Gender, Intersections, and Institutions

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More than twenty-five years after the collapse of the Berlin Wall, the East-West divide remains salient in Germany. When the German Democratic Republic (East Germany) and the Federal Republic of Germany (West Germany) unified in 1990, citizens of the former East Germany became a minority group in their own new nation. Forty-one years of separation by the Iron Curtain led to substantial economic, political, and cultural differences that did not simply disappear when the two Germanys unified (for a range of examples, see Noak 2014). With its much smaller population and its communist history, East Germany was positioned politically and culturally as the backward and underdeveloped little sister in need of help. Eastern Germany has blossomed since unification, leading some commentators to refer to the region as having experienced an economic miracle (Mauk 2014). However, while eastern and western Germany have become considerably more integrated over time, in part because of substantial migration of eastern Germans to western Germany, patterns of inequality across the former East-West border have persisted. Eastern Germans have struggled to assert their political voice and their cultural presence.

One of the major outcomes of German unification was the sudden introduction of unemployment in eastern Germany. Socialism guaranteed a job for every able-bodied adult, but with the introduction of capitalism, many enterprises were shuttered or substantially reorganized. The crisis
of unemployment was not limited to just the years immediately following unification; in fact, unemployment in eastern Germany soared as high as 20 percent more than a decade after unification. Even today, the unemployment rate in eastern Germany is nearly double that in western Germany.

In this chapter, I examine how eastern German women have resisted limited occupational opportunities since unification as a consequence of their gender and regional minority status (see box 8). I begin by briefly reviewing the general terrain in which eastern German women have sought to maintain and expand the employment rights they enjoyed during the socialist era. I then hone in on women’s access to careers in the fields of science, technology, engineering, and mathematics (STEM), in which women were well represented in East Germany but in which their representation after German unification was seriously threatened. I analyze how eastern German women have worked to maintain their participation in STEM fields and to bring a new generation of women into STEM through grassroots activism that involves both educational outreach to women and girls and a critique of political discourses and priorities.

**Theoretical Perspectives**

Research on women’s representation in STEM is extensive and typically focuses on efforts by educational institutions/systems or employ-
ers to improve women's chances in STEM fields. This analysis describes and analyzes feminist organizing around STEM in eastern Germany; it does not identify pathways in or out of these fields. Eastern Germany presents an interesting case where sustained grassroots effort has sought to maintain women's involvement in STEM, specifically through the creation of community-oriented education and outreach programs targeting women and girls. Furthermore, eastern Germany is a rare case in which women are struggling not to get into STEM occupations (generally the focus of EU initiatives) but rather to stay there. Since retention is a key issue in the literature on gender and STEM, the case may offer insights useful for other contexts. I focus specifically on STEM because it offers a window into a set of fields in which women's exclusion since unification has been especially pronounced; because women's organizing around STEM has followed a different pathway in eastern Germany than in the United States and other Western democracies, where the focus is on educational and labor law reform; and because women are seeking to maintain their standing rather than enter into a previously male-dominated field.

Throughout my analysis, I utilize an intersectional lens that attends to eastern German women's experiences as both women and as members of a lower-status regional minority group. The intersection of gender and regional minority status has influenced not only eastern German women's possibilities for participation in the labor market generally and in STEM fields specifically but also their efforts to resist exclusion from these fields. An intersectional perspective considers how individuals and groups occupy social locations that involve multiple systems of structural inequality (Collins 2008). Thus, an intersectional perspective recognizing eastern German women's marginalization specifically as eastern German women illuminates their labor market struggles since 1990. Their experiences—and their resistance—cannot be fully comprehended solely through a gender lens or through a lens focused on East-West dynamics. Instead, eastern German women's postunification struggles make sense only in light of how their gender identity intersects with their status as a politically and culturally marginalized group. While they share some interests and experiences both with eastern German men and with West German women, eastern German women occupy a distinct social location that has created specific obstacles and opportunities vis-à-vis the labor market and their capacity to participate in—and change—political and cultural life.
Sources of Evidence

My analysis here relies on data from fieldwork with feminist organizations in eastern Germany, reports from sixty-two participants in my research on feminist organizing in postsocialist eastern Germany, and secondary data that include reports produced by government agencies and nongovernmental organizations about women’s status in eastern Germany since 1990 (Guenther 2010). The broader study from which I draw focuses on feminist organizing in eastern Germany since 1990, not specifically on women’s employment issues or STEM. However, employment issues generally and women’s push out of STEM fields in particular emerged as among the top priorities of the postunification feminist movement in eastern Germany, along with efforts at combating violence against women and girls. I thus extract important insights from this data about feminist organizing and STEM.

Tracing Gender and Labor in Postunification Germany

German unification in 1990 brought immense changes to eastern Germany, including the replacement of a socialist system of governance and economy with a capitalist, democratic system. One of the most significant consequences of German unification for eastern Germans has been unemployment and underemployment. Rising unemployment was the consequence of several processes, especially the closing and/or restructuring of enterprises owned by the East German state, some of which were obsolete by western standards. Over the next decade, unemployment stabilized through a combination of private and state capital investment in eastern Germany, state-funded employment and retirement programs, and the migration of eastern Germans to western Germany and other parts of Europe with more promising job opportunities. Still, at around 13 percent, unemployment in eastern German states in 2016 remained nearly double that in western German states.

Unemployment has been especially challenging for eastern German women because it has been accompanied by the introduction of unfamiliar (and largely unwelcome) policy and cultural practices about gender and labor. Whereas the East German state promoted women’s labor force participation and celebrated women’s roles as workers and mothers, the West German state emphasized women’s contributions as mothers and had little interest in promoting women’s workforce participation. At the time of unification, more than 80 percent of East German women between the ages of
eighteen and sixty-five were engaged in paid labor; in contrast, just under half of West German women worked outside of the home, and they had much higher rates of part-time employment (Duggan 2003). Marked differences were also present across the border in total time spent in paid labor during the lifetime, rates of participation in child care programs, and financial contributions to households (Guenther 2010).

This is not to suggest that all East German women were happily employed. Employment in East Germany was a mandate, not a choice, and while all East Germans were guaranteed employment, they did not always have the privilege of choosing their own careers, and they could not readily opt out of the labor market. In the socialist period, workers were assigned into career trajectories. Educators and state representatives assessed each individual’s preferences, talents, commitment to the socialist party (having a close relative who had defected to the West was one way to ensure an undesirable work assignment), and employment needs before pushing young people down specific career paths. Gender unofficially factored into work assignments, although at least in principle, women had access to the same career possibilities as men and had substantially higher representation in many male-dominated fields than in the West. (A notable exception was state leadership, which remained almost entirely a man’s world.) East German women were professors, trash collectors, doctors, farmworkers, and streetcar drivers.

In East Germany, women were well represented in many STEM fields. The East German educational system followed the Soviet model in many key respects, including making polytechnical schools central. In these polytechnical schools, students studied primarily language, sciences, and sports, and their education was closely integrated with workplace experience, with older students spending one day per week at a workplace. Following the completion of the polytechnical high school degree, many students spent two or three additional years pursuing vocational degrees. Admission into universities was very selective, and many students who enrolled did so only after participating in the formal labor market for several years and receiving supervisors’ recommendations for university study.

Under constant pressure to meet production goals and to match Western technologies, the East German educational system stressed technical and scientific education as critical to the socialist state. Women’s integration into a diverse range of occupations seemed the best path to addressing these pressures. Women thus completed the physical and technical labor involved in agriculture (several of my respondents worked in animal hus-
bandry and agricultural science). They also were not discouraged from attending university if they showed the necessary aptitude. In East Germany, women constituted half of all students in medicine, the natural sciences, and mathematics (Rudolf, Appelbaum, and Maier 1994). In one examination of the university experiences of computer science students, women reported high levels of satisfaction with their training, noting an absence of gender discrimination in educational settings (Augustine 1999).

After graduation, women in STEM fields found a labor market generally open to including them across occupations but where they encountered segregation and discrimination once they were on the job. In her fascinating analysis of the relationship between science, technology, and communism in East Germany, Dolores Augustine (2007) finds that in many STEM fields, especially engineering, women were more likely than men to resent being pushed into the occupation—sometimes because they wanted to avoid the gender bias of the field into which they were assigned, and sometimes because they sought more feminine-type jobs, such as teaching preschool. They also had difficulty excelling in the field of engineering while also mothering. Compared to men, women reported lower rates of extra/overtime work, which they viewed as necessary to excel in the field, and expressed a greater unwillingness to take on managerial roles, which were generally more tied to the politics of the ruling party. Thus, although women were far better represented among engineers in East Germany than in West Germany, they rarely attained professional prominence and seem to have experienced discouraging gender-based workplace processes with some frequency. Across East German industries, women made up only 2.3 percent of supervisors and managers, including lower-level supervisory personnel. Thus, East German women encountered relatively low ceilings on their occupational status and remained heavily clustered in nonsupervisory roles.

Though women’s participation in STEM was far from equal in many ways, it was far more extensive than in West Germany, where women and girls were encouraged to pursue mothering as their primary contribution to postwar society and where technical occupations were constructed as particularly unsuitable for women. Thus, while labor market segregation still existed in the German Democratic Republic, it was far less pronounced than it was in capitalist countries, including West Germany. As women’s paid labor force participation increased in West Germany in later in the twentieth century, so did women’s representation in STEM fields, but women remained a minority and reported being discouraged by men-
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In 1989 in West Germany, 30 percent of recipients of college degrees in natural sciences and 7 percent of degrees in engineering went to women; in contrast, in East Germany, women received 52 percent of degrees in the natural sciences and 28 percent in engineering (National Science Foundation 1996). Thus, women appear to have reached educational parity with men in the natural sciences in East Germany and were faring far better than West German women in engineering.¹

German unification brought the West German model of gender relations to eastern Germany. Coupled with the closure of many former East German enterprises, this resulted in many women being pushed out of the labor market. Workers in STEM fields struggled because the technology available in East Germany was often underdeveloped relative to what was available in West Germany. Many STEM workers lost their jobs because their workplaces were shut down or were reorganized to eliminate what western Germans saw as bloated organizational structures with more workers than were needed to complete tasks. In the wake of mass layoffs in eastern Germany, some STEM workers were retrained into different occupations. Such retraining was often executed in gendered ways. In Mecklenburg-Vorpommern, for example, the European Union funded a program that retrained women agricultural scientists whose areas of specialization ranged from veterinary health management to plant science to become florists.

Some women scientists who had felt coerced into their occupations in East Germany chose to leave their careers when the opportunity arose. German unification caused a major contraction of full-time, permanent positions in eastern Germany but introduced a spate of shorter-term opportunities, including ones that involved substantial retraining and reeducation. While U.S. feminist discourse universally understands women’s representation in STEM fields as a good thing, in eastern Germany, the relationship between women and science careers was more ambivalent because women felt forced into those fields. About one-third of the roughly sixty feminist activists I interviewed had worked in STEM fields before unification; after unification, only two of them remained in a STEM field, and both left their original areas for different aspects of STEM education. These data should not be taken as representative, because my sample included feminist activists rather than women who worked in STEM before unification, but my data certainly illustrate that not all STEM workers sought to remain in their same field after unification. (The best-known woman defector from STEM fields is German chancellor Angela Merkel,
who holds a doctorate in chemistry and spent twelve years working at the East German Central Institute for Physical Chemistry, which she left very quickly after German unification to pursue a career in politics.

Still, eastern German women retained a staunch commitment to women’s participation in STEM and were particularly concerned about the need for eastern Germans to catch up on technological developments to remain employable. In 1990, a western German government advisory council was tasked with evaluating eastern German research institutes and facilities, many of which were subsequently shut down or reduced in size; those that remained had to upgrade equipment and technology, particularly computers, and scientists seen as too allied with the East German ruling party were dismissed. Ideology and economy intersected in ways that damaged almost all eastern German scientists but did so in specifically gendered ways. East German men were more likely to be members of the ruling party, which facilitated their rise into supervisory positions. This meant they were also most likely to be identified as ideologically tainted by western Germans and thus removed from their positions during and immediately following unification. Women, conversely, faced high rates of employment termination because they were lower-level workers more likely to be considered redundant or inadequately trained by Western standards (mainly because of lack of access to technology). Because of their supervisory experience, male scientists apparently had more success reinventing themselves and finding new positions after being let go from jobs they held in the German Democratic Republic, whereas women encountered a gender bias that made such reinvention more challenging if not impossible.

In the postunification labor market, women who sought to become competitive in STEM fields needed skills in previously unfamiliar technologies, especially computing. East German computer systems lagged behind what was available in the West, and East Germans outside of computing fields had little experience either working with computer programs or programming computers. This affected not only computer scientists but any STEM (or other) workers whose jobs involved the use of computers, including lab scientists, health workers, agricultural workers, and others who needed to input and/or analyze records or other forms of data. Thanks in part to economic incentives offered by the German federal government, some western German technology companies branched out into the eastern German states, bringing with them the types of workplace practices and technological know-how associated with Silicon Valley. Workers in eastern Germany were initially ill equipped to capitalize on job oppor-
tunities in the technology sector because of their lack of preparation and familiarity with relevant technologies.

In spite of the substantial challenges faced by eastern German women in STEM, including gender bias and discrimination, lack of affordable child care, and the need for additional training in some fields, there is good reason for optimism that eastern German women will remain better represented in STEM fields than their western counterparts. Riegel-Crumbe and Moore (2013) found that, in the United States, local variations in women’s representation in STEM occupations is correlated with girls’ involvement in high school physics. Specifically, in those communities where women are well represented among STEM workers, girls are also more likely to be involved in high school physics. National-level studies have shown similar trends, suggesting that women’s representation in STEM fields opens up pipelines, offers role models, and creates positive cultural constructions. We would thus expect that women’s and girls’ involvement in STEM will remain higher in eastern Germany than in western Germany because of the legacy of women in STEM there. Indeed, eastern German women continue to obtain engineering degrees at substantially higher rates than do western German women even twenty-five years after unification.

East German women have demonstrated labor market perseverance in general and in STEM fields in particular, specifically seeking to challenge some of the key barriers to success (Adler and Brayfield 1997). Unwilling to be pushed back into the home, eastern German women have struggled to assert their right to equal employment opportunity, challenged gender discrimination in the workplace and in federally funded employment programs, and celebrated their history of labor market participation. In so doing, they have often engaged with the state, availing themselves of state resources and sometimes pushing for changes in policy to enhance their opportunities.

This has occurred primarily through women’s organizations (Frauenvereine) that both offer services to women and engage in political action to support women’s interests. While a small number of women’s organizations predated the collapse of the Berlin Wall, most of these organizations sprang up between 1989 and the mid-1990s, capitalizing on the energy and optimism of that time. Cities and even larger towns in eastern Germany saw the rise of battered women’s shelters; rape crisis centers; women’s resource centers; support services for women entrepreneurs, disabled women, and immigrant women; and other types of women’s organizations.
These groups have banded together into larger women's lobbies that advocate policy changes at the municipal, state, and federal levels. Their successes have been incremental: to date, there has been no federal legislative effort to support women in STEM but rather piecemeal state funding and EU directives that may enhance girls’ and women's technical education.

The major site for organizing and action around women and STEM in the immediate unification period occurred in feminist organizations, and a notable feature of the feminist landscape has been its inclusion of grassroots efforts to maintain and increase girls’ and women’s participation in STEM. Every eastern German city of one hundred thousand or more residents (as well as some smaller towns) has a feminist women's technology center (Frauentechnikzentrum), where women (and usually girls and sometimes men and boys) can learn about computers, semiconductors, robotics, and other technologies. Berlin, Cottbus, Dresden, Erfurt, Greifswald, Halle, Leipzig, Rostock, and Schwerin are among communities in which feminist centers focused on women’s technology education emerged in the early 1990s. In larger cities, it is not uncommon to find multiple feminist organizations focused on promoting women’s involvement in specific STEM fields. Leipzig, for example, has been home to a women’s technical center as well as an organization focused on teaching women about agricultural sciences.

While their offerings vary, all signal to their participants and the broader community that women should have scientific and technical skills and should be welcomed into STEM fields as students and employees. This particular form of organizing around women’s representation in STEM is unusual. In the United States, western Germany, and most other Western democracies, STEM organizing takes place in educational settings. In most Western industrialized nations, educational institutions are widely seen as the primary site responsible for changing the proportions of boys and girls and women and men in STEM. In these contexts, then, parents, policymakers, grant makers, and sometimes students themselves have called on educational institutions to encourage girls and young women to take classes in STEM fields. Fairs, courses for girls or young women only, and individual and small-group counseling and mentoring are among some of the more common forms of educational interventions aimed at increasing participation in STEM by girls and young women.

While schools and universities in eastern Germany also engage in these activities, much of the organizing to promote girls and women in STEM fields occurs outside of formal institutions and instead within grassroots feminist groups. Understanding this pattern of feminist mobilization
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around STEM (and the labor market more generally) in eastern Germany necessitates considering the intersection of regional minority status and gender. Eastern German women were shut out of the unification process and thus developed alternative institutions through which to resist the introduction of the western German gender order. Eastern German women felt especially silenced as western German women’s eagerness to mobilize to protect East Germany’s abortion policies quickly eclipsed eastern German women’s multifaceted concerns about unification. Eastern German feminists were also influenced by the West German model of autonomous, grassroots feminist organizing; although this model is not used in western Germany to promote women in STEM (in part because this issue has only very recently begun receiving attention from western German feminists), eastern German women adapted it for this purpose.

There is substantial diversity in the size and scope of eastern German feminist organizations working to increase women’s participation in STEM fields; still, they have several features in common. First, feminist organizations working to increase women’s representation in STEM fields were founded and usually are still directed by women who identify with feminist goals. This stands in contrast to many university-based STEM initiatives in Germany and the United States, where explicit connections to feminism are often minimized in favor of more general appeals to equality of educational opportunity and the improvement of the technology sector. Grassroots feminist organizations working to increase women’s and girls’ participation in STEM fields in eastern Germany, in contrast, emphasize a feminist critique of current gender relations that highlights the connections among women, work, and gender inequality. They stress that education is tied to economic empowerment, which in turn is tied to independence from men. Many women’s technical centers have mission statements that directly invoke a commitment to gender equality and family-friendliness in the workplace. They further link women’s education to women’s political and economic empowerment by routinely reminding participants that employment is a pathway to greater power and lower gender inequality at both the individual and family levels and within the society as a whole. Organizations largely operating outside of the state then turn around and encourage girls and young women to find their political voice, a phenomenon that reflects the ambivalence many eastern German feminists feel about the state. They see it as hostile to feminist interests and specifically to eastern German women but also as the best site for redress for gender inequality.
Second, building off of their interest in the empowerment of girls and women, grassroots feminist organizations seeking to help prepare women for careers in STEM employment simultaneously encourage civic engagement and community building. Feminist organizations connect STEM education to civic and political involvement. That is, STEM educational classes not only constitute a forum for learning about a specific technology but also offer a hidden curriculum (Bourdieu and Passeron 1977) that focuses on encouraging women to participate in political life for the benefit of women. Feminist STEM organizations are usually part of broader coalitions that take direct political action, including lobbying around issues such as educational opportunity, day care access, and worker protections.

An after-school program for preteen girls that focuses on engineering and physics, for example, also includes content about girls’ bodily autonomy, and exercises are often set up in ways that emphasize girls’ empowerment. Another group project involved visiting the state capitol buildings in Erfurt and using course material to develop knowledge of the speed of sound and acoustics by measuring how sound traveled in different areas of the building. The exercise was tied to a theme of girls’ voices and how to increase their volume in the building—a hidden curriculum about political engagement and empowerment.

Third, feminist organizations offering STEM education highlight eastern German identity. They maintain discourses that stress that women students are catching up—or even outpacing—western Germans and are building on the East German history of women in STEM fields. Such organizations routinely bring in older eastern German women STEM workers to talk about their experiences or to help with instruction. All of the staff I met at such organizations were women who had worked in STEM fields in East Germany, although not necessarily the same fields in which they were now giving instruction. They talk about their experiences in their workplaces in East Germany and emphasize how eastern German women have long been a part of STEM fields. Women’s involvement in STEM is discussed in terms that emphasize eastern German women’s history of success. Women’s technical centers highlight the contributions of eastern German women scientists and frame STEM education as a project that has important implications for local identity. Through these various discursive strategies, staff and volunteers at feminist STEM educational organizations counter gender essentialist notions more common in western German discourse, such as the idea that women do not belong in STEM fields or that women lack the aptitude for successful careers in these areas.
The emphasis on the East German history of women in STEM is not framed as a nationalist project. Rather, it is carefully framed to be inclusive. That is, eastern German identity is not seen as fixed or essentialized; instead, women’s organizations take pride in the legacy of women in STEM and see eastern Germany as more open to including women as well as immigrants in STEM fields. The legacy is tied primarily to the place rather than to the people. There is no assertion that eastern German women are culturally or biologically better equipped for STEM work than other types of women; rather, the idea is that East German socialism opened doors that should not now be shut in the face of any woman, including western German women. Activists also note that the East German educational system prided itself on producing structured, organized, and diligent workers, and East German scientists often contended that the lack of technology meant that they developed stronger foundational skills than their West German counterparts and thus became better employees (Augustine 1999). Highlighting the accomplishments of East German women in STEM fields emphasizes the structural opportunities they had and pushes for the reintroduction of those structures. Unsurprisingly, to this end, staff at women’s technical centers also are usually active in pushing for legal changes that support women’s employment opportunities more generally.

Fourth, organizations working to maintain women’s foothold in STEM fields generally rely heavily on funding from state agencies. To cope with high rates of unemployment in the 1990s, the German government sought to prioritize education and training, hoping to provide eastern Germans with skills needed to succeed in the labor market. The European Union (EU) has also worked to support economic development in eastern Germany, particularly through the EQUAL Initiative, which was funded by the member states and the European Social Fund and which supported efforts at reducing disadvantage in the labor market (see European Union n.d.). EU expenditures in eastern Germany were cut back when other postsocialist member states joined the EU and demonstrated greater need for support. Whereas western German feminists often sought to maintain autonomy from the state, women’s organizations in eastern Germany seek out state support and use these monies to fund staff positions, specific educational programs, and equipment purchases. This funding has allowed the longer-term survival of these organizations and in some cases has facilitated expansion into more rural areas. The Women’s Technical Center in Rostock, for example, used EU funding to create and implement computer technology courses for women living in rural villages.
Finally, organizing around STEM education has changed over time in eastern Germany in response to two pressures. First, grassroots STEM education projects reflect the demands of the labor market. I found little to no evidence, for example, of educational efforts focused on higher-level math skills for girls or women, apparently because such skills do not translate directly into greater employment chances. Nor did I encounter a grassroots feminist interest in promoting women’s entrance into faculty positions in STEM fields: such jobs are seen as too scarce to be realistic targets, especially against a backdrop of limited resources. However, courses and support services dealing with computer skills, including computer programming, engineering and technology (especially as they pertain to semiconductors, a large industry in eastern Germany), biotechnology and alternative energy, and biochemistry and pharmacology, are much more widespread. Feminist organizations’ educational efforts thus focus on those STEM fields for which there is labor market demand.

Second, grassroots feminist groups in eastern Germany typically depend on state funds and thus face pressure from the funding agencies. In the early 1990s, local-level state agencies that were familiar with the organizations and the people running them were typically responsible for distributing funds to feminist groups. By the mid- to late 1990s, however, funding was increasingly coming directly from the EU, with allocations made by EU workers with limited familiarity with local feminist organizations (Guenther 2010). As funding became increasingly delocalized, it also became increasingly focused on computer training, especially the use of common computer programs such as Word and Excel. Such training prepares women for administrative office jobs but is not necessarily a pathway into technical occupations, and many staff in feminist STEM organizations expressed concern and disappointment about these directions. EU funding sought to support job market participation, not necessarily to promote women in all STEM fields.

In the 2000s especially, the EU began taking an active interest in gender mainstreaming, particularly in STEM, a development that pressured German scientific associations and government bodies to begin examining the gender gap. However, these efforts have not yet produced notable advances for women: as of the early 2010s, EU efforts focused on discussion and nascent planning, overwhelmingly stressing the human resources aspect of gender-segregated workplaces rather than adopting a feminist perspective focused on women’s empowerment and gender equality (Abels 2012). Thus, while the EU’s emphasis on gender mainstreaming has often created
discursive and funding opportunities for women’s organizations working on STEM, the EU initiatives alone have not brought about major change in the composition of STEM workers.

In summary, women in eastern Germany thus have resisted being pushed out of the labor force generally and out of STEM fields specifically. This resistance has largely appeared outside of the state, even as different levels of the state continue to be involved in the effort, particularly as funding sources. Rather than pursuing electoral or lobbying strategies, women’s commitment to maintaining a strong foothold in STEM fields has occurred primarily through grassroots organizing that offers girls and women the opportunity to learn about STEM fields in supportive, pro-woman environments. These environments also promote women’s broader empowerment, linking their career choices to economic independence from men. Such organizing at times targets or invokes the state, especially when grassroots feminist organizations address STEM issues within the context of coalition-based women’s lobbies or when they work to empower the next generation of eastern German women to find and use their political voices. This has been most visible through advocacy by the state-level women’s political lobbies (Landesfrauenräte) in eastern Germany, which have sought to maintain funding streams for programs promoting women and girls in STEM. Through coalitions and as individual organizations, feminist groups have also sought out state officials responsible for overseeing gender equity issues (Gleichstellungsbeauftragte) within cities and local states. These state officials often have control over local funding streams and can use their political clout to push other policymakers to recognize social issues. Especially in cities and states where the Left Party (formerly the Party of Democratic Socialism) and Social Democratic Party have been in power, feminist STEM organizations have found state officials to be useful allies. However, the dominant trend is that eastern German women seek to maintain their representation in STEM through local-level grassroots organizing that seeks to empower and educate girls and women about STEM careers.

Conclusion

Eastern Germany is one site in which STEM has become the subject of grassroots feminist organizing. My data do not speak to the longer-term outcome of such efforts, such as their effects on girls and women, but grassroots feminist efforts appear to be important elements of STEM education
in many contexts, and both employers and policymakers perceive these efforts as successful. One elected official with whom I spoke conveyed a common feeling when she stated, “Eastern German women have clung to their jobs with their fingernails and insist that they not be shut out of technical occupations.”

Eastern German women’s commitment to careers in STEM fields reflects their experiences under socialism, when STEM occupations were open to them and their contributions as workers were socially valued, as well as the continued maintenance of East German–era gender ideologies. Abruptly pushed out of the labor force, eastern German women have sought to maintain their labor market presence and to challenge the sexist assumption that women lack the intellect or commitment to succeed in STEM fields. Eastern German women thus reject key elements of western German gender ideologies, and their efforts at maintaining their presence in STEM fields is one form of resistance against the new gender order accompanying German unification. This likely explains why so much feminist organizing in eastern Germany has focused specifically on girls and women in technology: transmitting eastern gender ideologies across generations and maintaining women’s participation in STEM reflects a broader resistance to the introduction of the western German gender order in eastern Germany.

Eastern German women’s resistance to being pushed out of STEM fields also reflects their social location specifically as eastern German women. Many experienced the unification process as politically disempowering and turned their organizing efforts away from the national/federal state and toward grassroots projects grounded in the local, which offered a more stable and open climate for mobilization (Guenther 2006). Marginalized as women and as regional minorities, their concerns and experiences have been largely ignored by both the mainstream political establishment and the media. This has hampered efforts to improve the overall chances for women in the labor market in the unified Germany and has pushed them away from state-oriented political action in favor of locally based grassroots initiatives. Reflecting their complex relationship with the state, these grassroots groups receive most of their funding through state agencies, including local state offices and the European Union, which eastern German feminists widely view as more open to and concerned about gender issues than the federal state. To date, these groups have had little impact on the policy landscape at the national level, but their efforts appear to promote awareness about issues facing women and girls in STEM among
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eastern German policymakers, especially at the level of municipalities and states.

Measuring the outcomes of grassroots feminist organizing around STEM is a direction for future research. Do feminist organizations serve as important gateways for girls and women from disempowered groups to develop STEM knowledge? Do they provide girls and women with tools to negotiate STEM workplaces? Are there advantages (or disadvantages) for STEM advocacy and education within feminist organizations relative to formal educational institutions and policy agencies? Feminist organizing around STEM warrants further investigation to better understand when and why such efforts emerge, what they accomplish, and if and how they contribute not just to increasing girls and women from marginalized subgroups’ involvement in STEM fields but also to broader feminist projects. An intersectional lens will continue to be important in such efforts because the opportunities women have and the strategies they adopt reflect intersecting systems of structured inequality and privilege.

NOTE

1. These data of course do not speak to within-occupation segregation after degrees are completed. Among natural scientists in East Germany, women were especially widely integrated as agricultural scientists, but their representation in traditionally male segments of technological innovation such as military research was low.

REFERENCES


