follows the generational classification proposed by Ahbe and Gries (2006) and Kubiak and Weinel (2016) to identify the generations. In summary, the current study examines cohort as well as age and period as determinants of gender role beliefs in an East German sample while taking into consideration sociodemographic

factors. To this end, the following primary (H1) and secondary (H2a and H2b) hypotheses are proposed:

H1: Generations socialized in the GDR (birth cohorts 1935–1972) will report more egalitarian beliefs about gender roles compared to those socialized before or after the existence of the GDR.

H2: (a) Younger compared to older age and (b) more recent compared to previous time periods will be related to more egalitarian beliefs about gender roles.

Methodology

Sample and data

In this study, we used data from the *German General Social Survey* (ALLBUS), a biennial survey for the analysis of beliefs, behavior, and social structure of German residents aged 18 years and older. The ALLBUS started in West Germany in 1980 and has added a large East German sample to each wave from 1991 onward. The content of the ALLBUS varies across waves. Besides a standard sociodemographic core questionnaire, with additional questions asked regularly, particular modules and/or specific research questions are included in each wave. The instrument for the measurement of gender role beliefs was included in the East German sample in 1992, 1996, 2000, 2004, 2008, 2012, and 2016, providing sufficiently narrow time intervals and covering a long period starting shortly after the German reunification and spanning across 24 years of the transition phase.

Up until 2000, interviewers were recording individual responses by paper and pencil. From then on, personal computer-assisted interviewing was introduced and has been in use ever since. Since 1994, the samples are drawn from local population registries based on a two-stage stratified random sampling procedure. Before 1994, the ADM-Sampling-System (Arbeitskreis Deutscher Markt- und Sozialforschungsinstitute e.V., 2018) was used to select the samples; however, this only concerns the first wave of interest.

In the years of interest, a total of 7,915 people were interviewed in East Germany. As we were interested in cohort effects of those cohorts born and raised before, during, or after the GDR, we excluded those participants born and/or raised outside of Germany (n = 718) and those who indicated having been born and/or raised in West Germany[1] or the former Eastern territories of Germany (n = 250). Additionally, participants remaining in the sample who did not have German citizenship or were naturalized later in life were excluded (n = 7). Finally, we excluded participants with missing values on items of interest in the questionnaire (n = 1,514). This also comprised about half of the participants in 2012 and 2016 who received a similar, but not identical instrument of gender role beliefs as part of a methodological

Table 9.2 Sociodemographic characteristics of the complete sample.

	N (%)
Total	5,426
Survey year	
1992	805 (14.8%)
1996	898 (16.5%)
2000	1,075 (19.8%)
2004	785 (14.5%)
2008	890 (16.4%)
2012	478 (8.8%)
2016	495 (9.1%)
Age (years; *M*; *SD*)	47.57 (±16.78)
Cohort [Ahbe&Gries/Kubiak&Weinel]	
<1925 [1893–1916]	237 (4.4%)
1925–1934 [1925–1935]	488 (9.0%)
1935–1949 [1935–1948]	1,298 (23.9%)
1950–1959 [1950–1959]	1,231 (22.7%)
1960–1972 [1960–1972]	1,359 (25.1%)
1973–1984 [1973–1990]	601 (11.1%)
>1984 [1991 to now]	208 (3.8%)
Sex (female)	2,804 (51.7%)
Education	
<10 years	1,612 (29.7%)
Approx. 10 years	2,599 (48.0%)
>10 years	1,152 (21.3%)
Other/still in school	56 (1.0%)
Relationship status	
Married	3,247 (59.9%)
Separated/divorced	549 (10.1%)
Widowed	431 (7.9%)
Unmarried	1,195 (22.0%)
Church membership (no)	3,984 (73.5%)

Note: M = mean, *SD* = standard deviation.

experiment. The final sample thus consisted of *N* = 5,426. An overview of the characteristics of this sample can be found in Table 9.2.

Measures

We used an established measure of beliefs about gender roles, which was included in the ALLBUS from 1992 to 2016. It has been subject to several previous studies and (partially) included in other national (e.g., the German Socio-Economic Panel, SOEP) and international surveys (e.g., the International Social Survey Program, ISSP; for an overview of the most common measures, see Walter, 2018, pp. 837–842). We included six items in the analyses that were used throughout all survey years. Item wordings can be found in Table 9.3. Respondents indicated their agreement to the statements on a four-point scale ranging from 1 (*I completely agree*) to 4 (*I completely disagree*)

Table 9.3 Item wording of the six items.

Item no.	*English*
1	A working mother can establish just as loving and secure a relationship with her children as a mother who doesn't work.*
2	It's more important for a wife to help her husband with his career than to pursue her own career.
3	A small child is bound to suffer if his or her mother goes out to work.
4	It is much better for everyone concerned if the man goes out to work and the woman stays at home and looks after the house and children.
5	A child actually benefits if his or her mother has a job rather than just concentrating on the home.*
6	A married woman should not work if there are not enough jobs to go round and her husband is also in a position to support the family.

Note: * Reverse coded item.

with higher values indicating more egalitarian beliefs. Reverse coded items 1 and 5 were inverted to assert common directionality of meaning.

For the HAPC analysis, age was used as a continuous variable ranging from 18 to 97 years with a mean age of 47.57 (*SD* = 16.78) years. Time period was assigned using the seven survey years. To capture cohort differences, we used the classification by Ahbe and Gries (2006) and Kubiak and Weinel (2016) as a basis to create the seven cohort groups. Small adjustments to the birth cohort definitions were made to assign individuals from all birth years to a cohort and to ensure sufficiently large cohort samples[2] (see Tables 9.1 and 9.2).

It has been shown that more liberal beliefs about gender roles are also associated with the female gender (Baier, 2014; Benthaus-Apel & Eufinger, 2017; Blohm & Walter, 2016; Cornelißen, 2005; Hovestadt & Mühler, 2020), higher education and being employed (Mays, 2012; Schlager & Hillmert, 2015; Wenzel, 2010), a higher socioeconomic position (Schlager & Hillmert, 2015), being married (Baier, 2014), as well as lower religiousness (Benthaus-Apel & Eufinger, 2017; Mays, 2012; Wenzel, 2010). To control for these sociodemographic factors, we assessed sex as a binary variable (1 = male, 2 = female). Education was measured in estimated years of education using four categories as dummy variables: less than 10 years, 10 years (reference category), more than 10 years, and other (including other forms of schooling as well as those participants still in school). Four categories of relationship status were examined using dummy coding (married, separated/divorced, widowed, and unmarried as the reference). Religiousness was operationalized using a binary variable (church membership: 0 = no, 1 = yes). Large numbers of missing values, inflation, and changing purchasing powers over the years prevented us from controlling for income as an indicator for socioeconomic position.

Statistical analysis

In a first step, we revalidated the instrument for the population of East Germany across the relevant time frame. To this end, we conducted a confirmatory factor analysis (CFA) to verify the questionnaire's assumed unidimensionality. As items with less than five response categories should be treated as ordinal instead of metric, we used the weighed least squares means and variance estimator (WLSMV; Rhemtulla et al., 2012). The following model fit indices were used to determine the adequacy of the one-factor model: χ^2 divided by the degrees of freedom in the model should be as low as possible (Schermelleh-Engel et al., 2003). The comparative fit index (CFI) and the Tucker–Lewis index (TLI) should be higher than 0.92 for an adequate model fit and higher than 0.95 for a good model fit. The root mean square error of approximation (RMSEA) as well as the standardized root mean square residual (SRMR) should be below 0.08 for an acceptable and 0.05 for a good model fit (Schermelleh-Engel et al., 2003). Robust indices were used wherever available. We also assessed scale reliability using three measures of internal consistency: Cronbach's alpha (Cronbach, 1951), ordinal alpha (Zumbo et al., 2007), and McDonald's omega (McDonald, 1999).

In the second step of the analysis, we assessed to what extent temporal trends in beliefs about gender roles are due to age, cohort, or time period effects. Using factor scores that were calculated based on the CFA,[3] we first present a description of these scores stratified by age, period, and cohort. Then we show the results of the HAPC analysis, taking into consideration age (A), period (P), and cohort (C) effects simultaneously. Following our research hypotheses, we modified the original setting by specifying both age and period as linear effects (H2a and H2b), while assuming period to have a random component as well and cohort effects to be random only (H1). Age was thus added to the fixed part of the hierarchical model, while period was added to both the fixed and the random parts, and cohort was included only in the random part of the model. Just as in the original setting, a cross-classification of the clusters (i.e., period and cohort) was thus possible. To assess significance of the random effects, we compared the fit of the models without these terms (i.e., a model including $A_{fixed} + P_{fixed} + C_{random}$ and a model including $A_{fixed} + P_{fixed} + P_{random}$) with the full model ($A_{fixed} + P_{fixed} + P_{random} + C_{random}$) using likelihood ratio tests.

Finally, to control for sociodemographic parameters, we included the sociodemographic variables mentioned earlier and compared the adjusted model to the unadjusted full model. All metric indicators were centered at their means to achieve an interpretable intercept term. Moreover, the age indicator was divided by 10 to avoid redundant decimal digits in the coefficients. HAPC models were evaluated using the Akaike information criterion (AIC) as well as the Bayesian information criterion (BIC). Models with lower AIC and BIC scores are preferred. Marginal and conditional R^2 were used to

assess the share of variance explained by the fixed part of the model and the entire model, respectively. Finally, the intraclass correlation coefficient (ICC) indicates the variance explained by the clustering, that is, the random parts of the models. Analyses were carried out using the *lme4* package of R version 3.6.1 (R Core Team, 2019).

Results

Confirmatory factor analysis and reliability

Using the WLSMV estimator, the CFA with one factor led to a poor model fit, with the RMSEA exceeding the .08 cut-off and the CFI, SRMR, and TLI denoting only an adequate fit. Modification indices indicated that allowing for the free estimation of the error covariances between the items 1, 3, and 5 would lead to significant improvements of model fit. These adjustments seemed reasonable, as Lee et al. (2007) proposed a two-factor structure with the items in question. Table 9.4 shows the model fit of the confirmatory factor analysis with and without these modifications as well as the two-factor structure that lead to a significantly worse fit.

As shown in Figure 9.1, standardized factor loadings were .40, .57, .59, .92, .49, and .67 for the six items, respectively. Reliability analyses led to an internal consistency of $\alpha = .73$, $\alpha_{ord} = .80$, and $\omega = .71$. Overall, the psychometric properties can be judged as good to excellent.

Descriptive trends

Factor scores were estimated based on the final model specification of the CFA above and used as the outcome variable for the following analyses.[4] To make results more interpretable, factor scores were transformed to the original item scale ranging from 1 to 4, with 1 indicating more traditional and 4 indicating more liberal beliefs.

Table 9.4 Model fit indices of the final model.

Model	*N*	χ^2 *(df)*	χ^2/df	*CFI*	*SRMR*	*RMSEA (90% CI)*	*TLI*
WLSMV	5,426	574.937 (9)	63.882	.912	.061	.132 (.122–.143)	.854
WLSMV with two factors	5,426	156.620 (8)	19.578	.976	.031	.074 (.063–.085)	.955
WLSMV with modifications	5,426	88.081 (6)	14.680	.988	.020	.060 (.048–.074)	.970

Note: *N* = sample size; *df* = degrees of freedom; χ^2/df = minimum discrepancy divided by its degrees of freedom; CFI = comparative fit index; SRMR = standardized root mean square residual; RMSEA (CI) = root mean square error of approximation (confidence interval); TLI = Tucker–Lewis index.

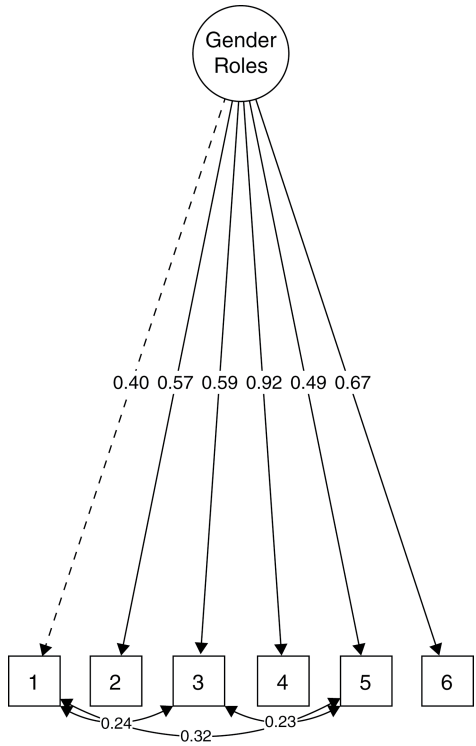

Figure 9.1 Final model of the CFA.

Note: Three error covariances were freed. The dotted line indicates that the first factor loading was fixed to 1 for identification purposes. Depicted loadings are standardized.

Figure 9.2 gives an overview of the bivariate distributions of beliefs about gender roles by age, period, and cohorts. These data suggest that older people tend to hold more traditional views than younger participants. Moreover, there seems to be a general trend toward more egalitarian attitudes, which plateaued in the most recent years, and finally, younger birth cohorts seem to lean toward more egalitarian attitudes compared to older birth cohorts.

HAPC analysis

Table 9.5 shows the results of a comparison of the full APC model (A and P as fixed and P and C as random effects; $A_{fixed} + P_{fixed} + P_{random} + C_{random}$) compared to a model including (a) age and period as fixed and only cohort as a random effect ($A_{fixed} + P_{fixed} + C_{random}$) and (b) age and period as fixed effects and only period as a random effect ($A_{fixed} + P_{fixed} + P_{random}$). Likelihood ratio tests revealed that the full model including all three factors showed the best model fit. We will thus be using the full model in the subsequent analyses.

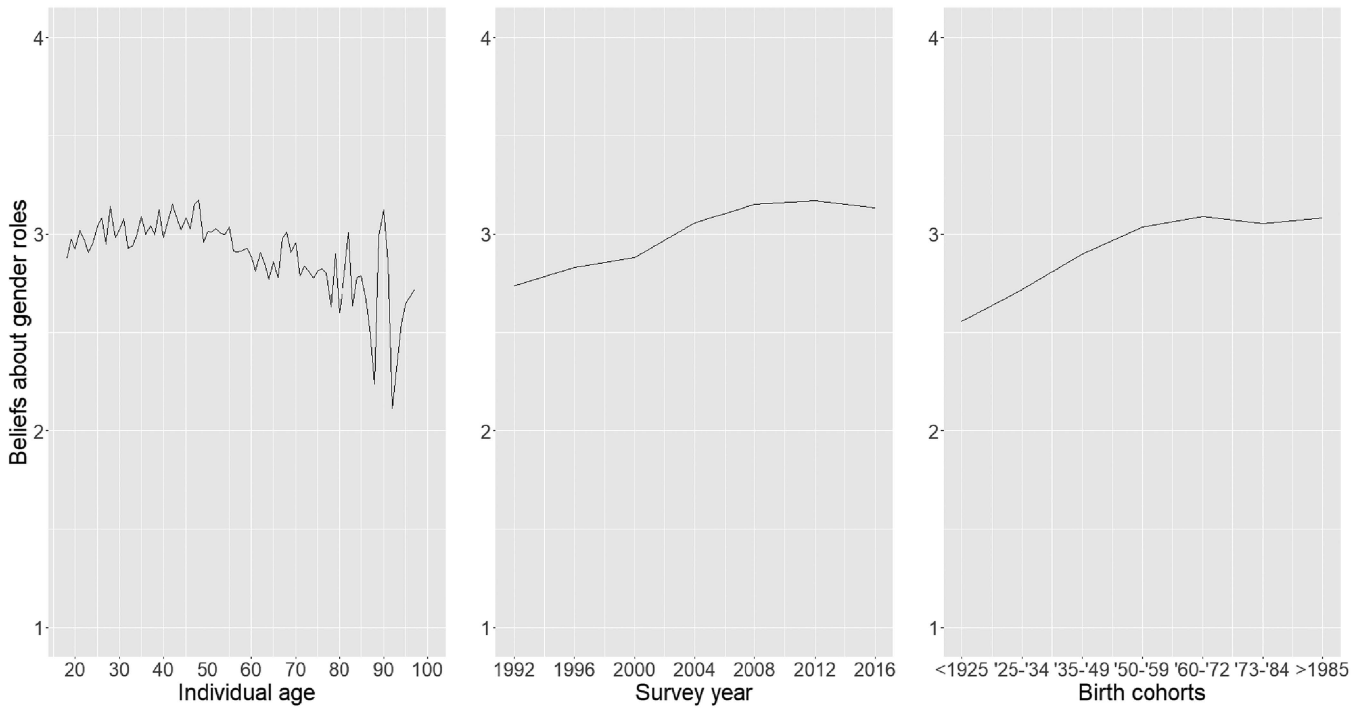

Figure 9.2 Mean score of beliefs about gender roles by age (Panel 1), period (Panel 2), and cohort (Panel 3).

Table 9.5 Model fit of the full APC model compared to reduced models.

Model	*N*	*AIC*	*BIC*	*ICC*	*Marginal* R^2	*Conditional* R^2	$\chi^2(df)$	*p*
Full (A_{fixed} + P_{fixed}+ P_{random} + C_{random})	5,422	10011.79	10051.38	.041	.071	.108	–	–
Reduced (A_{fixed} + P_{fixed} + C_{random})	5,422	10036.09	10155.70	.030	.076	.103	24.081 (1)	<.001
Reduced (A_{fixed} + P_{fixed} + P_{random})	5,422	10081.08	10114.07	.009	.070	.079	67.583 (1)	<.001

Note: N = sample size; *df* = degrees of freedom; AIC = Akaike information criterion; BIC = Bayesian information criterion; ICC = intraclass correlation coefficient; A = age; P = period; C = cohort.

ICC values indicate that 4.1% of the variance can be attributed to the random effects, that is, random variation of cohort and period effects. Linear effects of age and period explain about 7.1% of variance in beliefs about gender roles (marginal R^2) and the full model accounts for 10.8% of variance.

Table 9.6 provides the coefficients of the full model (Model 1) and compares them to a model, which includes sociodemographic factors as control variables (Model 2). While the linear period effect is a significant predictor in both models, with higher levels of egalitarian gender role beliefs being expressed in more recent surveys, the negative effect of age, that is, older participants expressing more traditional beliefs, disappears when controlling for sociodemographic variables (linear effects of age and period with and without controlling for sociodemographic variables may be viewed in Appendix 9.1). The variance of the random cohort effect also diminishes when sociodemographic factors are included. This is also reflected in the reduction of the ICC from .041 in Model 1 to .024 in Model 2. The explained variance of all effects increases from 10.8% in Model 1 to 15.6% in Model 2.

Visual inspection of the model output supports these results and allows for a more detailed description of random effects: Figure 9.3 shows predicted deviations from the average for cohorts (a) as well as predicted deviations from the linear period trend (b). Regarding cohort effects, cohorts born before 1935 and after 1984 exhibit more traditional beliefs than the overall mean, while those cohorts born in between show more egalitarian beliefs (a). The pattern extenuates but is still visible when sociodemographic factors are included (c). Period deviations show slightly more egalitarian beliefs about gender roles in 2008 compared to predicted linear values and lower, more

Table 9.6 HAPC models without (Model 1) and with (Model 2) sociodemographic factors.

	Model 1	*Model 2*
Intercept	2.91***	2.58***
	(0.05)	(0.05)
Age/10 (mean centered)	–0.05***	–0.01
	(0.01)	(0.01)
Survey year (mean centered)	0.02***	0.02***
	(0.00)	(0.00)
Church membership [reference: no]		–0.18***
		(0.02)
Relationship status [reference: married]		
separated/divorced		0.02
		(0.03)
Widowed		–0.11***
		(0.03)
Unmarried		–0.04
		(0.03)
Education [reference: <10 years]		
Approx. 10 years		0.19***
		(0.02)
>10 years		0.35***
		(0.03)
Other/ still in school		0.39***
		(0.08)
Sex [reference: male]		0.17***
		(0.02)
AIC	10011.79	9651.35
BIC	10051.38	9743.68
Number observations	5,422	5,405
Variance: cohorts (intercept)	0.012	0.004
Variance: survey years (intercept)	0.004	0.004
Variance: residual	0.367	0.342
ICC	.041	.024
R^2 (marginal/conditional)	.071/.108	.135/.156

Note: ***p <.001; standard errors in parentheses. AIC = Akaike information criterion; BIC = Bayesian information criterion; ICC = intraclass correlation coefficient.

traditional beliefs in 2016 (b). Once again, the effect remains when sociodemographic factors are considered (d).

Significant predictors in Model 2 included church membership showing a negative effect, that is, respondents with a church affiliation expressing more traditional beliefs about gender roles than those without a church affiliation. Compared to the reference category of married respondents, widowed respondents showed significantly more traditional beliefs. Moreover, compared to respondents with less than 10 years of schooling, all other groups

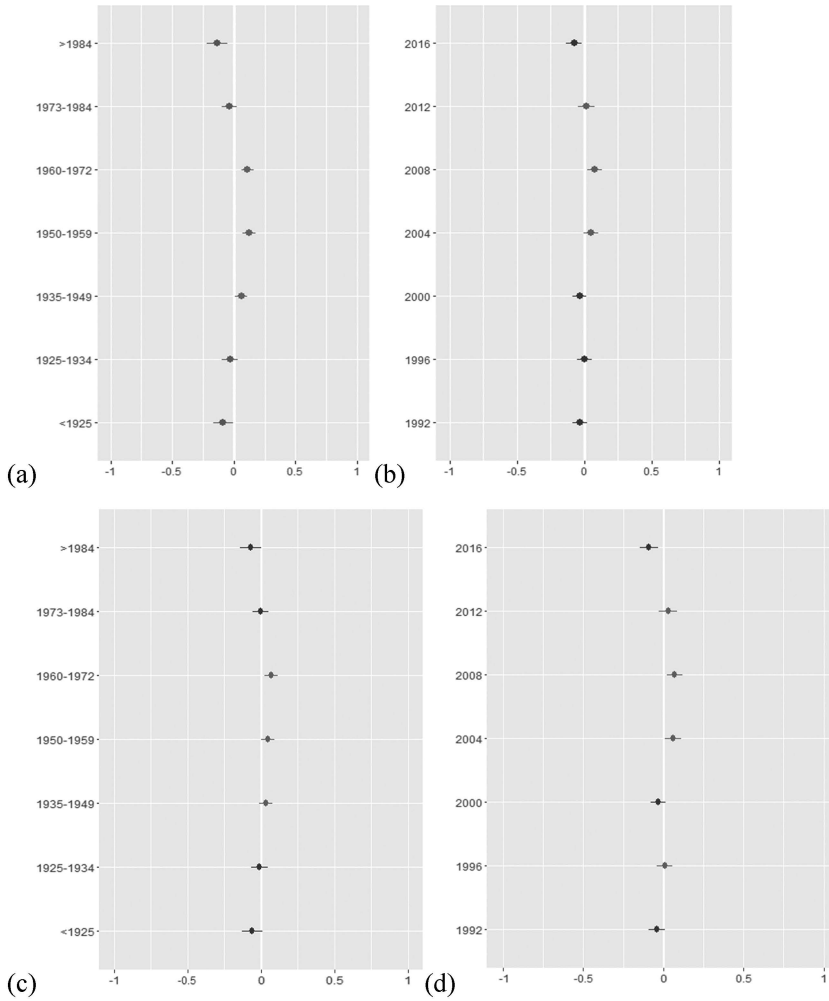

Figure 9.3 Random effects of cohort and period excluding ((a) and (b)) and including sociodemographic factors ((c) and (d)).

Note: Deviations without overlapping confidence intervals are interpreted as significant. Negative deviations from predicted means represent more traditional beliefs while positive deviations indicate more egalitarian views.

expressed more egalitarian beliefs about gender roles. Sex was found to be a significant predictor of beliefs about gender roles as well, with female respondents expressing more egalitarian beliefs than male respondents.

Finally, the random effects in Model 2 were tested for significance. The results revealed that Model 2 with both random effects ($A_{fixed} + P_{fixed} + P_{random} + C_{random}$) still showed significantly better fit indices than a model without the random cohort effects ($A_{fixed} + P_{fixed} + P_{random}$) ($\chi^2$ *(df)* = 8.37(1), p = .004),

as well as a model without random period effects (A_{fixed} + P_{fixed} + C_{random}) (χ^2 *(df)* = 29.421(1), p <.001). Both the random cohort and the random period effects are thus significant.

Discussion

The aim of the article was to investigate temporal trends in gender role beliefs with a focus on cohort differences. Based on previous research, we wanted to test whether a retraditionalization of beliefs about gender roles could be observed in those generations born after the reunification compared to those born and socialized within the socialist system. To this end, HAPC analyses were performed to disentangle age, period, and cohort effects using East German samples from seven waves of the German General Social Survey (ALLBUS, 1992–2016, see authors' note).

Results revealed small, albeit significant differences between birth cohorts when considering linear age and linear period effects as well as random period effects. Model predictions for the cohort differences supported the hypothesized retraditionalization, with those generations born before and after the GDR expressing more traditional beliefs about gender roles than the three generations who experienced their formative years during its existence. The cohort differences were reduced but remained significant when controlling for sociodemographic factors (sex, church membership, relationship status, and education). Results suggest that the egalitarian politics regarding the labor market in the GDR as well as its efforts to enable women to join the work force may indeed have had a long-lasting impact on the beliefs about gender roles for the cohorts born and socialized within this system (Robila & Krishnakumar, 2004; Stöbel-Richter et al., 2012).

Regarding age, our hypothesis of a linear traditionalization with older age was confirmed. Age was a significant predictor when taking into consideration time period and cohort effects. When sociodemographic factors were included, the age effect vanished. It is most likely that age effects and sociodemographic factors are interrelated; for example, older participants are more likely to be widowed than younger participants. Moreover, an interaction of education with age is possible, implying that the positive relation of age with traditional beliefs is stronger for those with low education and weaker for those with high education. As low education is more prevalent in older cohorts (Eurostat, 2022) and as cohort effects are controlled for, the adjusted age effect rather reflects the effect for the higher educated. Further investigation is needed to completely understand the nature of these mechanisms.

Both linear and random period effects were stable when controlling for sociodemographic factors. A general trend toward more egalitarian beliefs about gender roles could thus be confirmed. Significant random effects indicated deviations from this trend in some survey years; more egalitarian beliefs were observed in 2008 and more traditional beliefs were detected in 2016. While these effects were very small, they could be related to historic events

at the time. Following the crash of the US housing market in 2007/08, the worldwide economic crises may have caused a shift toward more egalitarian beliefs about gender roles as there may have been an economic need for women to join the labor force and add to the household income.

Regarding sociodemographic parameters, our results are mostly in line with previous findings. Male participants tend to hold more traditional values than female participants (Baier, 2014; Benthaus-Apel & Eufinger, 2017; Blohm & Walter, 2016; Cornelißen, 2005; Hovestadt & Mühler, 2020), more educated participants tend to express more egalitarian beliefs than those with a lower formal education (Mays, 2012; Schlager & Hillmert, 2015; Wenzel, 2010), and participants with a church affiliation indicate more traditional beliefs (Benthaus-Apel & Eufinger, 2017; Mays, 2012; Wenzel, 2010). Relationship status, on the other hand, was only relevant for the comparison of married versus widowed participants, with widowed participants exhibiting more traditional beliefs. The absence of differences between married and unmarried participants could partly stem from the fact that unmarried couples were not included as a separate category.

Strengths, limitations, and future directions

This study is one of the first to simultaneously estimate age, period, and cohort effects on beliefs about gender roles in an East German sample while still taking into account sociodemographic factors. Some methodological shortcomings must be considered when interpreting the results. While the factor structure of the underlying construct was tested for the sample, measurement invariance across time and between different groups was not proven. Scalar invariance is, however, a central prerequisite for any mean comparison (Meredith & Millsap, 1992). It is especially questionable that different cohorts interpret the items the same way, because images of women may have shifted. Multigroup confirmatory factor analyses, alignment method, and Bayesian approaches are state of the art means to analyze and establish (partial) measurement invariance between groups (Leitgöb et al., 2023). They should be used to investigate this issue in future analyses.

Moreover, the item battery we investigated in this study focuses on the role of women as mothers and on female employment. Gender equality is, however, a much more complex, multidimensional concept (Davis & Greenstein, 2009; Grunow et al., 2018). Research based on data from the European Value Survey (EVS) and the World Value Survey (WVS) has looked at clusters of beliefs about gender roles instead of examining a single continuum (Knight & Brinton, 2017; Lomazzi, 2022). Age, period, and cohort effects on beliefs about domains not tested in our study, for example, the division of household work, might differ and might even suggest an uneven liberalization of gender roles in different spheres with a resulting double burden for women as both caretakers and breadwinners (Brajdić-Vuković et al., 2007). Accordingly, results from a Romanian sample suggest that even though socialism

propagated and promoted female participation in the labor market and the public domain in general, hardly any effort was put into improving gender equality in the domestic domain (Voicu & Tufiş, 2012).

HAPC does not solve the identification problem directly. Instead, it makes customized, but strong assumptions about the nature of age, period, and cohort effects in a way that the dependency of the three effects is released for the estimation equation. In our case, we assumed age to show a linear, fixed effect and allowed each period to have a unique, as well as an overall linear effect by including it in both the fixed and the random part of the model. Cohort effects were not fixed but allowed to vary randomly. These premises cannot be tested within the framework but were derived from theoretical assumptions. As hierarchical models tend to underestimate effects that are specified as random (Bell, 2021), cohort (as well as nonlinear period) effects may have been underestimated. This would suggest even stronger cohort differences than those detected in our analysis. HAPC was developed for repeated cross-sectional data where temporal processes cannot be described as individual changes (within-person) but rather as changes in group means (between persons). For the identification of individual changes, panel data would have been necessary. However, the identification problem persists for both repeated cross-sectional and panel data.

Due to the large number of missing values, some central sociodemographic factors, like net household income and the number of biological children, could not be included in the models. Additionally, only direct effects of sociodemographic variables were analyzed, even though previous findings suggest a more complex interplay, for example, direct cohort effects were only found among men (Benthaus-Apel & Eufinger, 2017; Mays, 2012), while the effect of birth cohort was mediated by education, employment status, and religiosity among women (Mays, 2012). Future studies should further examine such indirect effects.

The GDR can be viewed as exceptional for several reasons that may have influenced beliefs about gender roles until today: First, East Germany showed the highest female participation in the labor market among the socialist countries (49% vs. 32–42% in Yugoslav, Romanian, and Hungarian samples; Globokar, 1975). Temporal trends in other postsocialist countries should thus be compared to our results. Second, East Germans showed acceptance and high utilization of childcare as indicated by the up to three times higher number of children cared for at daycare facilities in the GDR compared to other former socialist countries (Globokar, 1975). Taking advantage of childcare facilities could have prevented a "double burden" and thus encouraged a more positive "modern working woman" experience. Third, in many Eastern European countries, religious institutions never lost much power due to the suppression by the socialist regimes or if so, they regained it in the postsocialist era (e.g., Slovenia, Croatia, Serbia; Brunnbauer, 2002), whereas historically East Germans were mainly atheists or Protestants, with the latter being known to support more liberal family patterns compared to other religions

(Lück, 2005; Voicu et al., 2009). Thus, future studies should compare the case of the GDR with other former socialist European countries.

Finally, it may also be of interest to compare the development of East and West Germany. Recent analyses point toward a slow convergence of beliefs about gender roles especially among younger cohorts (Zoch, 2021). The author states that this is due to both a liberalization of views in the West and a retraditionalization in the East. Especially regarding views on maternal employment, differences remain.

Conclusion

Our results suggest that both period and cohort effects are relevant factors when considering temporal trends in beliefs about gender roles: While period effects suggest a trend toward more egalitarian beliefs in recent years, the younger birth cohorts are seemingly leaning toward a retraditionalization. The COVID-19 pandemic, as one recent crisis, may have led to a further traditionalization of beliefs about gender roles (cf. Decker et al., 2022). Temporal trends need to be closely monitored to prevent a "backlash" into traditional role models that threaten to diminish women's freedoms.

Authors' note

Special thanks to Dubravka Svetina Valdivia and Peter Schmidt for their methodological advice and to Lisa Trierweiler for carefully proofreading the manuscript.

Appendixes mentioned in this chapter and additional supporting materials are freely available at www.routledge.com/9781032547763.

The data that support the findings are openly available at GESIS—Leibniz Institute for the Social Sciences (www.gesis.org). Used files:

ALLBUS 1992: ZA2140 datafile version 2.0.0, https://doi.org/10.4232/1.11901
ALLBUS 1996: ZA2800 datafile version 2.0.0, https://doi.org/10.4232/1.11888
ALLBUS 2000: ZA3450 datafile version 2.0.0, https://doi.org/10.4232/1.11365
ALLBUS 2004: ZA3762 datafile version 2.0.0, https://doi.org/10.4232/1.10977
ALLBUS 2008: ZA4600 datafile version 2.1.0, https://doi.org/10.4232/1.12345
ALLBUS 2012: ZA4614 datafile version 1.1.1, https://doi.org/10.4232/1.11753
ALLBUS 2016: ZA5250 datafile version 2.1.0, https://doi.org/10.4232/1.12796

The authors have no conflict of interest to declare.

Notes

1 This information was not surveyed every year: In 1992, 2000, and 2004, participants were asked about their region of birth. From 2008 onward, this question was changed to inquire about the region the participants spent their youth in. We

decided to also include those participants without information of regional origin to increase statistical power.
2 Due to conceptual gaps, we adjusted the birth cohorts of the suspicious patriarchs to range up until 1924 instead of 1916 and the functioning generation to range up until 1949 instead of 1948. Furthermore, we decided to start the postunification generation in 1984 to ensure a sufficiently large sample (see Table 9.2).
3 Compared to observed means, factor scores have the advantage of incorporating measurement error.
4 Even though WLSMV estimation uses ordinal indicators to estimate models, the underlying factors are still assumed to be metric.

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10 The development of wealth and its role in the "happiness gap" between East and West Germans

A comparison of affective and cognitive subjective well-being

Christoph Kasinger, Lisa Braunheim, Manfred E. Beutel, and Elmar Brähler

Disclaimer

Some parts of the work have already been published in the article:

Kasinger, C., Braunheim, L., Beutel, M., & Brähler, E. (2023). Closing the "happiness gap" by closing the wealth gap: The role of wealth on life satisfaction between East and West-Germans. *Journal of Public Health*, *31*, 1433–1442. https://doi.org/10.1007/s10389-022-01716-0

This work is an extension of the cited article, which investigates if the same results hold true for a different measurement that highlights the affective component of subjective well-being.

Introduction

Over the past decades, life satisfaction received a lot of attention in the fields of psychology, sociology, and economy (Clark, 2018; Diener et al., 1999, 2017). There are even attempts to establish life satisfaction as a central indicator for the efficacy of political actions (Diener et al., 2015; Diener & Seligman, 2004). This is due to its relevant link to many important facets of human life, like mental health (Beutel et al., 2010; Lombardo et al., 2018), physical health, and longevity (Diener & Chan, 2011). For Germany, with its history of division into two separate states, life satisfaction is an important aspect: Since the reunification in 1990, there has always been a gap in life satisfaction between East and West Germans (Easterlin, 2009; Easterlin & Plagnol, 2008; Petrunyk & Pfeifer, 2016; Vatter, 2012). Even 30 years later, people in East and West Germany still differ in their perceived level of satisfaction with life (Iglauer et al., 2021). On the one hand, the difference in life satisfaction can be attributed to past and present objective circumstances, for example, macroeconomic conditions such as labor market conditions, level of GDP, and economic growth (Vatter, 2012). This is further affirmed

DOI: 10.4324/9781003427469-13

by the fact that birth cohorts raised in the former German Democratic Republic (GDR) show a larger gap in life satisfaction (Biermann & Welsch, 2021; Petrunyk & Pfeifer, 2016) than those cohorts raised before and after. On the other hand, differences in individual factors, like income (Frijters et al., 2004; Petrunyk & Pfeifer, 2016), unemployment status (Petrunyk & Pfeifer, 2016; Vatter, 2012), and satisfaction with democracy (Biermann & Welsch, 2021), also account for differences in life satisfaction between East and West Germans. In our previous paper (Kasinger et al., 2023), we found wealth to be a relevant socioeconomic factor as well, contributing to the differences in reported life satisfaction between East and West Germans. Even 25 years after reunification, private households in East Germany possessed less than half the financial wealth of those in West Germany (Grabka, 2014). Contrary to Grabka's hypothesis of converging wealth, we could show that the wealth gap is also salient in younger birth cohorts, when taking a longitudinal perspective (Kasinger et al., 2023). This may be due to "Matthew's principle" meaning that the wealthy build up their fortune quicker than the less fortunate. While people of younger age report the same wealth, the inherent wealth that is transmitted through heritage of people between East and West Germany is huge (Baresel et al., 2021). Wealth affects life satisfaction in several ways. As Brulé and Suter (2019) point out, there are three different types of effects of wealth on life satisfaction: *direct effects* are especially related to health changes and happiness; wealth *buffers* negative effects of certain life changes, such as unemployment; *inequality* leads to higher chances of distrust, status anxiety, perceived conflicts, and a general dissatisfaction. During times of economic instability or insecurity, such as unemployment, illness, retirement, or dependence on social assistance, wealth serves as a safeguard: A certain level of consumption may be maintained even though unemployment compensations or pensions can be rather low (Brulé & Suter, 2019; D'Ambrosio et al., 2020). As a consequence, financial security leads to a higher sense of control over one's own life, which is positively associated with well-being (Johnson & Krueger, 2006). Additionally, Hauser (2007) defines seven functions of wealth that have direct and buffer effects on life satisfaction: the *security function* of wealth; the *income function*, with wealth generating income on its own; *the use function* for consumption; *the power function* for increasing influence; *the social status attainment* and *positioning function*, enabling a "happier" position in society; and *the inheritance function*. It is thus very plausible that wealth not only has a larger and more continuous effect on life satisfaction but is also a more suitable financial indicator. By using wealth instead of income as an indicator in this study, an important economic aspect of inequality regarding life satisfaction and health can be uncovered.

However, life satisfaction covers only one aspect of subjective well-being. Until today, there is no general definition of what subjective well-being is. In fact, this question is as old as humanity itself. During the ancient times in Greece, the lines of the construct subjective well-being were mainly drawn

between hedonic and eudaimonic perspectives. The representatives of hedonia were looking for subjective well-being in the fulfillment of sensual and lusty pleasures. For the representatives of eudaimonia, subjective well-being rests in leading a "good, beautiful, and proper life." Even today, many of the concepts can be broadly categorized based on the two perspectives (Ryan & Deci, 2001; Eid & Larsen, 2008). Based on these two concepts, definitions of subjective well-being can highlight the importance of either experiencing positive affects (hedonic) or evaluating one's life as valuable and good (eudaimonic). Modern definitions of subjective well-being try to integrate both perspectives by focusing on experiencing positive affects *and* taking an overall evaluation of one's life into account. The first to come up with an integrative definition were Andrews and Withey (1976). According to them, subjective well-being is defined as the interplay of a general, summative, cognitive satisfaction with one's own person and one's own life, as well as the frequent experience of positive affect and feelings of happiness while rarely experiencing emotions that are perceived as aversive. Even though there are many attempts to integrate both perspectives into one empirical measurement, for example, Seligman's PERMA Scale (Seligman, 2002), most of the reported empirical works focus on only one measure highlighting either the affective or cognitive dimension of subjective well-being. It is important to take the multidimensional characteristics of subjective well-being into account because the two concepts of an affective and a cognitive aspect of well-being are indeed interrelated, but they can be treated as separate constructs (Diener et al., 2004). This assumption is supported by empirical studies that show different results depending on the measurement of subjective well-being (e.g., a cognitive or an affective measure) (Schumann & Kuchinke, 2020; Asselmann & Specht, 2023). Interestingly, in contrast to life satisfaction, when using measures of affective well-being—such as frequency of experiencing positive emotions—research demonstrates no significant disparity between East and West Germans (Schimmack et al., 2008; Noll & Weick, 2010). These findings suggest that despite differences in life circumstances and historical background, East and West Germans experience happy emotions at the same frequency. East Germans tend to report lower life satisfaction compared to their Western counterparts, reflecting the enduring impact of socioeconomic disparities. On the other hand, affective well-being may be less influenced by external socioeconomic factors (Kahneman & Deaton, 2010) and, instead, reflect individual disposition and subjective experiences that are less tied to regional disparities. Another possible explanation might be that life satisfaction corresponds to long-term effects of well-being (De Cuyper & De Witte, 2006). Factors building up life satisfaction may lay a more enduring frame in which well-being can flourish while an affective well-being measure might be more sensitive to short-term factors. Following these explanations, we assume that wealth might play an important role for the overall evaluation of one's life (life satisfaction) but does not influence the frequency of someone's everyday positive affective responses as much. Based

on these assumptions, we expect that the wealth gap between East and West Germans does not influence the perceived frequency of happy emotions. We test our hypotheses by controlling for sex, age, household income, education, subjective health status, and unemployment.

Following these assumptions in our theoretical section, we formulate three explicit hypotheses H1–H3:

H1: Affective well-being does not differ significantly between East and West Germans over the panel years.
H2: There is no positive association between wealth and affective well-being between respondents over the panel years.
H3: There is no positive association between wealth and affective well-being within respondents over the panel years.

Method

Sample description

For our study, data of the German Socio-Economic Panel (GSOEP) was used. The GSOEP is an annual panel survey of German households that started in 1984 (Goebel et al., 2019). Three different time points, namely the years 2007, 2012, and 2017, were used. This is when detailed information of assets and debts have been gathered on an individual level. For our analyses, only participants who were above the age of 18 years in 2007 and did not move between East and West Germany during the time period, as well as data of people who answered all variables of interest at all three time points, were included. The total sample consists of $N = 5{,}066$ (see Table 10.1 for detailed sample description) participants. Before participating in the study, all participants gave their informed consent.

Variables

Net worth was calculated by subtracting the individual value of debts from the individual value of assets. The questions were asked in the form of: "how high is the current (market) value of. . .," with a brief explanation of words used in the question; for example, "market value is the price you would get by selling the property." The total value of assets was calculated by summing up the value of (1) real estate (own use and non-own use), (2) monetary assets, (3) insurance assets, (4) building savings contracts, (5) stocks and business assets, and (6) tangible assets. Debts consisted of (1) mortgage loans and (2) other credits. Jointly held wealth assets were included regarding the proportional value held by the person. Additionally, to deal with the large variance in the net worth variable, first an inverse hyperbolic sine function transformation of net worth for the regression analyses was conducted. The inverse hyperbolic sine function is a monotonic transformation comparable

Table 10.1 Descriptive statistics of 2007, 2012, and 2017.

	2007		*2012*		*2017*	
	West (N = 3,756)	*East (N = 1,293)*	*West (N = 3,756)*	*East (N = 1,293)*	*West (N = 3,756)*	*East (N = 1,293)*
Female; *N* (%)	1,840 (49.0)	682 (52.7)	1,840 (49.0)	682 (52.7)	1,840 (49.0)	682 (52.7)
Unemployed; *N* (%)	92 (2.4)***	89 (6.9)***	61 (1.6)***	55 (4.3)***	35 (0.9)*	23 (1.8)*
Univ. degree; *N* (%)	1,114 (29.7)***	491 (38.0)***	1,186 (31.6)***	512 (39.6)***	1,217 (32.4)***	520 (40.2)***
Age (*SD*)	50.46 (13.54)	50.10 (14.17)	55.46 (13.54)	55.10 (14.17)	60.46 (13.54)	60.10 (14.17)
Wealth—gross (*SD*)	303,754.56*** (792,914.91)	112,526.06*** (160,604.65)	314,475.79*** (524,401.76)	118,189.31*** (152,735.30)	390,577.66*** (1,320,399.59)	140,100.08*** (218,202.38)
Liabilities (*SD*)	48,063.61*** (102,013.83)	27,355.13*** (70,772.70)	46,391.63*** (110,830.43)	25,183.11*** (63,255.37)	42,975.34*** (118,588.28)	22,551.58*** (59,500.41)
Wealth (net); mean (*SD*)	252,906.62*** (748,799.98)	84,515.26*** (129,235.10)	267,403.41*** (474,554.38)	92,259.56*** (129,818.35)	347,437.20*** (1,311,163.29)	117,662.47*** (203,379.64)
Wealth (net); median	143,500***	44,000***	156,700***	55,000***	200,000***	75,000***
Inheritance; mean (*SD*)					112,336.91*** (234,152.93)	30,582.71*** (88,434.83)
EHI; mean (*SD*)	1,461.48*** (1,160.89)	1,081.81*** (629.91)	1,704.21*** (2,575.50)	1,245.88*** (633.65)	1,850.86*** (1,275.52)	1,460.49*** (670.58)
EHI; median	1,250.00***	950.67***	1,400.00***	1,107.00***	1,575.00***	1,300.00***
Life satisfaction (*SD*)	7.35*** (1.57)	6.73*** (1.63)	7.33*** (1.55)	6.87*** (1.56)	7.34*** (1.61)	6.96*** (1.61)
Affective well-being (*SD*)	3.57 (.81)	3.54 (.79)	3.57** (.81)	3.50** (.80)	3.55 (.82)	3.49 (.83)
Subj. health (*SD*)	2.54 (.86)	2.59 (.84)	2.60 (.85)	2.65 (.83)	2.74 (.90)	2.77 (.90)

Note: Stars indicate *p*-values of a two-way ANOVA test for mean differences and *p*-values of a median test for median differences (* $p < .05$, ** $p < .01$, *** $p < .001$) between East and West Germany within the respective years. Univ. degree = completed tertiary education, EHI = equivalent household income, Subj. health = subjective health. The question about inheritance was only included in the survey of 2017. Figures regarding wealth, income, and inheritance are in euro. The correlation coefficients for life satisfaction and affective well-being were as follows: $r_{2007} = .445$, $r_{2012} = .474$, $r_{2017} = .485$.

to the log transformation. This way, the distorting effect of outliers in both directions is minimized. But contrary to the log transformation, it is defined at zero and can take negative values into account (Pence, 2006).

Feelings of happiness or affective subjective well-being, respectively, were measured by the following item in the GSOEP since 2007: "I will now read to you a number of feelings. Please indicate for each feeling how often or rarely you experienced this feeling in the last 4 weeks—Feeling of Happiness." The feelings were responded to on a five-point Likert scale with the options "very rarely," "rarely," "occasionally," "often," and "very often." In a test of measurement invariance across 22 European countries, scalar measurement equivalence of both affective and cognitive well-being was confirmed (Fors & Kulin, 2016). Regarding age, subjective well-being achieves partial equivalence across different life stages although this is due to the responses to the item on energy levels, which is not part of affective happiness (Vanhoutte & Nazroo, 2014). Respondents' state of health was assessed on a scale ranging from 1 (*very good*) to 5 (*bad*) using the question "How would you describe your current health?" Equivalized income was calculated by dividing the total household income by the square root of people living in the household. Again, to deal with the large variation in variance, an equivalized income factor variable was calculated by dividing the equivalized income by 1,000. For education, the Comparative Analysis of Social Mobility in Industrial Nations (CASMIN) classification in the GSOEP was used to code a dummy variable identifying people with a tertiary education level (1) and below (0). People who lived in East Germany before the reunification in 1989 and who were living in East Germany at all given time points were treated as East Germans.

Analytical strategy

To account for the ordinal data structure of the affective well-being scale, we first conducted ordinal logit regression models for every time point to test whether net worth played a significant role for affective well-being (H1 and H2). Additionally, to be able to interpret the effect of changes of individual net worth on individual affective well-being, a fixed-effects generalized estimation equation panel model (H3) was calculated, with affective well-being as the dependent variable, wealth, and East versus West Germany as independent variables, as well as equivalized household income, age, unemployment, and subjective health as control variables. Figure 10.1 illustrates the model specifications of the generalized estimation equation panel model.

Results

Descriptive analyses of the variables used in the models can be found in Table 10.1. Because only those respondents were included in the analysis who participated in each survey year, the mean age was continuously rising.

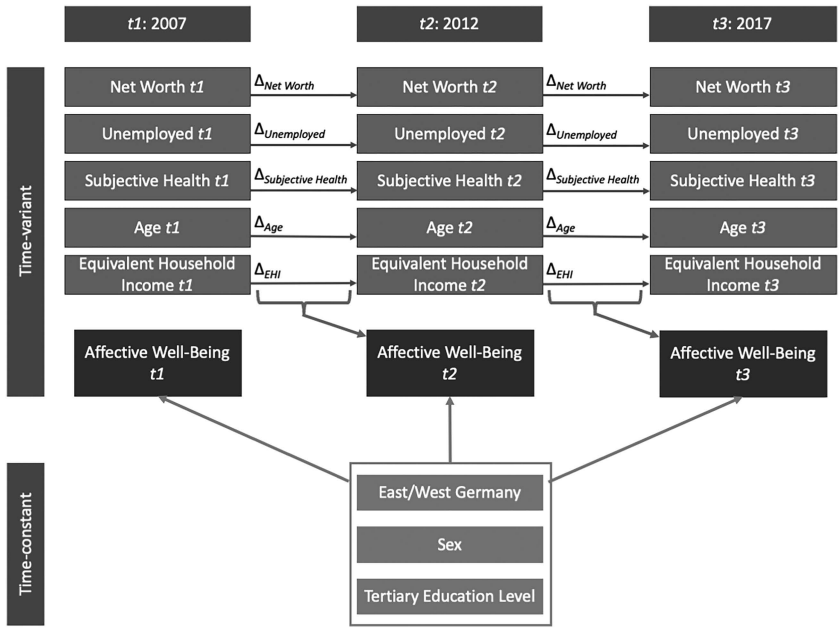

Figure 10.1 Model specifications of the fixed-effects generalized estimation equation panel model.

Apart from the subjective health status and affective well-being in 2007 and 2017, all differences between East and West Germans were significant.

In 2007, with respect to net worth, West Germans were the wealthier group ($median_{West}$ = 152,000 € vs. $median_{East}$ = 49,225 €). West Germans again showed a higher net wealth compared to the East in 2012 ($median_{West}$ = 169,200 € vs. $median_{East}$ = 60,800 €). Thus, wealth has increased in both groups. In 2017, wealth, liabilities, and equivalent household income presented considerable differences in their means and medians, which is why outliers have to be regarded carefully. West Germans were the wealthier group. Both their median gross wealth and their median net wealth exceeded the respective amounts of the other group by far. While the median net wealth of respondents from East Germany was 75,917 €, the West German median was 218,000 € and their mean liabilities were higher than in East Germany. Again, the median wealth has increased in each group. Furthermore, in 2017, inheritance was part of the questionnaire. The amount of inherited money differed considerably between the two groups, with West Germans reporting the higher amount (median = 50,000 €) and East Germans inheriting much less (median = 15,000 €).

Regarding affective well-being, there was only a small but significant difference between East and West in 2012. For the other years, no significant difference between East and West Germans was found. However, mean life

satisfaction of West Germans was consistently higher than in East Germany, though they converged over time due to increasing values in the East. This indicates that people in East Germany evaluated their life less positively than West Germans, but they do not experience happy emotions less frequently.

Throughout the years, West Germans earned more than East Germans. Furthermore, unemployment among East German respondents was higher than among West Germans. In general, East Germans had received a university degree significantly more often.

Table 10.2 reports net worth of different age cohorts over the years. The older the respondents, the larger the gap between East and West Germans' net worth values, except for the oldest birth cohort. Moreover, over the years, the differences between East and West increased, especially in the younger cohorts, which again corroborates Matthew's principle. A fitting example is the cohort of 1970–1979: 2007 was the only year and cohort with a higher median net worth for East Germans, but this advance was lost by far in 2012. Thus, West Germans of every age seem to be able to increase their wealth faster than East Germans.

This leads to the question whether wealthier people are also "happier" than the less wealthy.

Table 10.3 shows the results of the ordinal logit regressions at the three time points for affective well-being as the dependent variable. Compared to the regression models for life satisfaction (Kasinger et al., 2023) with adjusted R^2 ranging from.252 to.284, the pseudo adjusted R^2 values dropped

Table 10.2 Net worth of different age cohorts.

		Net worth 2007 Mean/median	*Net worth 2012 Mean/median*	*Net worth 2017 Mean/median*
Total	West	252,907/143,500	267,403/156,700	347,437/200,000
	East	84,515/44,000	92,259/55,000	117,663/75,000
1980–1989	West	13,561/5,000	25,584/9,600	77,717/27,000
	East	6,509/3,000	20,874/6,400	46,373/9,650
1970–1979	West	67,964/20,500	101,017/50,000	185,829/116,000
	East	56,089/23,500	63,430/30,000	98,826/75,000
1960–1969	West	189,302/105,000	232,259/140,000	313,299/202,500
	East	85,469/49,500	97,517/58,250	149,067/92,000
1950–1959	West	344,112/200,000	340,270/220,000	494,982/265,000
	East	99,577/63,150	107,031/64,000	139,034/91,000
<1949	West	356,104/250,000	354,642/240,000	385,681/250,000
	East	100,178/63,000	103,989/70,525	100,577/61,700

Note: All figures are in Euro.

Table 10.3 Ordinal logit regressions on affective well-being at three different time points.

	2007				*2012*				*2017*			
	B	*Std. error*	*Wald*	*Sig.*	*B*	*Std. error*	*Wald*	*Sig.*	*B*	*Std. error*	*Wald*	*Sig.*
Wealth	.007	.005	.1.714	.190	.007	.005	2.359	.125	.014	.005	6.600	.010
Univ. degree	–.006	.063	.009	.926	–.15	.062	5.941	.015	.028	.062	.210	.647
EHI	.063	.020	9.498	.002	.049	.021	5.489	.019	.084	.023	13.349	.000
Subjective health	–.556	.035	257.549	.000	–.647	.035	337.272	.000	–.559	.033	283.247	.000
Age	–.010	.002	22.292	.000	–.006	.002	8.748	.003	–.013	.002	34.332	.000
Unemployed	.093	.146	.403	.526	.354	.18	3.879	.049	.043	.258	.028	.868
East	–.061	.064	.909	.340	–.14	.064	4.721	.030	–.043	.065	.450	.503
Sex	.122	.055	4.936	.026	.123	.055	4.974	.026	.132	.055	5.705	.017
Nagelkerke pseudo-R^2	.082				.099				.10			

Note: B = ordered log-odds logit regression coefficient, Std. error = standard error, Wald = Wald chi-square test, Sig. = significance level (*p*-value) based on the Wald's test statistics of the predictors, Univ. degree = completed tertiary education, EHI = equivalent household income. Analyses with additional covariates such as number of children, partnership, and migration background had no significant impact on the coefficient of wealth on affective well-being. For reasons of comparability, we decided therefore not to include these confounders in our analyses.

and ranged from.082 to.010 in the regression model for affective well-being. In other words, only 8.2–10.0% of the variance was explained by the variables included in the model. This indicates that the selected variables play a crucial role as factors contributing to the evaluation of one's satisfaction with life. But they are not as important when it comes to one's prevalence of positive emotions. Interestingly, wealth was a significant predictor only in 2017. Not finding any stable difference between East and West Germans was in line with our expectations. Unlike the difference with life satisfaction, people in East Germany experienced happy emotions as often as West Germans. Only the subjective health status, the equivalent household income, and age were significant predictors (p <.01) at every time point. People tended to report more positive emotions when they report a better subjective health status, a higher household income, and were of younger age. A university degree did not exert a significant effect. Overall, unemployment was less relevant for the prevalence of happy feelings, with significance only found in 2012.

A fixed-effects generalized estimating equation model was used to investigate the effects of the covariates on affective well-being within the respondents over the years (H3). Results are reported in Table 10.4. An increase in equivalent household income and personal wealth had a significant positive impact on affective well-being. People reported a higher frequency of happy emotions when their household income or their overall wealth improved. Declining subjective health had a significant negative impact on affective well-being of the respondents. Contrary to the findings for life satisfaction, job loss had no significant effect. Survey year also had a significant effect, as people reported a higher frequency of happy emotions over the time period. While age was positively associated with life satisfaction, the opposite was true for affective well-being, because the older people became, the less they experienced happy emotions.

The analyses supported our hypotheses H1 fully and H2 partially. As affective well-being did not differ significantly between East and West Germans in all time periods, H1 was supported. Partial support for H2 was found in the positive association between wealth and affective well-being between respondents that surfaced only in 2017. H3 was not supported because of the positive association between wealth and affective well-being that emerged within respondents over the panel years.

Discussion

The objective of this study was to investigate potential disparities in affective well-being between East and West Germans and explore whether these differences can be attributed, at least in part, to variations in wealth.

First of all, we found no happiness gap between East and West Germans. The results indicate that people in East Germany evaluate their life less positively and are less satisfied with it but that does not mean that they experience happy emotions less often. Second, wealth was found to be a significant

Table 10.4 Estimates of fixed effects on affective well-being.

Parameter	*Estimate*	*Std. error*	*Wald*	*Sig.*	*95% Wald CI lower bound*	*95% Wald CI upper bound*
Unemployed	–.172	.107	2.597	.107	–.382	.037
Subjective health	–.580	.024	590.801	.000	–.627	–.534
Age	–.010	.001	–36.936	.000	–.013	–.007
Wealth	.009	.004	6.991	.008	.002	.016
EHI	.069	.019	13.437	.000	.032	.106
Survey year 2007	–.122	.036	11.552	.001	–.1939	–.052
Survey year 2012	–.070	.032	4.935	.026	–.132	–.008

Note: Estimate = ordered log-odds logit regression coefficient, Std. error = standard error, Wald = Wald chi-square test, Sig. = significance level (p-value) based on the Wald's test statistics of the predictors, CI = confidence interval, EHI = equivalent household income. Reference for survey years is the year 2017.

predictor for within-respondents change, but only in 2017 did it explain a significant portion of variance between respondents. According to these results, wealth is a more important factor for the evaluation and satisfaction with one's life, but not as important for the prevalence of happy emotions. The ratings of subjective health and equivalent household income were the strongest factors. There were inconsistent findings for the relevance of unemployment and holding a university degree: A significant relation of these factors emerged only in 2012. These factors thus play a marginal role for the frequency of which individuals are experiencing happy emotions.

In line with our hypotheses, a more affective measure of well-being, compared to a more cognitive measure like life satisfaction, did not produce the same results. The affective component of subjective well-being is less influenced by socioeconomic factors than life satisfaction (Kahneman & Deaton, 2010). Life satisfaction corresponds to long-term effects of well-being (De Cuyper & De Witte, 2006), while an affective well-being measure might be more sensitive to short-term factors, personal mentality factors, and personal disposition. Following this argumentation, wealth probably unfolds its positive effect on well-being especially on a long-term basis, which explains the significant within-person effects. In contrast to life satisfaction, which continues to be influenced by the extensive transformation processes following the reunification due to the persisting socioeconomic disparities between East and West Germany, affective well-being appears to be less affected by these factors. The reunification may have had small effects on the affective well-being of individuals residing in East Germany, as affective well-being is less influenced by socioeconomic circumstances.

Real estate shows the largest impact on wealth. In 2013, 85% of the wealth of private households in West Germany was based on real estate, whereas in East Germany, the respective amount was only 73%. Both the proportion of properties used by owners and the amount of income resulting from rent

are constantly higher in West Germany. Moreover, the discrepancy does not seem to converge. Because of the unequal income distribution between East and West Germans (Goebel et al., 2010), East Germans incur higher debts when investing in real estate (Grabka, 2014). As the value of real estate has been increasing in each region in recent years (Schöneich & Teske, 2020), owners are increasing their wealth, thereby widening the gap between themselves and their fellow citizens who do not own properties—the latter being overrepresented in East Germany. Furthermore, the general market value of real estate is much higher in West Germany than it is in East Germany. That is also one factor why the reported wealth of people who own an apartment or a house that is comparable in size, facilities, and location will be different between East and West Germans. According to Bartels and Schroeder (2020), this different valuation and different possession rate account for 11–16% of the wealth difference of homeownership and 20–30% for other real estate.

It is unclear whether the difference in wealth may also be attributed to different personal attitudes toward accumulating wealth between East and West Germans. While West Germans grew up in a market society, where accumulating wealth was possible and an important motivation, the socialist regime of the GDR inhibited this possibility by regulating income and ownership in order to achieve equality. Therefore, West Germans not only had more time to accumulate money over generations (Fuchs-Schündeln & Schündeln, 2005), their socialization also led them to being more competent in increasing their wealth through a higher financial literacy (Bucher-Koenen & Lusardi, 2011). Moreover, German reunification was an economic shock for East Germany: Labor force participation, income, savings, social security entitlements, wealth levels, as well as wealth profiles were afflicted (Bönke et al., 2019; Fuchs-Schündeln & Schündeln, 2005). The postreunification economic shock also led to massive redistribution of wealth between East and West Germany, since approximately 80% of the assets of the GDR companies were sold to West Germans by the Treuhand institution. On the other side, only 6% of the former GDR assets were owned by East Germans in 1994 (Bundeszentrale für politische Bildung, 2015).

It has been claimed that relative income is a stronger indicator of life satisfaction than absolute income (D'Ambrosio et al., 2020; Keuschnigg & Wolbring, 2012). This can be explained by the reasoning of Keuschnigg and Wolbring (2012), who state that status signaling (e.g., through cars, clothing, or real estate) forms the mechanism of how a relatively higher income enhances one's life satisfaction, which is why face-to-face interaction is crucial for demonstrating one's wealth. We presume that the same effect cannot be expected for relative wealth and affective well-being. Still, future research could focus on smaller units than East and West Germany, implementing the regional difference by multilevel analyses.

Moreover, future research should investigate reverse causality between wealth and subjective well-being. For example, in a Russian sample, Graham et al. (2004) observed that not only does wealth impact happiness—happier

people prospectively become wealthier. As our analyses revealed differing findings, comparisons across countries should be performed.

Regarding wealth and subjective well-being, another interesting question focuses on if and how the different wealth assets contribute to subjective well-being. For example, it seems plausible that homeownership plays a bigger role in estimating subjective well-being than having a lot of money in one's bank account, as the former may offer a higher level of security. Additionally, the possible impact of different wealth components, like gross wealth and debt, on subjective well-being would also be worth considering. Being in debt might have a higher negative impact on subjective well-being because this can cause substantial psychological stress (Tay et al., 2017).

Our analyses demonstrate that measures of subjective well-being differ in at least one way: Happiness or affective well-being is less dependent on wealth than life satisfaction. This corroborates the finding that daily happiness is not related to higher income, but daily sadness is (Kushlev et al., 2015). Thus, distinct concepts of subjective well-being cannot be equated when using economic indicators.

Limitations

Recently, the coronavirus pandemic changed the distribution of wealth on a large scale (Capgemini, 2021). Since our most recent data is from the year 2017, the impact of the coronavirus pandemic on wealth distribution could not be considered in our analyses. Following the worldwide observations that the pandemic exacerbated the wealth inequality between wealthy and non-wealthy individuals (Capgemini, 2021), it seems likely that it accelerated the growth of wealth inequality between East and West Germans as well.

Another limitation is that wealth was measured on an individual level without controlling for household wealth. This has the shortcoming that people living in a wealthy household but reporting little individual wealth do benefit from a wealthy environment but are treated as low-wealth individuals. Therefore, the impact of wealth on life satisfaction and affective well-being may be underestimated.

Even though the GSOEP explicitly tries to include the wealthiest people of the distribution in the "high-income subsample," there is still an undercoverage of highly wealthy people (i.e., the top 0.5%) in the GSOEP sample. The undercoverage of this group may also lead to an underestimation of the real level of net worth in Germany and its role regarding life satisfaction.

Furthermore, the representativeness of the sample is limited due to panel attrition effects, as higher educated people, women, older people, and West Germans are more likely to continue to participate in longitudinal surveys (Siegers et al., 2020).

Regarding the fixed-effects analyses, we did not take cross-lagged effects of affective well-being into account. This leads to the shortcoming that

the influence of affective well-being at earlier time points is not accounted for, although it might affect the trajectory of affective well-being over the course of time.

There are also several shortcomings regarding the reliability of some questions. First, the subjective health status, life satisfaction, and affective well-being were measured by a single item only, which makes it questionable if one question is suitable to cover these concepts appropriately. Moreover, random errors cannot be tested for or corrected for. Second, all results of wealth are based on self-disclosure only. Apart from a possible social desirability bias, this might distort the results because it is difficult to estimate the real market value of assets. This may lead to an under- or overestimation of real values, and people who are more familiar with financial matters may be more accurate in their estimations.

Conclusion

The distinct disparities in life satisfaction between East and West Germans can be attributed primarily to socioeconomic and historical factors. However, when assessing affective well-being, such as the frequency of positive emotions, no significant differences emerge between the two regions. These findings underscore the complexities of subjective well-being and call for comprehensive approaches to address the persistent life satisfaction gaps while recognizing the similarities in emotional experiences across East and West Germans.

Authors' note

This research was supported by the German Federal Ministry of Education and Research (grant number 01UJ1911AY). The funding source had no other role other than financial support.

The data to support the findings of this study are openly available in the repository of the German Socio-Economic Panel at http://doi.org/10.5684/soep.core.v38eu.

The authors declare have no conflict of interest to declare.

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11 Effects of job loss in romantic relationships

A fixed-effects regression analysis

Lisa Braunheim and Laura Gapta

Introduction

Despite its prevalence, job loss, with an eventual period of unemployment, often negatively impacts people. However, it was observed that certain life events influence not only the person directly affected but also other household members (Brand, 2015; Luhmann et al., 2014; Nikolova & Ayhan, 2019). In the case of unemployment, such effects have been found in German research for both men and women (Luhmann et al., 2014; Nikolova & Ayhan, 2019), though the associations between one's sex and the partner's job loss differ between East and West Germany (Esche, 2020). In contrast to East Germany, where job losses affect female and male partners similarly, significant negative consequences have only been found for West German women after their male partners have lost their jobs. They become less satisfied with their health, housework, and leisure, as well as their family life (Esche, 2020). This finding highlights the divergent gendered work roles prevalent in East and West Germany. Due to East women's historically stronger linkage to the labor market, gendered work roles have been differing between East and West Germany for decades. As will be further explained later, institutionalized gender roles, which heavily rely on region, explain protective and risk factors regarding consequences of job losses.

Employment makes up a crucial part of various stages of life. In general, employment also offers a range of advantages for individuals; "A job is more than a source of income. It is a fundamental social role and source of identity" (Brand, 2015, p. 370). Further advantages of employment can also be deduced from the implications of a job loss. Jahoda (1986) observed that both sense and structure of time suffer from job losses. Moreover, the unemployed tend to feel less needed, social contacts diminish, and people miss the purpose their former job offered (Jahoda, 1986). Major aspects of everyday life change when a job is lost. This explains why many previous researchers chose to investigate the effects of job loss on life satisfaction (e.g., Esche, 2020; Kassenboehmer & Haisken-DeNew, 2009; Luhmann et al., 2014; Nikolova & Ayhan, 2019). In this chapter, we investigate whether changes

DOI: 10.4324/9781003427469-14

in life satisfaction and economic situation due to job loss can indirectly affect the partner's life satisfaction in heterosexual couples.

This chapter adds new insight to current research on unemployment within partnerships, as it first acknowledges differing gender roles and historical disparities between East and West Germany. In contrast to many other analyses, which separately focus on the impacts of unemployment on the directly and indirectly affected partners, we will analyze whether life satisfaction of the directly affected partner mediates the effect of their unemployment on their partner. Finally, shifts in the economic partnership dynamic will be investigated to account for differing gendered contributions to the household income as well as gendered employment roles, as this may be a persisting difference between East and West Germany.

In the following, we will first discuss theories on the transmission of certain states and emotions that explain spillover and crossover effects of job loss. To grasp the various possibilities that can affect one's partner, direct effects of job loss will be identified. Moreover, gender roles regarding employment and related views dependent on whether a region in East or West Germany is examined. To assess these processes, sex-differentiated incomes were estimated and fixed-effects regressions with moderators and mediators were conducted. The results will be presented and discussed in the final sections.

Theoretical background

Direct effects of job loss

To understand indirect crossover and spillover effects of unemployment, direct influences on the unemployed partner should be acknowledged. The experience of job loss can have a negative impact on health behaviors, which are in turn associated with a range of psychological and physical effects (Kieselbach & Beelmann, 2006). Increased distress due to unemployment and an associated unhealthy lifestyle can promote morbidity and mortality (Dooley et al., 1996). International studies have indicated that direct effects of job loss can include increased anxiety, paranoia, as well as depression and negative moods (Liem & Liem, 1988). Studies using German samples also concluded that job losses are accompanied by an increase in anxiety (Lucas et al., 2004; von Scheve et al., 2017). In comparison to employees, the unemployed also suffer more frequently from dissatisfaction with their own life situation, hopelessness, helplessness, lower self-esteem, resignation, a lower level of activity, and loneliness (Kieselbach & Beelmann, 2006). In particular, job losses are related to lower life satisfaction (Esche, 2020; Kassenboehmer & Haisken-DeNew, 2009; Luhmann et al., 2014). Accordingly, unemployed people exhibit significantly more psychological symptoms and have a lower sense of general well-being (Paul et al., 2006), which can in turn also affect their partners and their relationship stability (Luhmann et al., 2014; Mendolia, 2014; Ström, 2003).

In addition, the unemployed can feel a sense of shame, which is why they often spend more time with their families instead of with other contacts outside of the home domain (Andreß et al., 1995), often neglecting contact with friends (Gallie, 2004). Thus, unemployment has a negative effect on satisfaction with social contacts and optimistic attitudes (Kriwy & Nisic, 2012).

As health, social contacts, and shame are all associated with life satisfaction (DeNeve & Cooper, 1998; Hojman & Miranda, 2018; Ngamaba et al., 2017), deleterious conditions that the directly affected person experiences as a result of unemployment, their poorer health, lack of social contacts, and a heightened sense of shame can affect the indirectly afflicted partner's life satisfaction as well.

Intradyadic dynamics of spillover and crossover

Various theories and processes can explain how job loss may indirectly affect the partner. According to social exchange theory, people exhibit a set of resources to invest in a relationship; through diverging costs partners invest, an imbalance within partnerships can occur (Blau, 1964; Homans, 1958). Costs and rewards partners invest and receive within this exchange should be equally high to achieve the so-called distributive justice (Homans, 1958). Following this theory, human interaction in a dyad ideally profits both parties equally (Levinger, 1979). Emerson (1976) mentions the serial character of such actions to determine the quality of the social exchange. However, when one partner loses their job, fewer material resources can be used to hold the balance. Moreover, with fewer financial possibilities, it is possible that the family will need to adapt their lifestyle to lower expenses. For example, social contacts can be expensive, as time spent together is often associated with consumption of common goods or services, so maintaining these contacts comes with financial costs (Andreß et al., 1995). Joint household budgets with one discontinued source of income can therefore lead to a reduction in social contacts not only by the person directly affected by unemployment but also by other household members. Non-material resources such as time, which had been spent on the job before, could be relocated. Nevertheless, the importance that the indirectly affected person puts on the unemployed partner's resources may differ individually, as may the reallocation of the unemployed partner's resources. Another non-material form of reward, which facilitates social exchange, is approval (Homans, 1958). The indirectly affected partner's approval of their unemployed partner can diminish depending on the latter's behavior in how resources are redistributed following a job loss.

Nevertheless, Emerson (1976) doubted that human actions rationally rely on self-interested deliberation. Thus, in this chapter, emotions will be integrated into the theoretical aspects of transmission effects. In addition to life satisfaction, experienced well-being through affective components such as happiness or sadness (Andrews & Withey, 1976) constitute subjective well-being. Life satisfaction is in turn influenced by positive (Cohn et al., 2009;

Kuppens et al., 2008) as well as negative emotions (Kuppens et al., 2008). Therefore, life satisfaction and affective emotions are markedly intertwined. The relation between subjective well-being and unemployment has been highlighted in various previous studies (e.g., Kassenboehmer & Haisken-DeNew, 2009; Lucas et al., 2004; Luhmann et al., 2014; Paul et al., 2006; von Scheve et al., 2017). At certain stages within a period of unemployment, the affected feels sadder and less happy more frequently (Lucas et al., 2004; von Scheve et al., 2017, see above). Further direct effects of unemployment will be introduced at a later stage within this chapter. In romantic relationships, people can be affected by their partners' stress and strain due to spillover and crossover effects (Bünnings et al., 2017; Marcus, 2013). A *spillover* effect is described as an intraindividual transmission of emotions between two domains (e.g., work domain and home domain; Demerouti et al., 2005). Thus, if the unemployed experience negative emotions because of their dissatisfaction in their work domain, their emotions within the home domain may suffer as well. In contrast, *crossover* effects indicate a dyadic, interindividual transmission of emotions to a person within the same domain (e.g., the partner; Demerouti et al., 2005). Song et al. (2011) found support for direct crossover as well as common stressors. Direct crossover happens when one partner is strained and transfers their negative emotions directly to the other partner (Rook et al., 1991; Song et al., 2011). Common or mutual stressors are frequent within the same household (Song et al., 2011).

One example of direct crossover transmission of stress and strain can occur through emotional contagion (Song et al., 2011), which refers to the tendency "to catch others' emotions" (Hatfield et al., 1994, p. 11) and thus to emotionally converge during an interaction (Hatfield et al., 1994). This results in an attentional, emotional, and behavioral synchrony in both individuals (Hatfield et al., 2014).

The degree of emotional contagion differs with the degree of closeness in interpersonal relationships, such as romantic relationships (Anderson et al., 2003; Rodríguez-Muñoz et al., 2014), since greater closeness facilitates convergence of emotions (Kimura et al., 2008; Wróbel, 2018). Furthermore, the tendency to adopt another's emotions is greater for negative than for positive emotional expressions (Kelly et al., 2016; Rozin & Royzman, 2001). When the frequency of one partner feeling sad is greater at certain stages of unemployment (Lucas et al., 2004; von Scheve et al., 2017), indirectly affected partners might also feel sad more often due to emotional contagion.

Differing gendered and regional views on employment

In a simplistic view, the distribution of household work can be traditional and conservative; men are responsible for the work domain and women for the home domain ("male breadwinner model"). Alternatively, in a more egalitarian distribution, women and men divide their energy in the work and home domains equally.

Previous research stated that being employed is a social norm in Germany (Jahoda, 1986; Lang & Gross, 2019). Therefore, being unemployed is deviant behavior which is deduced from the current legal situation and requirements of the unemployed (Lang & Gross, 2019). Under certain conditions, deviating from norms can be sanctioned by others or by oneself through internalized expectations (Opp, 2015). However, conditionality can also explain why some people are not sanctioned when deviating from a norm (Opp, 2015). A factor that influences the conditionality of norm sanctioning in Germany is the socialization in East or West Germany. The gender-related importance of employment differs between the former Eastern and Western German states due to their history of division (see also Chapter 10 in this volume). In the German Democratic Republic, both women and men were fully included in the labor market (Nickel, 2011; Pfau-Effinger, 2004) as work was both a duty and a right for each citizen (Schmidt, 2003). Moreover, female full-time employment was economically necessary for both the state and families (Nickel, 2011). In contrast, in the Federal Republic of Germany, female part-time employment has been prevailing for decades (Nickel, 2011; Pfau-Effinger, 2004). There, the gendered distribution between paid employment and private homemaking to provide for children was grounded in state regulations until 1976 (Peuckert, 2008). From 1991 to 2018, employment rates had been consistently higher for men than for women in both East and West Germany, with a larger gender gap in employment rates for West Germany (Hobler et al., 2020b). This indicates higher rates of female homemakers in the West than in the East. In 2017, traditional role models were still much more common in West German families: In 74% of families with children, men worked full-time and women part-time, while in Eastern Germany, only 45% of households followed this model (Hobler et al., 2020a). This model is also called the modified male breadwinner model and emphasizes that West German households financially rely on the continued employment of male partners. Providing childcare at home is given as the main reason for part-time work by 80% of women in the West and about 59% of female part-time workers in the East (Hobler et al., 2020b). Thus, in West Germany, motherhood is a condition that seems to lower the negative sanctioning when deviating from the norm of working full-time. This conditionality can also refer to job loss. Compared to fathers, mothers who lose their job can more easily give up their role as a member of the labor market and instead intensify their role as stay-at-home mothers (Offe & Hinrichs, 1977). This is caused by the male breadwinner model which facilitated differing economic and psychological needs of employment between women and men (Strandh et al., 2013). Women then contribute less to the household income, leave the labor market upon childbirth, or reduce their work hours later. Therefore, due to the lower economic and psychological dependence on female employment, job losses for women living in countries following the male breadwinner model are less detrimental to their household (Strandh et al., 2013). On the downside, however, job loss for West German male partners is not only more financially detrimental for

the household. It also deviates from the West German norm of the male breadwinner. Finally, gender role stress may occur after deviating from gendered norms. Being unemployed is an important factor of masculine gender role stress (Eisler & Skidmore, 1987). In addition, female partners of unemployed men might also experience gender role stress, since they are in a close relationship with someone deviating from the male breadwinner norm. East German household incomes exhibit a more equal gendered ratio compared to those in West Germany, where the gap between male and female income in partnerships is wider (Nickel, 2011). However, in general, economic situations in terms of income and wealth among East Germans are worse compared to West Germans (Kasinger et al., 2023), which is why for the former, job loss for either the male or female partner should be financially detrimental. On the one hand, this hypothesis is corroborated by the fact that unemployment rates are higher in the East than in the West (destatis, 2022), indicating that it may be harder for East Germans to find a new job. On the other hand, it was argued that unemployment normalization in the form of an emotional regulation process can be fostered by higher regional unemployment rates (Houssemand et al., 2020) leading to the assumption that East Germans could fare better being unemployed because of their higher unemployment share.

Hypotheses

The preceding theories and findings led to the following hypotheses that are the focus of the next sections. First, the gender-related economic need within partnerships to stay employed is emphasized. Thus, personal incomes will be separately observed for East and West German women and men. Due to the focus on heterosexual couples and the higher prevalence of female full-time employment in the East over the past decades, we derive the following hypothesis:

H1: *The gap in personal income within partnerships is smaller in East Germany than in West Germany.*

Based on previous findings on the effects of a partner's job loss on the other partner, we hypothesized:

H2: *Life satisfaction generally decreases with the partner's job loss.*

No regional difference was assumed in this case, since contradictory dynamics might be at work. As stated earlier, on the one hand, the overall financial situation in the East is worse compared to the West (Kasinger et al., 2023) and unemployment rates have been higher in the East for decades (destatis, 2022), so job losses may be associated with stronger negative effects. On the other hand, the more people who are unemployed, the less job losses influence people negatively due to normalization effects (Houssemand et al., 2020). For this reason, regional differences were only tested exploratively.

Since East Germany did not separate the private and the public spheres by sex as much as the West in the past decades, we assume:

H3: *Indirectly affected women in West Germany exhibit significantly higher changes in life satisfaction than West German men. In the East, there is no such difference.*

Conservative gender roles imply that men earn more money than women to provide for their family. Thus, deviating from this could influence men who have internalized this value. As East Germans have followed more equal distributions of the work and household spheres, we assume they are less likely to have internalized conservative gender roles. Therefore, the fourth hypothesis states:

H4: *The decrease in life satisfaction in West German men is less if they become the main earner of the household after their female partner's job loss. This is not the case for East German men.*

Finally, life satisfaction of the directly affected partner should be considered as a mediator rather than a confounder to observe potential crossover effects. It is possible that the indirectly affected partner does not suffer from the partner's job loss itself but rather from their partner's resulting decrease in life satisfaction. Thus, we derive the fifth hypothesis:

H5a: *The change in life satisfaction of the indirectly affected partner is mediated by the directly affected partner's life satisfaction.*

Again, it is unclear whether East Germans who indirectly or directly experience job losses are more strongly influenced by their changing financial situation or unemployment normalization. However, in the case of indirectly affected West German women, unemployment normalization should not be common, as they rely more heavily on their partner's income. Life satisfaction for West German women should be affected by their partner's job loss itself, both for economic reasons and due to gendered work roles. This is why it can be assumed:

H5b: *Upon their partner's job loss, life satisfaction for West German women decreases, independent of their partner's life satisfaction.*

Methods

Sample

Data from the German Socio-Economic Panel (GSOEP) between 1990 and 2021 were used. The GSOEP has been conducting annual household panel surveys since 1984. Only co-habiting heterosexual couples were included

in the analyses. Moreover, cases were only included in which both partners from the same household participated in the survey.[1] Job losses related to self-employment, early retirement, pension, parental leave, for other miscellaneous reasons, and for indistinct reasons were excluded as well.[2] Only respondents who have been participating for at least two consecutive years were included. Direct unemployment experiences were restricted to people aged between 18 and 67 who had previously worked full-time or part-time. There was no age restriction regarding the indirectly affected partners. Cases in which respondents had moved between sample regions in East or West Germany in the previous year were omitted. Furthermore, the control group that did not experience a job loss only included those who worked full-time or part-time at the time of the survey. The final sample consisted of n = 21,782 respondents. Descriptive results of all variables can be found in Appendix 11.1. In the final sample, 1,539 West German women, 786 East German women, 641 West German men, and 567 East German men directly experienced the loss of a job and met the inclusion criteria (see Appendix 11.2).

Measures

Job loss

Job losses during the year before the respective survey were used to determine a binary variable of 0 (no job loss) or 1 (job loss). This item was added to the indirectly affected partners through the ID of the directly affected partner. The indirectly affected partner's employment status was not relevant for determining their partner's job loss, as previous research showed that the effects of the partner's job loss on one's own life satisfaction is not moderated by an own job loss (Nikolova & Ayhan, 2019).

Subjective life satisfaction

The indirectly affected partner's subjective life satisfaction was used as a dependent variable in all analyses. It was measured using a single item, "In conclusion, we would like to ask you about your satisfaction with your life in general. How satisfied are you with your life, all things considered?" ranging between 0 (*completely dissatisfied*) and 10 (*completely satisfied*).

Main earner within the partnership

The generated personal net income from the main occupation was provided by the survey data. By adding the generated unemployment benefits that have been surveyed since 2002, each participant's individual income could be roughly estimated. As the dataset did not contain generated unemployment benefits before the euro was established, analyses accounting for H4 on the change of the main earner only included panel years starting in 2002.

Comparing the new variable that sums personal income and employment benefits of the participant and of their partner, a higher income of at least 500€ was used as an indicator that the respondent was the main earner within the partnership. A binary variable was implemented (0 = *not the main earner*, 1 = *main earner*).

Covariates

All covariates referred to the indirectly affected partners. Education in years, household net income, and actual work hours had already been generated by the GSOEP. As was suggested by Ermini and Hendry (2008), household income was logarithmized for the fixed-effects regressions to account for outliers and because no linear effect of income on life satisfaction was assumed. Afterward, it was centered for each region separately using the respective means, as average incomes differed significantly between East and West. Assessing the questionnaires of respondents with the same household ID, the number of children under 14 within the household was transformed as an additional covariate.[3] The time-constant variables region and sex were used as moderators. Furthermore, analyses were estimated separately for these groups. Region differentiated between the current residence in the former Western or Eastern states of Germany. Sex varied between male and female; due to the low number of observations, diverse participants were omitted.

Statistical analyses

All analyses were performed using *Rstudio* (version 2023.06.1+524). The package *plm* was used to estimate fixed-effects regressions. However, to test H5a and H5b, mediation analyses were implemented. To enable the usage of the package *mediation*, fixed-effects regressions predicting life satisfaction under control of the partner's life satisfaction needed to be measured using the package *lme4*. Thus, results varied slightly due to the differing approaches *plm* and *lme4* used to observe fixed effects (see Croissant & Millo, 2008). As longitudinal data were used, changes within respondents were estimated to approximate the causal link between the partner's job loss and the life satisfaction of the indirectly affected partner. Thus, the mean effects of the changes of the implemented variables between t1 (*before the job loss*) and t2 (*after the job loss*) on life satisfaction in t2 were estimated. One advantage of fixed-effects regression is the reduction of unobserved heterogeneity as time-constant variables are implicitly accounted for (Brüderl, 2010). Though standard errors are larger in such analyses, the reduction of unobserved heterogeneity is preferable (Brüderl, 2010). For the mediation analyses, 50 simulations were implemented to investigate whether the life satisfaction of the unemployed partner served as a mediator to the effect of the partner's job loss on the life satisfaction of the indirectly affected partner.

Results

Figure 11.1 illustrates the personal net income of men and women respectively, further differentiating between East and West Germans, in proportion to the total household net income over the years (exact results can be found in Appendix 11.3). On average, the personal net income of West German men accounted for 61.40% of the household net income while West German women added 31.31%.[4] In East Germany, men earned an average of 52.96% of the household net income, with 39.66% brought in by women. Thus, the average gender gap in net income contribution was 29.67 percentage points in West Germany and Tukey's HSD post hoc test showed that this East–West difference was significant, proving our first hypothesis.

M1 of Table 11.1 shows the effects of job losses for men and women, stratified by region in East or West Germany. The fixed-effects analyses could show that in each group, life satisfaction of the indirectly affected partners diminished significantly. Thus, H2 could be confirmed.

The results presented in Figure 11.2 show that men and women experience their partner's job loss differently. While the event hardly influenced West German men, the other groups experienced a decline in life satisfaction. Statistically, disparities between the effects of job loss between men and women differ significantly between East and West with the gap being smaller

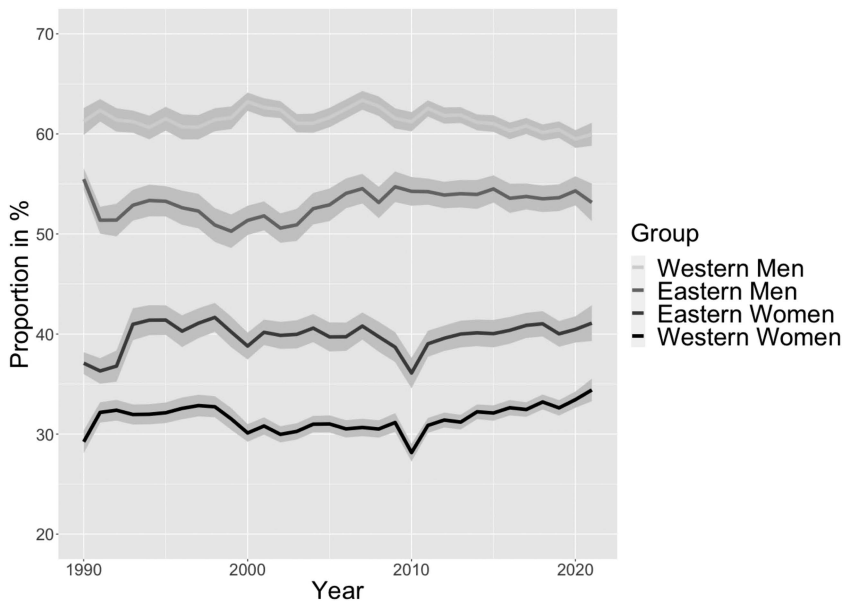

Figure 11.1 Personal net income proportional to household net income. Mean personal net incomes proportional to the respondent's household net income per group are illustrated. *N* = 53,311 West German and *N* = 19,918 East German couples were integrated into the analyses.

Table 11.1 Fixed-effects regression results on life satisfaction differentiating by region and sex.

Model	*Variable*	*West*						*East*					
		Women			*Men*			*Women*			*Men*		
		Est.	*SE*	*p*	*Est.*	*SE*	*p*	*Est.*	*SE*	*p*	*Est.*	*SE*	*p*
M1: full model	Partner's job loss	–0.50	0.05	<.001	–0.08	0.03	<.05	–0.27	0.06	<.001	–0.19	0.05	<.001
	Household net income (centered log.)	–0.02	0.02	.448	0.04	0.02	.093	0.27	0.04	<.001	0.33	0.04	<.001
	Years of education	–0.05	0.02	<.05	–0.12	0.02	<.001	–0.21	0.04	<.001	0.01	0.04	.853
	Actual work hours	0.00	0.00	<.01	0.01	0.00	<.001	0.01	0.00	<.001	0.01	0.00	<.001
	Number of children in household	0.08	0.01	<.001	0.07	0.01	<.001	0.07	0.02	<.001	0.04	0.02	<.05
	$N_{respondents}$	8,624			8,616			2,853			2,791		
	N_{cases}	48,376			48,375			18,618			18,059		
	R^2 marginal	.004			.007			.011			.018		
M2: social norm, main earner	Partner's job loss	–0.39	0.07	<.001	–0.04	0.04	.366	–0.14	0.08	.075	–0.05	0.07	.515
	Main earner	–0.00	0.04	.944	0.04	0.02	.103	0.04	0.05	.404	0.12	0.04	<.001
	Household net income (centered log.)	0.10	0.03	<.01	0.18	0.03	<.001	0.33	0.05	<.001	0.27	0.05	<.001
	Years of education	0.04	0.05	.410	–0.03	0.05	.495	–0.11	0.07	.140	–0.03	0.10	.790
	Actual work hours	–0.00	0.00	.391	0.01	0.00	<.001	0.00	0.00	.514	0.00	0.00	<.001
	Number of children in household	0.04	0.01	<.01	0.04	0.01	<.01	–0.02	0.02	.416	–0.03	0.02	.284
	$N_{respondents}$	7,025			7,019			2,026			2,011		
	N_{cases}	35,539			35,598			11,705			11,656		
	R^2 marginal	.002			.005			.006			.007		

Note: Est. = estimate; SE = standard error; log. = natural logarithm. Household net income was centered separately for East and West, using regional means. Analyses of M1 include annual data between 1990 and 2021. Analyses of M2 include annual data between 2002 and 2021.

in the East (see Appendix 11.5, M4). With sex as a moderator of the effect of the partner's job loss on the own life satisfaction, significant differences were found in the West with women suffering more from their male partner's job loss. In the East, there was no such difference between men and women. Therefore, H3 was also supported.

M2 of Table 11.1 includes the effect of the partner's job loss while controlling for a change of the household's main earner. Figure 11.3 illustrates the results of adding an interaction effect between the partner's job loss and becoming the main earner of the household to M2 of Table 11.1 (see Appendix 11.6 for exact results). For both West German and East German men, the decrease in life satisfaction because of their female partner's job loss was significantly buffered when the respective indirectly affected men became the main earners of their households. Therefore, H4 was confirmed: Becoming the main earner of the household was a protective factor for West German men. Additionally, the same held true for East German men.

Figure 11.4 shows the results of integrating the directly affected partner's life satisfaction as a mediator to indicate crossover effects. First, it is demonstrated that crossover effects were found for each group. The partner's life satisfaction influenced the own life satisfaction. Without controlling for the directly affected partner's life satisfaction, the own life satisfaction decreased significantly upon the partner's job loss in all groups except for West German men. However, the mediation analyses showed that in the cases of East Germans, the directly affected partner's life satisfaction fully mediated the effect of job loss on the indirectly affected partner's life satisfaction. In the case of West German women, we only found evidence of partial mediation, in that

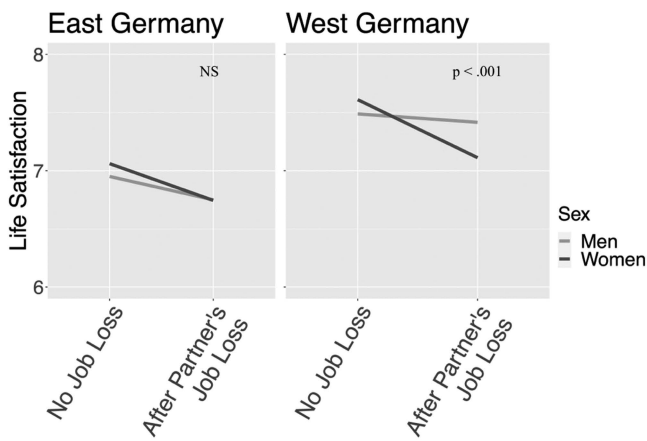

Figure 11.2 Sex moderating the effects of the partner's job loss on the own life satisfaction. Results of fixed effects that were estimated with the package *lme4* are presented. Exact results can be taken from Appendix 11.4. NS = not significant.

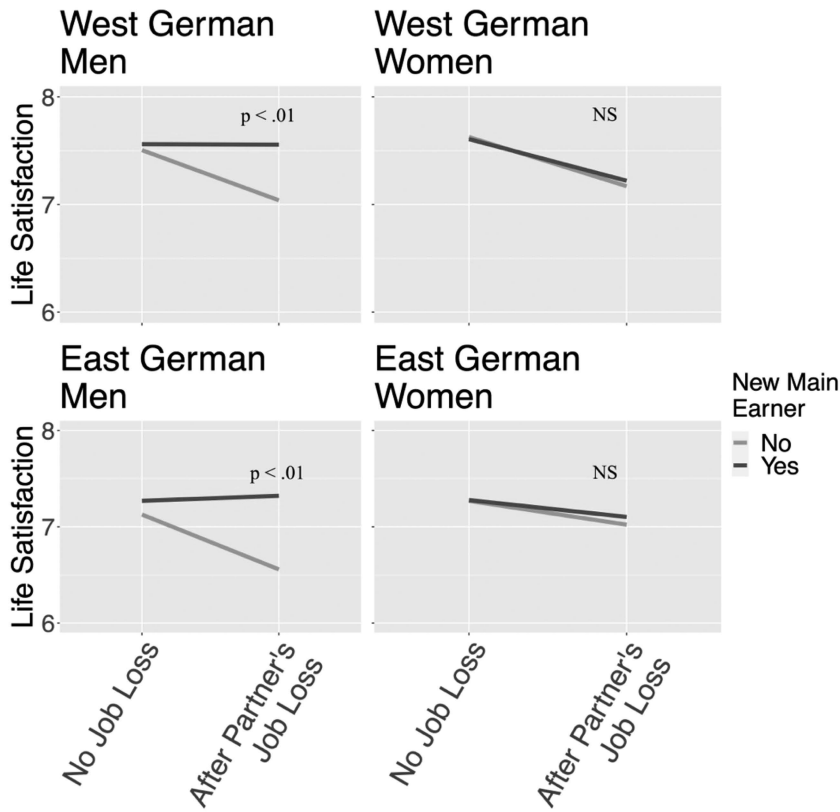

Figure 11.3 Interaction effects of partner's job loss and becoming the household's main earner on own life satisfaction. Coefficients of the interaction between the partner's job loss and becoming the main earner of the household (ref = not becoming the main earner of the household) are presented per group. Models can be found in Appendix 11.5. Control variables were household income, years of education, actual work hours, and children within the household. NS = not significant.

West German women's life satisfaction decreased even when controlling for their partner's change in life satisfaction.

Discussion

The goal of this chapter was to give further insights on the effects of job losses in partnerships with a focus on the indirectly affected partner. To this end, previous analyses that differentiated between sex and region in former Eastern or Western German states were replicated and expanded on by accounting for social employment norms that may differ between East and West Germans due to their history of division. By also implementing the directly

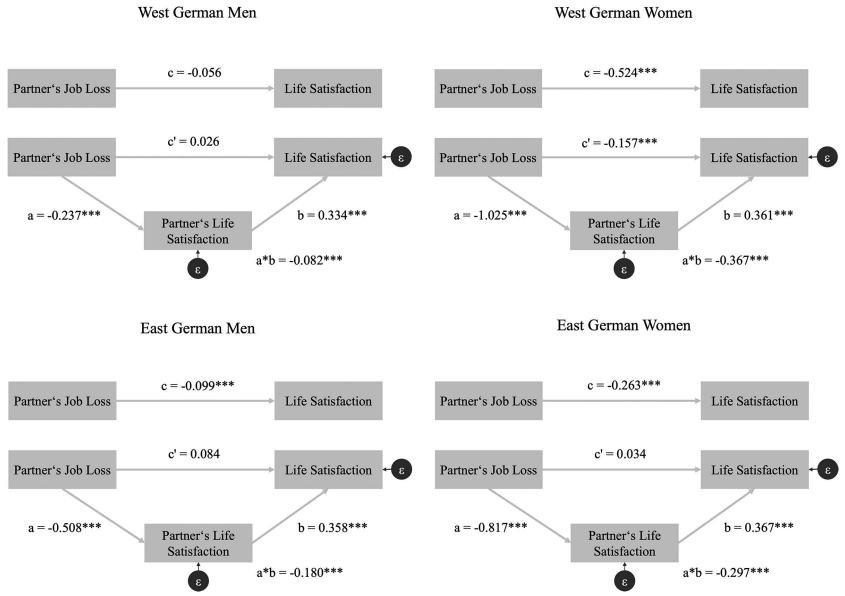

Figure 11.4 Mediation analyses implementing the directly affected partner's changing life satisfaction after losing a job. The package *mediation* was used to implement results of fixed effects that were estimated with the package *lme4*. Models control for the covariates, household income, years of education, actual work hours, and children within the household. For the mediation analyses, all missing values needed to be excluded. N = 48,212 West German men, N = 48,202 West German women, N = 18,476 East German men, 18,545 East German women were integrated.

affected partner's changing life satisfaction as a mediator, the question of whether crossover effects explained their partner's declining life satisfaction upon job loss or if spillover effects remained was examined.

In line with our first hypothesis, we found that East German women indeed contributed proportionally more to the total household net income than West German women. Thus, in West German households, reliance on male income within partnerships was more crucial. This finding indicated that full-time employment for women was more common in the East than in the West and that the model of the male as the main earner was more prevalent in the West.

Life satisfaction of the indirectly affected partner diminished with the partner's job loss in all groups, supporting our second hypothesis. West German men suffered least among the four groups, which could be explained by their lowest financial dependence on their female partner's income, or by alternative roles of female partners in childcare at home. According to social exchange theory, the relocation of the affected women's time to benefit the partnership exchange could buffer detrimental effects of their job loss on their partner's life satisfaction. Further research on the reallocation of

resources in partnerships after a job loss is needed that differentiates between the sexes and the geographic regions in order to test this assumption. Regarding gendered work roles, it could also be assumed that for West German women, the norm of being employed is the least pronounced among the four groups, leading to fewer sanctions.

Moreover, the gap between sexes in the change of life satisfaction after the partner's job loss was significantly smaller in East Germany, where men and women experienced almost the same impact. This finding supported our third hypothesis. Additionally, it lends support to the assumption of diverging gender work roles between East and West, which are accompanied by differing levels of financial contribution to the household from men and women.

For males in all groups, becoming the main earner of the household proved to be a protective factor, partially confirming our fourth hypothesis. It could be argued that West German men adhere to the social norm of being the family financial provider, which reduces gender role stress. It is possible that East German men have also internalized the view that men should earn more money than women. In line with our hypothesis, becoming the main earner of the household did not moderate the change in life satisfaction among indirectly affected women. To further test the importance of economic shifts within households after a job loss, future research should concentrate on the consequential financial changes in a more detailed way. Initial findings indicate that belonging to the highest household income quartile moderates the effect of the partner's job loss on the own life satisfaction: Members of the highest income quartile experience steeper declines in their life satisfaction upon their partner's job loss (Nikolova & Ayhan, 2019).

Regarding our fifth hypothesis, the directly affected partner's life satisfaction fully mediated the effect of the partner's job loss on the own life satisfaction in the cases of all East German men and women and West German men (H5a). In the case of West German women, we only found a partial mediation. Overall, we found indications for crossover effects rather than spillover effects for East German men and women as well as West German men, while a spillover effect could be assumed for West German women. Their life satisfaction decreased because of their partner's job loss even when controlling for the crossover effect caused by their partner's changing life satisfaction (H5b). This finding indicates that, indeed, West German women are more dependent on their male partner's continued employment. The assumption is first corroborated by the finding supporting H1 that West German men have been consistently contributing most of the household income, following the male breadwinner model. Second, as West German women contribute less to their household income, they are dependent not only on their partner's income financially but also in terms of their social status. By their male partner's job loss, West German women experience loss of status themselves. Assessing biomarkers and allostatic load, Präg et al. (2022) could show that downward mobility is associated with stressful experiences. Thus, indirectly affected West German women whose social status depends on their partners'

job should also experience the detrimental consequences of loss of status as well as loss of income. Third, it can be assumed that West German women also suffer from stigmatization when their partners deviate from the norm of being the primary financial provider. Direct stigma as well as stigma by association should further be included in research on unemployment and job losses. Lang and Gross (2019) have observed stigma consciousness in unemployed people. Stigma consciousness as well as experienced stigmatization might mediate effects of the partner's job loss. Because of the close relationship to a stigmatized person, people can be stigmatized themselves (Goffman, 1975) as was, for instance, shown in the cases of mothers of transgender children (Johnson & Benson, 2014). This concept could be conveyed to other instances of stigmatization by association such as unemployment of a household member. By testing this, it could be analyzed whether West German women's decrease in life satisfaction upon their partner's job loss emerges from their changing financial situation or from deviating from gendered work roles. Additional covariates and moderators should be implemented in future research to gain a clearer picture regarding job losses among West German men and the impact on other household members.

As thoroughly discussed in the theory section, unemployment is associated not only with a decline in life satisfaction but also with a range of (mental) health indicators that may lead to high financial costs for the German health care system (Weber et al., 2007). Additionally, interindividual transmission of life satisfaction and depressive symptoms between partners (Westman & Vinokur, 1998) as well as a similar negative impact on mental health for both partners (Marcus, 2013) have been observed. Therefore, aspects of mental health of the indirectly affected partner must also be considered. To improve both prevention and treatment interventions, it is essential to broaden the research on protective factors to include coping resources of the indirectly affected partner. To further capture the effects of emotional contagion within partnerships that experience a job loss, affective components such as happiness or sadness should be implemented in future studies. The differentiation between crossover and spillover effects should thereby be further clarified.

Future research could use large household panels like the GSOEP to analyze the regional effects of job losses on additional household members, especially children. While there is research with ambiguous findings on effects of a parent's job loss from China (Pieters & Rawlings, 2020) and the United States, this research is still scarce in Germany[5] and does not include regional disparities. Moreover, larger sample sizes could benefit by adding an additional age stratification. As gendered work roles are becoming more egalitarian over time (Lois, 2020), consequences of job losses within partnerships might also rely on both partners' ages. However, proportional contributions to the household income (see Figure 11.1) converge only slowly. It is thus likely that egalitarian attitudes

increase more rapidly than female incomes. This leaves the economic dependence on the male partner's income.

Strengths and limitations

This study benefited from a large household data set. Without such a large sample, the combination of region, the information on one's partner, and a job loss within a romantic relationship would have been problematic. By integrating the partner's life satisfaction as a mediator rather than a confounder, an important addition to existing literature on the topic of intradyadic effects of job losses was made.

Aspects of the quality or the duration of the relationship between respondents and their partners could not be controlled for, as they were not included in the survey. However, such aspects could be of great importance regarding the extent of emotional contagion or as buffering factors. Moreover, it is not only mechanisms such as emotional contagion that influence similarity of romantic partners; other aspects such as shared experiences or resources might also lead to covariation within dyads. Methods for dyad level modeling would allow integrating covariations within (Gates & Liu, 2016). Since the sample was limited to heterosexual couples, the results were constrained in regard to generalizability. Panel attrition might have led to a composition bias, especially as it was found that unemployed respondents as well as those with low levels of life satisfaction are inclined to drop out of a panel (for an overview of panel attrition of the GSOEP, see Siegers et al., 2020). However, the GSOEP frequently implements refreshment samples to enhance representativity. With regard to the questionnaire, subjective life satisfaction was measured using a single-item scale, which suffers from lower reliability compared to multi-item scales (for a review, see Diener et al., 2013).

Conclusion

The analyses presented in this chapter confirmed previous findings that job loss influences life satisfaction not only of the directly affected person but also of their partner. However, in the case of Germany, the findings within this chapter showed that with one exception, this effect could be explained by the change in life satisfaction of the directly affected partner, leaving only crossover effects of job losses within partnerships. Only West German women's life satisfaction decreased because of their male partner's job loss in addition to the effect of their partner's attenuated life satisfaction, indicating an additional spillover effect. Thus, social norms regarding male employment, loss of status, or the higher economic dependence on the male partner's income might be more influential for this group. More traditional gendered work roles should be more prevalent in West Germany, as becoming the

household's main earner turned out to be a protective factor for indirectly affected West German men who then followed the corresponding social norm.

Authors' note

Appendixes mentioned in this chapter and additional supporting materials are freely available at www.routledge.com/9781032547763.

This research was funded by the Federal Ministry of Education and Research (BMBF; grant number 01AJ1911AY).

The data to support the findings of this study are openly available in the repository of the German Socio-Economic Panel at http://doi.org/10.5684/soep.core.v38eu.

The authors have no conflict of interest to declare.

Notes

1 Previous research showed that panel attrition due to partnership dissolution does not affect the results on job losses within partnerships (Nikolova & Ayhan, 2019).
2 Analyses by the authors that distinguished between voluntary or involuntary job loss showed that there was no significant difference in predicting life satisfaction, which is why all job losses except for the aforementioned were included.
3 As some household members refused to participate in the survey, the real number of children under 14 within the household might differ.
4 Household incomes could further consist of other household members' incomes or passive incomes.
5 One exception is the finding that for some age groups parental unemployment leads to lower life satisfaction of children later in life (Nikolova & Nikolaev, 2021).

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