

Chadi, Cornelia; Jirjahn, Uwe

**Working Paper**

## Does society influence the gender gap in risk attitudes? Evidence from East and West Germany

Research Papers in Economics, No. 1/19

**Provided in Cooperation with:**

University of Trier, Department of Economics

*Suggested Citation:* Chadi, Cornelia; Jirjahn, Uwe (2019) : Does society influence the gender gap in risk attitudes? Evidence from East and West Germany, Research Papers in Economics, No. 1/19, Universität Trier, Fachbereich IV - Volkswirtschaftslehre, Trier

This Version is available at:

<https://hdl.handle.net/10419/207033>

**Standard-Nutzungsbedingungen:**

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

**Terms of use:**

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*

Does Society Influence the Gender Gap  
in Risk Attitudes? Evidence from  
East and West Germany

Cornelia Chadi  
Uwe Jirjahn



# **Does Society Influence the Gender Gap in Risk Attitudes?**

## **Evidence from East and West Germany**

Cornelia Chadi

*University of Trier*

Uwe Jirjahn

*University of Trier, GLO and IZA*

**Abstract:** Previous international research has shown that women are more risk averse than men. This gives rise to the question whether the gender gap in risk attitudes is shaped by the social environment. We address this question by examining risk attitudes among East and West Germans. Originated from different family policies during Germany's separation, East Germans have more equal gender roles than West Germans. Thus, if the gender gap reflects socially constructed norms, it should be smaller among East Germans. Using data of the German Socio-Economic Panel (SOEP), our empirical analysis confirms this prediction. Specifically with respect to career and financial matters, the gender gap in risk tolerance is smaller among East Germans. We find no evidence that the East German gender gap has converged to the higher West German level after reunification. By contrast, the West German gap has narrowed over time.

**JEL:** D91, J16, P51.

**Keywords:** Risk Preferences, Gender Roles, Nurture, Family Policy.

**Corresponding Author:** Uwe Jirjahn, Universität Trier, Fachbereich IV, Lehrstuhl für Arbeitsmarktökonomik, Universitätsring 15, 54286 Trier, Germany, Email: jirjahn@uni-trier.de

## **1. Introduction**

In modern times, gender equality is a key topic in the family policy debate in many countries (European Commission 2016, United Nations Human Rights Council 2011, United Nations Office at Geneva 2016 and World Bank 2012). However, men and women appear to differ on average in many personality traits and preferences (Bertrand 2011). Specifically, this applies to risk attitudes (see Croson and Gneezy 2009 and Eckel and Grossman 2008 for surveys). Both experimental examinations (Agnew et al. 2008, Böheim and Lackner 2015, Borghans et al. 2009, Charness and Gneezy 2012, Powell and Ansic 1997) and survey studies (Dohmen et al. 2011, Hartog et al. 2002) show that women are more risk averse than men. Closely related to this, psychological research demonstrates that women experience stronger emotional reactions to risky situations. Women report more nervousness than men in anticipation of negative outcomes (Brody 1993, Fujita et al. 1991). While women tend to feel fear, men tend to feel anger when facing adverse outcomes (Grossman and Wood 1993).

Risk preferences play a role in almost every important economic decision. They influence decisions about saving, consumption, investment, occupation, career, bargaining strategy, migration and even fertility.<sup>1</sup> As risk preferences are one of the most crucial parameters in economic decisions and everyday life, a higher degree of risk aversion can have far reaching consequences to women. All around the world, women appear to earn less than men (Blau and Kahn 2003, 2017, Christophides et al. 2013, ILO 2015, OECD 2018). They sort into different occupations than men (Blau et al. 2013) and have a lower probability of holding an executive position (Malmendier and Tate 2009). While a series of factors such as discrimination certainly play a role, gender differences in risk attitudes

may help explain some of the observed disparities. Because of their higher risk aversion women may sort into occupations that are characterized by more stable earnings, but tend to pay less on average. A higher degree of risk aversion may also imply that women are less likely to initiate negotiations with their employers and tend to be less successful in negotiations (Eckel and Grossman 2002).<sup>2</sup>

At issue is whether the gender difference in risk attitudes is driven by nature or nurture. On the one hand, brain structure and hormone levels are under strong genetic influence. Thus, differences in risk attitudes appear to be significantly influenced by genetic variation (Cesarini et al. 2009). Differences in testosterone levels (Apicella et al. 2008, Coates and Herbert 2008, Sapienza et al. 2009) and also the menstrual cycle of women (Bröder and Hohmann 2003, Chen et al. 2013) contribute to the gender difference in risk attitudes. From an evolutionary perspective, at some point in history males and females have evolved different strategies to maximize the fitness of their genes. Females have maximized reproductive success by low-risk steady-return investment in parenting effort. By contrast, males have increased their resources and, hence, the ability to attract females by engaging in more risky activities with higher expected returns.

On the other hand, even if biological factors have an influence, this does not necessarily imply that the gender difference in risk attitudes is completely determined by these factors. The gender difference in risk attitudes may well be shaped by the social environment. It may reflect gender roles that are learned. Sociologists stress that gender roles are based on the different expectations a society has of individuals based on their sex (Blackstone 2003).<sup>3</sup> Gender roles refer to the meanings, values and characteristics that people ascribe to different sexes. The traditional gender roles are that women nurture their

families while men are the heads of their households by providing financial resources and making important family decisions. These traditional gender roles are reflected in different personality traits ascribed to men and women. For example, for the U.S. there is evidence that women are expected to be docile and generous, while men are expected to be confident and self-assertive (Eagly 1987). Against this background, gender differences in risk attitudes appear to be a component of socially constructed norms (Bertrand 2011). A higher degree of risk aversion is viewed as the norm for women whereas men are rather expected to be risk-takers. As suggested by Akerlof and Kranton's (2000, 2005) gender identity model, people tend to conform with what is expected from their social category.<sup>4</sup> This would imply that women behave according to the expectation that they are risk averse while men's behavior conforms to the expectation that they are more willing to take risk.

If differences in risk attitudes between men and women reflect socially constructed norms, these differences should vary across societies that have different gender role models. Specifically, we should find that the difference in risk attitudes is less pronounced in societies that are characterized by more equal gender roles. We test this hypothesis by examining risk attitudes of men and women in West and East Germany. People in East and West Germany lived under completely different political regimes for 45 years. Most importantly in our context, the two parts of Germany differed substantially in their family policies. In West Germany, family policy was dominated for a long time by the traditional male breadwinner model with continuously employed men and only partially employed women. By contrast, the East German family policy promoted more equal gender roles and integrated women into full-time employment.

A series of empirical studies suggest that, even many years after reunification, East Germans have more equal gender roles than West Germans. East Germans are much more likely to hold egalitarian gender-role attitudes. The attitudinal differences are matched by behavioral differences. Employment rates are higher among East German women and their labor force participation is little influenced by their marital status. Patterns of partnership and fertility also suggest that East German women are more emancipated than West German women. Cohabitation is more prevalent among East Germans than among West Germans. This even holds for women with minor children. Moreover, single women in East Germany place a higher value on having children than single women in West Germany and, accordingly, have a higher likelihood of *planned* out-of-partnership births. These patterns of partnership and fertility conform to the notion that more equal gender roles make East German women emotionally and economically less dependent on a male partner. Thus, they are more willing to choose non-traditional and less stable partnership arrangements and are more likely to express their wish to have a child even if they have no stable partner or spouse.

Against this background, we hypothesize that the gender difference in risk attitudes should be less pronounced among people born in East Germany than among people born in West Germany. We use data of the German Socio-Economic Panel (SOEP) to test this hypothesis. The SOEP is unique in that it is a large representative survey of a general population containing an experimentally validated measure of risk tolerance (Dohmen et al. 2011). Our empirical results show that the gender difference in general risk tolerance is indeed smaller among East Germans than among West Germans. Additionally, we also analyze context-specific measures of risk tolerance. That analysis reveals that the smaller

gender gap in risk tolerance among East Germans in particular applies to the economic sphere. Specifically with respect to career and financial matters, we find that the gender gap in risk tolerance is smaller among East Germans than among West Germans. Altogether, our results support the view that gender differences in risk attitudes are in fact shaped by society.

We also examine if the gender differences in risk attitudes have changed over time. Interestingly, there is little evidence of a change for East Germans. By contrast, our estimates provide some evidence that the gender difference in risk attitudes has shrunk among West Germans. This may indicate that the recent policy of more gender equality in unified Germany has changed gender roles specifically in the Western part of the country. As a consequence, the West German gender difference in risk attitudes may partially converge to the East German one.

Only a few experimental studies have begun to examine the influence of the social environment on gender differences in risk preferences. Booth and Nolen (2012) provide experimental evidence from 15-year-old students in England. They find that gender differences in risk preferences depend on whether the girls have attended a single-sex or a mixed-gender school. While the risk preferences of girls from single-sex schools are not different from the average boy, girls from mixed-gender schools are significantly more risk averse. Booth et al. (2014) conduct repeated experiments with first year college students who are randomly assigned to single-sex and mixed-gender classes. After eight weeks in a single-sex class women made significantly more risky choices than their counterparts in the mixed-gender classes.



A study by Cardenas et al. (2012) compares children aged 9–12 in Colombia and Sweden. According to macro-indices, the two countries differ in gender equality with Sweden being characterized by substantially more equality. The experiments by Cardenas et al. show that the gap in risk preferences between boys and girls is smaller in Sweden than in Colombia.

Gong and Yang (2012) conduct experiments with subjects from two ethnic groups in China, the matrilineal Mosuo and the patriarchal Yi. Their results show that the gender gap in risk preferences is smaller in the matrilineal ethnic group than in the patriarchal one. However, the evidence from other patriarchal and matrilineal societies appears to be rather mixed. Gneezy et al. (2009) examine risk preferences and competitive behavior among Maasai, a patriarchal society in Tanzania, and Kashi, a matrilineal society in India. Gneezy et al. find that women are less competitive than men in the patriarchal society whereas they are more competitive than men in the matrilineal society. Yet, Gneezy et al. do not observe gender differences in risk preferences among the patriarchal Maasai and the matrilineal Kashi. Pondorfer et al. (2017) examine risk preferences and gender stereotypes among the patrilineal Palawan in the Philippines and the matrilineal Teop in Papua New Guinea. Pondorfer et al. also find no gender differences in risk preferences in the two societies, but show that gender stereotypes differ between the patrilineal and the matrilineal society. Given the mixed findings of the experimental literature and the limited number of studies, further evidence is certainly warranted.

Our study complements the few stylized experimental examinations by providing large-scale survey evidence from a general population. We use variation in gender role

models that comes from the fundamental policy change that was associated with the separation of Germany after World War II.

Our study is related to the literature on institutions, cultural traits and endogeneity of preferences (Alesina and Giuliano 2015, Bowles 1998). A series of studies have used the separation of Germany after World War II as a natural experiment to examine the influence of political regimes on solidarity and cooperation, social distrust, personality traits, and preferences for state intervention (Alesina and Fuchs-Schündeln 2007, Ariely et al. 2014, Brosig-Koch et al. 2011, Friehe et al. 2015, Heywood et al. 2017, Lichter et al. 2015, Ockenfels and Weimann 1999, Rainer and Siedler 2009). None of these studies has analyzed the influence of the separation on gender differences in risk attitudes in the two parts of Germany. This also holds for an examination by Heineck and Süßmuth (2013) who find that East Germans have a higher degree of general risk tolerance than West Germans.

The rest of this paper is organized as follows. In section 2, we provide our background discussion on family policies and gender role models in East and West Germany. The third section presents the data and variables while the fourth section provides the estimation results. The fifth section concludes.

## **2. Different Gender Role Models in East and West Germany**

### *2.1 Family Policies during the Years of Separation*

Germany was separated in 1945 at the end of World War II. The separation was the result of the positions of the occupying forces and negotiations between the Allies. In 1949, the Federal Republic of Germany (FRG) and the German Democratic Republic (GDR) were

officially founded in the West and in the East. The GDR was an authoritarian communist regime while the FRG embraced democracy and capitalism. After the fall of the Berlin Wall, reunification of East and West Germany took place in 1990.

During the years of separation, the two parts of Germany differed substantially in their family policies (Engelhardt et al. 2002, Pfau-Effinger and Geissler 2002, Rosenfeld et al. 2004). In West Germany, family policy was dominated for a long time by the traditional male breadwinner model with continuously employed men and only partially employed women. Women worked full-time until they had children and returned to part-time work after longer career interruptions. Lack of public child care and inconvenient opening times of many day care facilities made it difficult for women to combine work and family. Instead of facilitating women's employment opportunities, the government focused on parental leave policies allowing mothers to stay at home with their young children. While being on parental leave, women's entitlements were largely derived from their husbands' rights. Moreover, the tax system provided incentives for mothers to stay at home as it heavily weighted in favor of married and single income couples. Support for single-parent households was modest and there were no specific measures to foster single mothers' employment.

The family policy in East Germany promoted more equal gender roles. The main goals of family policy were to integrate women into full-time employment and to encourage childbearing. The communist regime built up a comprehensive child care system that allowed women to stay in the labor force even during childbearing years.<sup>5</sup> Furthermore, measures such as child-illness leave or reductions in working hours for full-time employed mothers enabled women to reconcile work and family. East Germany also provided

parental leave. However, parental leave was coupled with far reaching rights to job return. Furthermore, in contrast to West Germany, the East German tax system provided no specific incentive for women to stay at home. The earnings of spouses were taxed individually. Finally, while marriage was seen as the foundation of the family, some family policies privileged unmarried mothers (Hiekel et al. 2015). For unmarried women, the government permitted a 1-year paid maternity leave already for their first child. For married women, this maternity leave was granted for the second child only. Unmarried mothers were also preferentially treated in the allocation of child care slots.

## *2.2 Continuing Differences in Gender Role Models after Reunification*

After reunification the West German family and marriage law was adopted by the whole of Germany. However, to the extent people in East and West Germany have internalized the respective gender role model, one should still find behavioral differences even after reunification. The experience of a new politico-economic regime is unlikely to make East Germans completely abandon the family and moral values they have acquired through socialization. Available evidence indeed suggests that East Germany has been still characterized by more equal gender roles after reunification.

A series of studies show that East Germans are still more likely to hold egalitarian sex-role attitudes than West Germans (Bauernschuster and Rainer 2012, Dorbritz and Ruckdeschel 2009, Kreyenfeld and Geisler 2006, Lee et al. 2007, Scott 1999, Treas and Widmer 2000). East Germans are less likely to be concerned about adverse effects of maternal employment on the well-being of children. Accordingly, they are more likely to disagree with the view that women have to stay home in order to take care of the household

and the children. East Germans also more often tend to refuse the view that a woman has to support the husband's career instead of making her own. Furthermore, East Germans more often share the opinion that single women's wish to have a child should be respected and that one parent can raise children as effectively as two parents can do.

Labor supply studies show that the attitudinal differences are matched by behavioral differences. Considering the years 1999 to 2002, Haan (2005) finds that married women in the East have a higher labor market participation rate than those in the West. Relatedly, analyzing data from married and cohabiting couples in the period 2000 to 2007, Haan and Wrohlich (2011) find higher employment rates among East German than among West German women. Finally, Kreyenfeld and Geisler (2006) show for 2002 that mothers in East Germany are much more likely to work full-time than mothers in West Germany. Moreover, they find that married and unmarried mothers in East Germany have similar employment patterns whereas in West Germany married mothers are less likely to work full-time than unmarried mothers.

The notion of more egalitarian gender roles is also supported by the higher propensity for non-traditional partnership arrangements in East Germany. Cohabitation is more prevalent among East Germans than among West Germans. The higher propensity for cohabitation can even be found for women with minor children (Jirjahn and Struewing 2018a). This result holds in estimations that control for factors such as income, unemployment, home ownership, indebtedness, education, health, religious affiliation and availability of childcare. While cohabitation is largely viewed as an inferior substitute for marriage in West Germany, it is socially more accepted and often viewed as an alternative to marriage in East Germany (Hiekel et al. 2015). Cohabitation relies to a lesser extent on

formal commitments and, hence, entails more insecurity in case of a separation particularly if a woman has children. Thus, the higher propensity for cohabitation among East Germans indicates a greater independence of women. Economically and emotionally independent women are more likely to accept living arrangements that involve higher insecurity. Relatedly, sociologists emphasize that cohabiting couples rejecting marriage as an institution may be also more likely to reject the roles of breadwinner and housewife that go along with traditional marriage (Baxter 2001). According to this view, cohabitation involves and a greater lack of normative prescriptions for role performance. This leaves space for cohabiting couples to negotiate more egalitarian relationships.

Moreover, attitudinal evidence shows that single women in East Germany place a higher value of having children than single women in West Germany (Jirjahn and Struewing 2018b). Interestingly, behavioral differences conform also to these attitudinal differences. Single women in East Germany have a higher likelihood of *planned* out-of-partnership births than single women in West Germany.<sup>6</sup> The attitudinal and behavioral differences between East and West Germans can be found even when including controls for income, labor force status, health and religion in the regressions. This pattern also suggests that there exist more equal gender roles in East Germany. People in East Germany have been usually grown up with mothers employed full-time. This is the model on which they base their own lives.<sup>7</sup> The more equal gender roles imply that women are both emotionally and economically less dependent on a male partner. They are less likely to define themselves through a partner and the stronger labor force attachment enables them to earn their living. Thus, their wish to have a child is less likely to depend on the presence

of a stable partner or spouse. This wish is reinforced by the widespread social acceptance of single motherhood.

All in all, the available evidence suggests that there exist more equal gender roles in East Germany. The more equal gender roles mean that women are to a higher degree involved in making important family decisions and providing financial resources to the family. These responsibilities are the preserve of men in the traditional breadwinner model. They require a higher willingness to take some risk in order to increase the resources available to the family. Thus, we hypothesize that the gender gap in risk attitudes should be smaller among East Germans than among West Germans.

### **3. Data and Variables**

#### *3.1 The Data Set*

Our study uses data from the SOEP, a large longitudinal survey of households in Germany (Wagner et al. 1993, Wagner et al. 2007). The sample is carefully constructed to be representative of the adult population in the country. The SOEP is administered by the German Economic Institute (DIW). Infratest Sozialforschung, a professional survey and opinion institute, conducts the face-to-face interviews. A nucleus of socio-economic and demographic questions is asked annually. Different ‘special’ topics are sampled in specific waves. For our analysis, we use focus on persons who are at least 17 years old.

#### *3.2 Dependent Variables*

The definitions and descriptive statistics of the dependent variables are shown in Table 1. Our main dependent variable is a unique measure of general risk attitude. The underlying

question is: “How do you see yourself: Are you generally a person who is fully prepared to take risks or do you try to avoid taking risks?” Interviewees respond to the question on an eleven-point Likert scale ranging from 0 “not at all willing to take risks” to 10 “very willing to take risks”. This measure has been validated by Dohmen et al. (2011) who demonstrate that it is highly correlated with actual risk taking in lottery experiments. The measure of general risk attitude is available for the years 2004, 2006, and 2008 to 2015. For our analysis of the determinants of general risk attitude we pool the data from these years.

The SOEP also provides context-specific measures of risk attitude. These measures refer to the willingness to take risk in financial matters, career matters, sports and leisure, driving, health matters, and trusting others. We use these measures as additional dependent variables in order to check the robustness of results. The context-specific measures of risk attitude are available for the years 2004, 2009 and 2014. Thus, our analysis of the determinants of context-specific risk attitudes is based on pooled data from these three years.

### *3.3 Key Explanatory Variables*

Table 2 provides the definitions and descriptive statistics of the explanatory variables. Building from Alesina and Fuchs-Schündeln (2007), our key explanatory variable is a dummy variable that takes on the value of 1 if the person was born in East Germany before the fall of the Berlin Wall, regardless of the current place of residence. The dummy equals 0 if the person was born in West Germany before the fall of the Berlin Wall, regardless of the current place of residence. This variable indicates whether the person grew up in a



social environment with more equal or with more traditional gender roles. These gender roles have been internalized during childhood and, thus, influence attitudes and behavior in adulthood. As discussed, they should influence the gender gap in risk preferences.

Our second key explanatory variable is a dummy for the gender of the person. We use two approaches to examine if the gender gap in risk preferences varies between East and West Germans. First, we use the combined sample of East and West Germans and distinguish between East German women, West German women and East German men. The reference group consists of West German men. Second, we run separate regressions for East and West Germans and include a simple gender dummy in each regression.

We recognize the possibility that gender roles may have changed in the course of time after reunification. Thus, we also analyze if the gender gap in risk preferences has changed over time among East and West Germans. This allows us to examine if there is a convergence of preferences after reunification.

### *3.4 Control Variables*

We use two specifications. Our baseline specification builds from Dohmen et al. (2011) and includes control variables for age, height and parents' education. We also control for the year of observation. In order to check the robustness of results, we use a second specification that additionally captures own education, household income, labor force status, work experience, health, marital status, number of children and migration background. In that specification, we also take into account whether the person grew up in an urbanized area and whether the person still lives in his or her childhood hometown.

## **4. Empirical Analysis**

### *4.1 Determinants of General Risk Attitude*

Table 3 provides our initial estimations on the determinants of general risk attitude. As we have panel data, we use a random effects probit model. When estimating the coefficients, the random effects model accounts for the cross-period correlation of the error terms influencing a person's risk attitude. In contrast to a fixed effects approach, the random effects model allows the inclusion of time-invariant variables. This is particularly important in our context as the key explanatory variables are constant over time. Additionally, we cluster standard errors at the person level.

Regression (1) is based on a standard specification including the basic controls and dummy variables for East Germany and gender. The results largely confirm previous research on the determinants of risk attitude (Dohmen et al. 2011, Heineck and Süßmuth 2013). The person's age is negatively associated with risk tolerance while body height and the father's education are positive determinants. Furthermore, persons born in East Germany before the fall of the Berlin Wall have a higher degree of risk tolerance than persons born in West Germany. This finding conforms to Laidi's (2010) hypothesis that the evolution of a general notion of risk aversion at the societal level presupposes democratic experience and a political system where public deliberation plays an important role in evaluating risk.

Most importantly, the regression confirms a gender gap in risk attitudes. The estimation suggests that the risk tolerance of women is 0.676 scale point lower than that of men. Taking into account that the average score of general risk tolerance is 4.482 in our

sample, this implies a substantial gender gap. Other things equal the risk tolerance of women is by about 15 percent below that of average risk tolerance.

So far we have followed previous research by implicitly assuming that the gender gap in risk attitudes is homogeneous within the population. In a further step, we now allow for heterogeneity by considering the possibility that the gap differs between East and West Germans. Regression (2) includes variables for women born in East Germany, women born in West Germany, and men born in East Germany. The reference group consists of men born in West Germany. The regression reveals that the gender gap in risk attitudes is indeed smaller among East than among West Germans. For the West, the gender gap is given by the coefficient on the variable for women born in West Germany. The risk tolerance of West German women is 0.72 scale point lower than that of West German men. For the East, we obtain the gender gap by the difference between the coefficients on the variables for women and men born in East Germany. This implies that the risk tolerance of East German women is 0.54 scale point lower than that of East German men ( $-0.540 = -0.469 - 0.071$ ). Thus, the gender gap in risk attitudes among East Germans is 25 percent smaller than the gender gap among West Germans. As shown in the last row of Table 3, a  $\chi^2$  test confirms that the difference in the gender gaps between East and West Germans is also statistically significant.<sup>8</sup> The gender gap is smaller in East Germany than in West Germany because East German women have a much higher risk tolerance than West German women. Thus, even though East German men are also more tolerant toward risk than West German men, East Germany is characterized by a smaller gender gap in risk attitudes.

As a check of robustness, we expand the specification in regression (3). Body height is still a significantly positive and age a significantly negative determinant. While the

coefficient on father's education loses significance, several of the additional control variables emerge as significant covariates of general risk tolerance. The person's own education is associated with higher risk tolerance but at a decreasing rate. Household income and health are also positive covariates whereas being married and the number of children are negative covariates. The size of the childhood hometown has also an influence. Persons who grew up in a rural area, a small city or a medium-sized city are less risk tolerant than persons who grew up in a big city. Furthermore, it plays a role if a person has left his or her childhood hometown. Persons who do not live in their childhood hometown or returned to it after leaving it for some time are more risk tolerant than those who never left their hometown.

Most importantly, the estimation with the expanded specification confirms our key pattern of results. Regression (3) implies that West German women have a 0.658 scale point lower risk tolerance than West German men while East German women only have a 0.562 scale point lower risk tolerance than East German men ( $-0.562 = -0.482 - 0.080$ ). Thus, the regression with the expanded specification suggests that the gender gap in risk attitudes among East Germans is 15 percent smaller than the gender gap among West Germans. This estimated East-West difference in the gender gaps is somewhat smaller than the difference implied by the regression with the baseline specification. Nonetheless the basic point remains that the regression with the expanded specification also shows that the gender gap in risk attitudes is less pronounced among East Germans than among West Germans. The difference in the gender gaps is also statistically significant in this regression.

Altogether, our key findings support the hypothesis that society influences the gender gap in risk attitudes. As suggested by our background discussion, East Germans are characterized by more equal gender roles than West Germans. Thus, if the gender gap in risk attitudes is shaped by the social environment, the gap should be smaller among East Germans. Our estimations on the determinants of general risk tolerance confirm this prediction.

#### *4.2 Determinants of Context-Specific Risk Attitudes*

So far we have used the measure of general risk tolerance. We now examine the determinants of context-specific risk attitudes. As information on context-specific risk attitudes is only available for 2004, 2009 and 2014, we limit our estimation sample to these years. Table 4 provides the results of regressions with the baseline specification.

Our estimations show specifically for career and financial matters that the gender gap is significantly smaller among East than among West Germans. West German women have a 0.716 scale point lower tolerance toward financial risks than West German men. By contrast, East German women have an only 0.471 scale point lower tolerance toward financial risks than East German men ( $-0.471 = -0.708 - (-0.237)$ ). This East-West difference in the gender gaps is driven by different risk attitudes of East and West German men. While East and West German women have similar risk attitudes toward financial matters, East German men are less tolerant toward financial risks than their West German counterparts.

Regarding career matters, West German women have a 0.5 scale point lower risk tolerance than West German men. By contrast, East German women are only by 0.23 scale

points less tolerant toward career risks than East German men ( $-0.23 = -0.099 - 0.131$ ). Thus, the East German gender gap is less than half the West German gap. Interestingly, the East-West difference in these gender gaps is driven by different risk attitudes of East and West German women. East German women are much more tolerant toward career risks than West German women. Thus, even though East German men are more willing to take career risks than their West German counterparts, the gender gap in career risk-taking attitudes is smaller among East Germans.

As to the other measures of context-specific risk tolerance, we find mixed results. The gender gap in tolerance toward risks in sports and leisure is also smaller among East than among West Germans. However, the opposite holds for the gender gaps in risk tolerance toward driving. Finally, the estimations show no significant East-West differences for the gender gaps in the willingness to take risks in health matters or trusting others.

In Table 5, we present the regression results with the expanded specification. In contrast to the baseline specification, the expanded specification shows no significant East-West difference for the domain of sports and leisure. With this exception, the key results on the other domains are confirmed by the expanded specification. Most importantly, that specification confirms that East and West Germans significantly differ with respect to the gender gaps in risk tolerance toward financial and career matters.

Altogether, our results on context-specific risk attitudes show that the smaller gender gap in risk tolerance among East Germans in particular applies to the economic sphere. Specifically with respect to financial and career matters, the gender gap in risk tolerance is smaller among East than among West Germans. This fits previous studies

showing a much higher labor force attachment of East German women and more positive attitudes among East Germans toward women's labor force participation. As noted by Bowles (1998), the extension of women's labor force participation is closely related to the rise of feminist values. Thus, the finding of smaller gender gaps in financial and career risk taking among East Germans indicates that more equal gender roles in East Germany in particular apply to the economic sphere.

Moreover, our results qualify the initial finding that East Germans are more risk tolerant than West Germans. It depends on the particular domain whether or not East Germans are more risk tolerant. East German men and women are more tolerant toward career and health risks than their respective West German counterparts. However, the opposite holds true with respect to matters of trust. Previous studies have shown that East Germans are characterized by a lower level of trust than West Germans (Heineck and Süßmuth 2013, Lichter et al. 2015, Rainer and Siedler 2009). Our analysis shows that East Germans also have a lower tolerance toward risks in matters of trust.

#### *4.3 Changes in Risk Attitudes over Time*

Finally, we examine if the gender gaps in risk attitudes have changed over time in East and West Germany. We consider the measure of general risk attitude and return to our total estimation sample for the years 2004, 2006 and 2008 to 2015. As possible changes may differ between both parts of the country, we provide separate estimations for the East and for the West. Table 6 shows the results. For the purpose of comparison, we do not account for changes over time in regressions (1) and (4). For the respective part of the country, the

gender gap in risk attitudes is now given by the coefficient on the gender dummy. The two regressions confirm that the gender gap is smaller among East than among West Germans.

In regressions (2) and (5), we use the baseline specification and interact the gender dummy with the various year dummies. The coefficient on the gender dummy now gives us the gender gap in risk attitudes for the reference year 2004. The interaction of the gender dummy with the respective year dummy shows the change in the gender gap in that year compared to the reference year. Regression (2) provides little evidence that the gender gap has changed over time in East Germany. Most of the nine interaction variables take insignificant coefficients. There are only two significant coefficients with opposite signs. By contrast, regression (5) shows some cautious indications that the gender gap has changed in West Germany. Four interaction variables take significantly positive coefficients. This may suggest that among West Germans the gender gap in risk attitudes has narrowed over time.

Regressions (3) and (6) use the specification with the expanded set of control variables. These regressions confirm the key pattern of results. We find largely no evidence of changes in East Germany while there are now even five interaction variables with significantly positive coefficients for West Germany.

In summary, our results suggest that the East German gender gap in risk attitudes has been relatively stable. We find no evidence that it has converged to the higher West German level. By contrast, our estimates provide some indications that the West German gender gap has narrowed over time. One possible explanation for this finding may be that the recent policy of more gender equality in unified Germany has changed gender roles



specifically in the Western part of the country. The more equal gender roles may have contributed to a narrowing of the West German gender gap in risk attitudes.

## **5. Conclusions**

A series of previous studies have shown that women are on average more risk averse than men. This gives rise to the question whether the gender gap in risk attitudes is shaped by the social environment. Our study addresses this question by examining the risk attitudes among East and West Germans. Originated from different family policies during Germany's separation, East and West Germans are characterized by different gender role models. East Germans have more equal gender roles than West Germans. Thus, if the gender gap in risk attitudes reflects socially constructed norms, it should be smaller among East Germans. More equal gender roles mean that women are to a higher degree involved in making important family decisions and providing financial resources to the family. These responsibilities are the preserve of men in the traditional breadwinner model. They require a higher willingness to take some risk in order to increase the resources available to the family.

We use data of the SOEP to examine our hypothesis that East and West Germans differ in the gender gaps in risk tolerance. The SOEP is unique in that it is a large representative survey of the general population containing an experimentally validated measure of general risk tolerance. The empirical analysis confirms our hypothesis. The gender gap in general risk tolerance is significantly smaller among East than among West Germans.

Additionally, we analyze context-specific measures of risk tolerance. This analysis shows that the gender gap in risk tolerance among East Germans in particular applies to the economic sphere. Specifically with respect to career and financial matters, the gender gap in risk tolerance is smaller among East than among West Germans. This fits previous studies showing a much higher labor force attachment of East German women and more positive attitudes among East Germans toward women's labor force participation.

Our study provides no evidence that the East German gender gap in risk attitudes has converged to the higher West German level after reunification. By contrast, our estimates provide some cautious evidence that the West German gender gap has shrunk over time. This may indicate that the recent policy of more gender equality in unified Germany has changed gender roles specifically in the Western part of the country.

Altogether, our study supports the notion that society has an influence on the gender gap in risk attitudes. Of course, this does not imply that biological factors do not play a role in the gap. Nonetheless the basic point remains that the gender gap at least partially reflects socially constructed norms that can be shaped by policy. Our results support the view that a policy promoting more equal gender roles can reduce the gender gap in risk attitudes. This is important as risk attitudes play a role in almost every important economic decision and women appear to be economically disadvantaged all around the world.

## References

- Agnew, Julie R., Lias R. Anderson, Jeffrey R. Gerlach, and Lisa R. Szykman. 2008. "Who Chooses Annuities? An Experimental Investigation of the Role of Gender, Framing, and Defaults," *American Economic Review: Papers & Proceedings* 98: 418 – 422.
- Akerlof, George A. and Rachel E. Kranton. 2000. "Economics and Identity," *Quarterly Journal of Economics* 115: 715 – 753.
- Akerlof, George A. and Rachel E. Kranton. 2005. "Identity and the Economics of Organizations," *Journal of Economic Perspectives* 19: 9 – 32.
- Albanesi, Stefania and Claudia Olivetti. 2016. "Gender Roles and Medical Progress," *Journal of Political Economy* 124: 650 – 695.
- Alesina, Alberto and Paola Giuliano. 2015. "Culture and Institutions," *Journal of Economic Literature* 53: 898 – 944.
- Alesina, Alberto, Paola Giuliano and Nathan Nunn. 2013. "On the Origins of Gender Roles: Women and the Plough," *Quarterly Journal of Economics* 128: 469 – 530.
- Alesina, A. and N. Fuchs-Schündeln. 2007. "Good-Bye Lenin (Or Not?) The Effect of Communism on People's Preferences," *American Economic Review* 97: 1507 – 1528.
- Apicella, Coren L., Anna Dreber, Benjamin Campbell, Peter B. Gray, Moshe Hoffman and Anthony C. Little. 2008. "Testosterone and Financial Risk Preference," *Evolution and Human Behavior* 29: 384 – 390.
- Ariely, D., X. Garcia-Rada and L. Hornuf. 2014. "The (True) Legacy of Two Really Existing Economic Systems," Munich Discussion Paper No. 2014-26, Department of Economics, University of Munich.
- Babcock, Linda and Sarah Laschever. 2003. *Women Don't Ask: Negotiation and the Gender Divide*. Princeton University Press, Princeton, NJ.
- Bauernschuster, S. and H. Rainer. 2012. "Political Regimes and the Family: How Sex-Role Attitudes Continue To Differ in Reunified Germany," *Journal of Population Economics* 25: 5 – 27.
- Baxter, J. 2001. "Marital Status and the Division of Household Labour: Cohabitation vs. Marriage," *Family Matters* No. 58, Australian Institute of Family Studies.
- Bertrand Marianne. 2011. "New Perspectives on Gender," in *Handbook of Labor Economics*, Vol. 4B, edited by David Card and Orley Ashenfelter, Amsterdam, Elsevier: 1543 – 1590.
- Bertrand, Marianne, Emir Kamencia and Jessica Pan. 2015. "Gender Identity and Relative Income within Households," *Quarterly Journal of Economics* 130: 571 – 614.
- Blackstone, Amy. 2003. "Gender Roles and Society," in *Human Ecology: An Encyclopedia of Children, Families, Communities, and Environments*, edited by Julia R. Miller, Richard M. Lerner, and Lawrence M. Schiamberg, ABC-CLIO, Santa Barbara, CA: 335 – 338.

- Blau, Francine D., Peter Brummund and Albert Yung-Hsu Liu. 2013. "Trends in Occupational Segregation by Gender 1970-2009: Adjusting for the Impact of Changes in the Occupational Coding System," *Demography* 50: 471 – 494.
- Blau, Francine D. and Lawrence M. Kahn. 2003. "Understanding International Differences in the Gender Pay Gap," *Journal of Labor Economics* 21: 106 – 144.
- Blau, Francine D. and Lawrence M. Kahn. 2017. "The Gender Wage Gap: Extent, Trends, and Sources," *Journal of Economic Literature* 55: 789 – 865.
- Böheim, Rene and Mario Lackner. 2015. "Gender and Risk Taking: Evidence from Jumping Competitions," *Journal of the Royal Statistical Society: Series A* 178: 883 – 902.
- Bonin, Holger, Thomas Dohmen, Armin Falk, David Huffman and Uwe Sunde. 2007. "Cross-Sectional Earnings Risk and Occupational Sorting: The Role of Risk Attitudes," *Labour Economics* 14: 926 – 937.
- Booth, Alison L., Lina Cardona-Sosa and Patrick Nolen. 2014. "Gender Differences in Risk Aversion: Do Single-Sex Environments Affect Their Development?" *Journal of Economic Behavior and Organization* 99: 126 – 154.
- Booth, Alison L. and Patrick Nolen. 2012. "Gender Differences in Risk Behaviour: Does Nurture Matter?" *Economic Journal* 122: F56 – F78.
- Bowles, Samuel 1998. "Endogenous Preferences: The Cultural Consequences of Markets and Other Economic Institutions," *Journal of Economic Literature* 36: 75 – 111.
- Borghans, Lex, Bart H. Golsteyn, James J. Heckman and Huub Meijers. 2009. "Gender Differences in Risk Aversion and Ambiguity Aversion," *Journal of the European Economic Association* 7: 649 – 658.
- Bröder, Arndt and Natalia Hohmann. 2003. "Variations in Risk Taking Behavior over the Menstrual Cycle – An Improved Replication," *Evolution and Human Behavior* 24: 391 – 398.
- Brody, Leslie R. 1993. "On Understanding Gender Differences in the Expression of Emotions," in *Human Feelings: Explorations in Affect Development and Meaning*, edited by Steven L. Ablon, Daniel Brown, Edward J. Khantzian and John E. Mack, Analytic Press, Hillsdale, N.J.: 87 – 121.
- Brosig-Koch, J., C. Helbach, A. Ockenfels, and J. Weimann. 2011. "Still Different after All these Years: Solidarity Behavior in East and West Germany," *Journal of Public Economics* 95: 1373 – 1376.
- Cardenas, Juan-Camilo, Anna Dreber, Emma von Essen and Eva Ranehill. 2012. "Gender Differences in Competitiveness and Risk Taking: Comparing Children in Colombia and Sweden," *Journal of Economic Behavior and Organization* 83: 11 – 23.

- Cesarini, David, Christopher T. Dawes, Magnus Johannesson, Paul Lichtenstein and Björn Wallace. 2009. "Genetic Variation in Preferences for Giving and Risk Taking," *Quarterly Journal of Economics* 124: 809 – 842.
- Charness, Gary and Uri Gneezy. 2012. "Strong Evidence for Gender Differences in Risk Taking," *Journal of Economic Behavior and Organization* 83: 50 – 58.
- Chen, Yan, Peter Katuscak and Emre Ozdenoren. 2013. "Why Can't a Woman Bid More Like a Man?" *Games and Economic Behavior* 77: 181 – 213.
- Christofides, Louis N., Alexandros Polycarpou, Konstantions Vrachimis. 2013. "Gender Wage Gaps, 'Sticky Floors' and 'Glass Ceilings' in Europe," *Labour Economics* 21: 86 – 102.
- Coates, J. M. and J. Herbert. 2008. "Endogenous Steroids and Financial Risk Taking on a London Trading Floor," *Proceedings of the National Academy of Sciences of the United States of America* 105: 6167 – 6172.
- Croson, Rachel and Uri Gneezy. 2009. "Gender Differences in Preferences," *Journal of Economic Literature* 47: 448 – 474.
- Dohmen, Thomas, Armin Falk, David Huffman and Uwe Sunde. 2012. "The Intergenerational Transmission of Risk and Trust Attitudes," *Review of Economic Studies* 79: 645 – 677.
- Dohmen, T., A. Falk, D. Huffman, U. Sunde, J. Schupp and G.G. Wagner. 2011. "Individual Risk Attitudes: Measurement, Determinants and Behavioral Consequences," *Journal of the European Economic Association* 9: 522 – 550.
- Dorbritz, J. and K. Ruckdeschel. 2009. "Die langsame Annäherung – Demografisch relevante Einstellungsunterschiede und der Wandel in den Lebensformen in West- und Ostdeutschland," in I. Cassens, M. Luy and R. Scholz, eds., *Die Bevölkerung in Ost- und Westdeutschland*. VS Verlag für Sozialwissenschaften, Wiesbaden: 261 – 294.
- Eagly, A. H. 1987. *Sex Differences in Social Behavior: A Social-Role Interpretation*. Erlbaum, Hillsdale, NJ.
- Eckel, Catherine C. and Philip J. Grossman. 2002. "Sex Differences and Statistical Stereotyping in Attitudes toward Financial Risk," *Evolution and Human Behavior* 23: 281 – 295.
- Eckel, Catherine C. and Philip J. Grossman. 2008. "Men, Women and Risk Aversion: Experimental Evidence," in *Handbook of Experimental Economics Results*, Vol. 1, edited by Charles Plott and Vernon Smith, Elsevier, New York: 1061 – 1073.
- Engelhardt, H., H. Trappe and J. Dronkers. 2002. "Differences in Family Policy and the Intergenerational Transmission of Divorce: A Comparison between the Former East and West Germany," *Demographic Research* 6: 295 – 324.
- European Commission. 2016. *Strategic Engagement for Gender Equality 2016-2019*. Luxembourg.
- Friehe, T., M. Pannenberg and M. Wedow. 2015. "Let Bygones be Bygones? Socialist Regimes and Personalities in Germany," SOEPpapers No. 776, Berlin.

- Fujita, Frank, Ed Diener and Ed Sandvik. 1991. "Gender Differences in Negative Affect and Well-Being: The Case for Emotional Intensity," *Journal of Personality and Social Psychology* 61: 427 – 434.
- Gneezy, Uri, Kenneth L. Leonard and John A. List. 2009. "Gender Differences in Competition: Evidence from a Matrilineal and a Patriarchal Society," *Econometrica* 77: 1637 – 1664.
- Gong, Binglin and Chun-Lei Yang. 2012. "Gender Differences in Risk Attitudes: Field Experiments on the Matrilineal Mosuo and the Patriarchal Yi," *Journal of Economic Behavior and Organization* 83: 59 – 65.
- Grossman, Michele and Wendy Wood. 1993. "Sex Differences in Intensity of Emotional Experience: A Social Role Interpretation," *Journal of Personality and Social Psychology* 65: 1010 – 1022.
- Haan, P. 2005. "State Dependence and Female Labor Supply in Germany: The Extensive and the Intensive Margin," DIW Discussion Paper No. 538, Berlin.
- Haan, P. and K. Wrohlich. 2011. "Can Child Care Policy Encourage Employment and Fertility? Evidence from a Structural Model," *Labour Economics* 18: 498 – 512.
- Hartog, Joop, Ada Ferrer-i-Carbonell and Nicole Jonker. 2002. "Linking Measured Risk Aversion to Individual Characteristics," *Kyklos* 55: 3 – 26.
- Heineck, Guido and Bernd Süßmuth. 2013. "A Different Look at Lenin's Legacy: Social Capital and Risk Taking in the Two Germanies," *Journal of Comparative Economics* 41: 789 – 803.
- Heywood, John S., Uwe Jirjahn and Cornelia Struewing. 2017. "Locus of Control and Performance Appraisal," *Journal of Economic Behavior and Organization* 142: 205 – 225.
- Hiekel, N., A.C. Liefbroer and A.-R. Poortman. 2015. "Marriage and Separation Risks among German Cohabitors: Differences between Types and Cohabiter," *Population Studies* 69: 237 – 251.
- ILO. 2015. *Global Wage Report 2014/15: Wages and Income Inequality*. Available at: [http://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms\\_324678.pdf](http://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_324678.pdf).
- Jaeger, David, Thomas Dohmen, Armin Falk, David Huffman, Uwe Sunde and Holger Bonin. 2010. "Direct Evidence on Risk Attitudes and Migration," *Review of Economics and Statistics* 92: 684 – 689.
- Jirjahn, Uwe and Cornelia Struewing. 2016. "Risk Attitude and Nonmarital Birth," IZA Discussion Paper No. 10316, Bonn.
- Jirjahn, Uwe and Cornelia Struewing. 2018. "Single Motherhood in East and West Germany: What Can Explain the Differences?" *European Journal of Comparative Economics* 15: 197 – 229.
- Jirjahn, Uwe and Cornelia Struewing. 2018b. "Out-of-Partnership Births in East and West Germany," Working Paper, University of Trier.

- Kreyenfeld, M. and E. Geisler. 2006. "Müttererwerbstätigkeit in Ost- und Westdeutschland," *Zeitschrift für Familienforschung* 18: 333 – 360.
- Laidi, Z. 2010. "Is Europe a Risk Averse Actor?" *European Foreign Affairs Review* 15: 411 – 426.
- Lee, K.S., D.F. Alwin and P.A. Tufis. 2007. "Beliefs about Women's Labour in the Reunified Germany, 1991-2004," *European Sociological Review* 23: 487 – 503.
- Lichter, A., M. Löffler, S. Sieglöcher. 2015. "The Economic Costs of Mass Surveillance: Insights from Stasi Spying in East Germany," IZA Discussion Paper No. 9245, Bonn.
- Malmendier, U. and G. Tate. 2009. "Superstar CEOs," *Quarterly Journal of Economics* 124: 1593 – 1638.
- Ockenfels, A. and J. Weimann. 1999. "Types and Patterns: An Experimental East-West German Comparison of Cooperation and Solidarity," *Journal of Public Economics* 71: 275 – 287.
- OECD. 2018. *Gender Wage Gap (Indicator)*. doi: 10.1787/7cee77aa-en.
- Pfau-Effinger, B. and B. Geissler. 2002. "Cultural Change and Family Policies in East and West Germany," in A. Carling, S. Duncan and R. Edwards, eds., *Analysing Families: Morality and Rationality in Policy and Practice*. London: Routledge: 77 – 83.
- Pondorfer, Andreas, Toman Omar Mahmoud, Katrin Rehdanz and Ulrich Schmidt. 2017. "Gender Differences in Risk Preferences and Stereotypes: Experimental Evidence from a Matrilineal and a Patrilineal Society," *Management Science* 63: 3268 – 3284.
- Powell, Melanie and David Ansic. 1997. "Gender Differences in Risk Behaviour in Financial Decision-Making: An Experimental Analysis," *Journal of Economic Psychology* 18: 605 – 628.
- Rainer, H. and T. Siedler. 2009. "Does Democracy Foster Trust?" *Journal of Comparative Economics* 37: 251 – 269.
- Rosenfeld, R.A., H. Trappe and J.C. Gornick. 2004. "Gender and Work in Germany: Before and After Reunification," *Annual Review of Sociology* 30: 103 – 124.
- Sapienza, Paola, Luigi Zingales and Dario Maestri. 2009. "Gender Differences in Financial Risk Aversion and Career Choices Are Affected by Testosterone," *Proceedings of the National Academy of Sciences of the United States of America* 106: 15268 – 15273.
- Stuhlmacher, Alice F. and Amy E. Walters. 1999. "Gender Differences in Negotiation Outcomes: A Meta-Analysis," *Personnel Psychology* 52: 653 – 677.
- Scott, J. 1999. "European Attitudes towards Maternal Employment," *International Journal of Sociology and Social Policy* 19: 144 – 177.
- Treas, J. and E.D. Widmer. 2000. "Married Women's Employment over the Life Course: Attitudes in Cross-National Perspective," *Social Forces* 78: 1409 – 1436.
- United Nations Human Rights Council. 2011. *Gender Equality Policy*. Geneva.

- United Nations Office at Geneva. 2016. *Policy for Gender Equality and the Empowerment of Women: 2016-2020*. Geneva.
- Wagner, Gert G., Richard V. Burkhauser and Friederike Behringer. 1993. "The English Language Public Use File of the German Socio-Economic Panel," *Journal of Human Resources* 28: 429 – 433.
- Wagner, Gert G., Joachim R. Frick and Jürgen Schupp. 2007. "The German Socio-Economic Panel Study (SOEP) – Scope, Evolution and Enhancements," *Schmollers Jahrbuch – Journal of Applied Social Science Studies* 127: 139 – 69.
- World Bank. 2012. *World Development Report 2012: Gender Equality and Development*. Washington, DC.



**Table 1:** Variable Definitions and Descriptive Statistics of the Dependent Variables

Variable	Description	Mean	N
General risk tolerance	Score of general risk tolerance on an eleven-point Likert scale. The scale ranges from 0 “not at all willing to take risks” to 10 “very willing to take risks”.	4.482	175,935
Risk tolerance in financial matters	Score of risk tolerance in financial matters on an eleven-point Likert scale. The scale ranges from 0 “not at all willing to take risks” to 10 “very willing to take risks”.	2.231	52,690
Risk tolerance in career matters	Score of risk tolerance in career matters on an eleven-point Likert scale. The scale ranges from 0 “not at all willing to take risks” to 10 “very willing to take risks”.	3.493	46,244
Risk tolerance in sports and leisure	Score of risk tolerance in sports and leisure on an eleven-point Likert scale. The scale ranges from 0 “not at all willing to take risks” to 10 “very willing to take risks”.	3.430	52,313
Risk tolerance in driving	Score of risk tolerance in driving on an eleven-point Likert scale. The scale ranges from 0 “not at all willing to take risks” to 10 “very willing to take risks”.	3.099	50,043
Risk tolerance in health matters	Score of risk tolerance in health matters on an eleven-point Likert scale. The scale ranges from 0 “not at all willing to take risks” to 10 “very willing to take risks”.	2.903	53,200
Risk tolerance in trusting others	Score of risk tolerance in trusting others on an eleven-point Likert scale. The scale ranges from 0 “not at all willing to take risks” to 10 “very willing to take risks”.	3.367	53,259

**Table 2:** Variable Definitions and Descriptive Statistics of the Explanatory Variables

Basic Explanatory Variables (N = 175,935)		
Variable	Description	Mean
East Germany	Dummy equals 1 if the person was born in East Germany before the fall of the Berlin Wall. The dummy equals 0 if the individual was born in West Germany before the fall of the Berlin Wall.	0.258
Woman	Dummy equals 1 if the person is a woman.	0.527
East German woman	Dummy equals 1 if the person is a woman born in East Germany before the fall of the Berlin Wall.	0.139
West German woman	Dummy equals 1 if the person is a woman born in West Germany before the fall of the Berlin Wall.	0.388
East German man	Dummy equals 1 if the person is a man born in East Germany before the fall of the Berlin Wall.	0.120
Age	The individual's age in years.	51.20
Height	The individual's height in centimeter.	171.40
Abitur father	Dummy equals 1 if the person's father holds a university-entrance diploma (Abitur in German).	0.126
Abitur mother	Dummy equals 1 if the person's mother holds a university-entrance diploma (Abitur in German).	0.071
Year dummies	Nine year dummies are included in the regressions with the variable for general risk attitude. Two year dummies are included in the regressions with the context-specific measures of risk attitude.	---
Additional Explanatory Variables (N = 146,357)		
Variable	Description	Mean
Years of education	The person's years of schooling.	12.41
Migration background	Dummy equals 1 if the person is a first-generation or second-generation immigrant.	0.146
Married	Dummy equals 1 if the individual is married.	0.618
Number of children	Number of children under age 16 in the household.	0.407
Health	Score of general health status on a five-point Likert scale. The scale ranges from 1 "very bad" to 5 "very good".	3.31
Fulltime	Dummy equals 1 if the person works fulltime.	0.380
Unemployed	Dummy equals 1 if the person is unemployed.	0.048
Out of labor force	Dummy equals 1 if the person is out of labor force.	0.386
Ln(household income)	Log of household income in Euro.	7.81
Work experience	The person's work experience in years.	22.82
Childhood spent in medium-sized city	Dummy equals 1 if the person spent most of his or her childhood in a medium-sized city.	0.176

Childhood spent in small city	Dummy equals 1 if the person spent most of his or her childhood in a small city.	0.223
Childhood spent in rural area	Dummy equals 1 if the person spent most of his or her childhood in a rural area.	0.374
Moved back to childhood hometown	Dummy equals 1 if the person moved back to his or her childhood hometown.	0.034
Does not live in childhood hometown	Dummy equals 1 if the person does not live in his or her childhood hometown anymore.	0.434

The reference group of the combined dummies for gender and region (dummies for labor force status, dummies for the size of childhood hometown, dummies for the current residence in childhood hometown) consists of men born in West Germany before the fall of the Berlin Wall (individuals who work parttime, individuals who spent their childhood in a big city, individuals who never left their childhood hometown).

**Table 3: Determinants of General Risk Tolerance**

	(1)	(2)	(4)
East Germany	0.166 (0.022)***	---	---
Woman	-0.676 (0.026)***	---	---
East German woman	---	-0.469 (0.035)***	-0.482 (0.038)***
West German woman	---	-0.720 (0.028)***	-0.658 (0.032)***
East German man	---	0.071 (0.032)**	0.080 (0.034)**
Age	-0.028 (0.001)***	-0.028 (0.001)***	-0.026 (0.001)***
Height	0.015 (0.001)***	0.015 (0.001)***	0.010 (0.001)***
Abitur father	0.181 (0.033)***	0.182 (0.033)***	0.028 (0.037)
Abitur mother	-0.013 (0.042)	-0.011 (0.042)	-0.085 (0.046)*
Years of education	---	---	0.274 (0.037)***
Years of education squared	---	---	-0.009 (0.001)***
Migration background	---	---	-0.004 (0.031)
Married	---	---	-0.134 (0.020)***
Number of children	---	---	-0.038 (0.011)***
Health	---	---	0.146 (0.007)***
Fulltime	---	---	0.007 (0.020)
Unemployed	---	---	0.017 (0.032)
Out of labor force	---	---	-0.076 (0.021)***
Ln(household income)	---	---	0.117 (0.016)***
Work experience	---	---	-0.004 (0.003)
Work experience squared	---	---	0.0003 (0.0001)***
Childhood spent in medium-sized city	---	---	-0.087 (0.033)**
Childhood spent in small city	---	---	-0.179 (0.031)***
Childhood spent in rural area	---	---	-0.203 (0.028)***

Moved back to childhood hometown	---	---	0.185 (0.061)***
Does not live in childhood hometown	---	---	0.130 (0.022)***
Constant	3.548 (0.255)***	3.575 (0.255)***	1.102 (0.375)***
Year dummies	Included	Included	Included
R <sup>2</sup>	0.093	0.094	0.106
Number of observations	175,935	175,935	146,357
Number of persons	33,716	33,716	29,026
East German woman - East German man	---	-0.540	-0.562
$H_0$ : East German woman - East German man = West German woman	---	17.03***	4.39**

Method: Random Effects GLS. The table shows the estimated coefficients. Standard errors in parentheses are clustered at the person level. The next-to-last row provides the differences between the coefficients on the variables for an East German woman and an East German man. The last row shows the result of the  $\chi^2$  test for the null hypothesis that this difference equals the coefficient on the variable for a West German woman. \*\*\* Statistically significant at the 1% level; \*\* at the 5% level; \* at the 10% level.

**Table 4:** Determinants of Context-Specific Risk Tolerance; Basic Specification

	(1) Financial matters	(2) Career matters	(3) Sports and leisure	(4) Driving	(5) Health matters	(6) Trusting others
East German woman	-0.708 (0.040)***	-0.099 (0.050)**	-0.491 (0.045)***	-0.747 (0.049)***	-0.375 (0.045)***	-0.348 (0.044)***
West German woman	-0.716 (0.033)***	-0.500 (0.041)***	-0.598 (0.037)***	-0.755 (0.039)***	-0.572 (0.036)***	-0.144 (0.036)***
East German man	-0.237 (0.039)***	0.131 (0.045)***	-0.007 (0.042)	0.126 (0.044)***	0.112 (0.040)***	-0.256 (0.039)***
Age	-0.017 (0.001)***	-0.048 (0.001)***	-0.054 (0.001)***	-0.039 (0.001)***	-0.029 (0.001)***	-0.013 (0.001)***
Height	0.015 (0.002)***	0.026 (0.002)***	0.022 (0.002)***	0.024 (0.002)***	0.010 (0.002)***	0.011 (0.002)***
Abitur father	0.280 (0.038)***	0.305 (0.046)***	0.407 (0.042)***	0.069 (0.044)	0.161 (0.041)***	0.620 (0.043)***
Abitur mother	0.029 (0.051)	0.097 (0.059)	0.119 (0.055)**	-0.110 (0.058)*	0.026 (0.054)	0.284 (0.056)***
Constant	1.090 (0.309)**	1.491 (0.371)***	2.424 (0.336)***	1.061 (0.363)***	2.850 (0.327)***	2.125 (0.330)***
Year dummies	Included	Included	Included	Included	Included	Included
R <sup>2</sup>	0.075	0.139	0.182	0.130	0.072	0.035
Number of observations	52,690	46,244	52,313	50,043	53,200	53,259
Number of persons	28,806	26,622	28,800	27,729	29,076	29,099
East German woman - East German man	-0.471	-0.230	-0.484	-0.873	-0.487	-0.092
$H_0$ : East German woman - East German man = West German woman	24.23***	19.71***	4.16**	3.89**	2.44	0.93

Method: Random Effects GLS. The table shows the estimated coefficients. Standard errors in parentheses are clustered at the person level. The next-to-last row provides the differences between the coefficients on the variables for an East German woman and an East German man. The last row shows the result of the  $\chi^2$  test of the null hypothesis that this difference equals the coefficient on the variable for a West German woman. \*\*\* Statistically significant at the 1% level; \*\* at the 5% level; \* at the 10% level.

**Table 5:** Determinants of Context-Specific Risk Tolerance; Expanded Specification

	(1) Financial matters	(2) Career matters	(3) Sports and leisure	(4) Driving	(5) Health matters	(6) Trusting others
East German woman	-0.747 (0.044)***	-0.273 (0.055)***	-0.643 (0.050)***	-0.773 (0.054)***	-0.473 (0.050)***	-0.449 (0.049)***
West German woman	-0.755 (0.038)***	-0.513 (0.047)***	-0.645 (0.042)***	-0.695 (0.044)***	-0.619 (0.042)***	-0.187 (0.042)***
East German man	-0.194 (0.041)***	0.096 (0.048)**	-0.057 (0.044)	0.152 (0.047)***	0.080 (0.044)*	-0.220 (0.042)***
Age	-0.014 (0.001)***	-0.044 (0.002)***	-0.051 (0.001)***	-0.042 (0.001)***	-0.029 (0.001)***	-0.009 (0.001)***
Height	0.004 (0.002)***	0.011 (0.002)***	0.011 (0.002)***	0.013 (0.002)***	0.002 (0.002)***	0.002 (0.002)***
Abitur father	0.069 (0.042)	0.042 (0.051)	0.114 (0.047)**	-0.065 (0.049)	0.061 (0.046)	0.232 (0.047)***
Abitur mother	-0.021 (0.055)	0.101 (0.063)	0.049 (0.059)	-0.052 (0.062)	0.016 (0.058)	0.162 (0.060)***
Years of education	0.315 (0.044)***	0.663 (0.054)***	0.564 (0.048)***	0.465 (0.052)***	0.227 (0.048)***	0.230 (0.047)***
Years of education squared	-0.009 (0.002)***	-0.021 (0.002)***	-0.018 (0.002)***	-0.016 (0.002)***	-0.007 (0.002)***	-0.004 (0.002)***
Migration background	-0.002 (0.036)	-0.043 (0.044)	-0.176 (0.040)***	-0.166 (0.043)***	-0.104 (0.039)***	-0.010 (0.039)
Married	-0.071 (0.026)***	-0.246 (0.033)***	-0.230 (0.029)***	-0.167 (0.031)***	-0.158 (0.029)***	-0.228 (0.029)***
Number of children	-0.048 (0.015)***	-0.022 (0.017)	-0.098 (0.016)***	-0.013 (0.016)	-0.031 (0.016)*	-0.030 (0.016)*
Health	0.058 (0.012)***	0.076 (0.016)***	0.202 (0.013)***	0.042 (0.014)***	0.002 (0.014)	0.132 (0.013)***
Fulltime	0.089 (0.031)***	0.186 (0.038)***	-0.044 (0.035)	0.148 (0.037)***	0.050 (0.035)	-0.118 (0.035)***
Unemployed	-0.142 (0.050)***	0.154 (0.067)**	-0.131 (0.058)**	-0.121 (0.062)**	-0.105 (0.060)*	-0.240 (0.056)***
Out of labor force	-0.036 (0.033)	-0.367 (0.044)***	-0.041 (0.038)	-0.189 (0.039)***	-0.135 (0.038)***	-0.133 (0.037)***
Ln(household income)	0.319 (0.023)***	0.191 (0.028)***	0.200 (0.026)***	0.331 (0.027)***	0.097 (0.025)***	0.185 (0.025)***
Work experience	0.011 (0.003)***	0.019 (0.004)***	0.002 (0.004)	0.015 (0.004)***	0.012 (0.004)***	-0.003 (0.004)
Work experience squared	-0.0002 (0.0001)***	-0.0003 (0.0001)***	0.0001 (0.0001)	-0.0001 (0.0001)	-0.0001 (0.0001)**	0.0001 (0.0001)*
Childhood spent in medium-sized city	-0.021 (0.038)	-0.074 (0.047)	-0.073 (0.042)*	0.001 (0.045)	-0.081 (0.042)*	-0.120 (0.041)***
Childhood spent in small city	-0.007 (0.035)	-0.098 (0.044)**	-0.086 (0.040)**	-0.031 (0.042)	-0.102 (0.039)***	-0.116 (0.039)***
Childhood spent in rural area	0.030 (0.032)	-0.076 (0.040)*	-0.086 (0.036)**	0.067 (0.038)*	-0.050 (0.035)	-0.128 (0.035)***
Moved back to childhood hometown	0.069 (0.070)	0.223 (0.084)***	0.076 (0.075)	0.074 (0.079)	0.127 (0.076)*	0.122 (0.076)
Does not live in	-0.003	0.092	-0.058	0.034	0.032	0.117

childhood hometown	(0.025)	(0.031)***	(0.028)***	(0.030)	(0.028)	(0.028)***
Constant	-2.443 (0.456)***	-2.557 (0.560)***	-1.630 (0.507)***	-3.002 (0.543)***	1.924 (0.499)***	-0.200 (0.499)
Year dummies	Included	Included	Included	Included	Included	Included
R <sup>2</sup>	0.106	0.175	0.199	0.313	0.081	0.070
Number of observations	43,679	38,094	43,322	41,500	44,035	44,074
Number of persons	24,375	22,404	24,338	23,467	24,576	24,595
East German woman - East German man	-0.553	-0.369	-0.586	-0.925	-0.553	-0.229
<i>H</i> <sub>0</sub> : East German woman - East German man = West German woman	14.87***	5.05**	1.02	13.59***	1.31	0.53

Method: Random Effects GLS. The table shows the estimated coefficients. Standard errors in parentheses are clustered at the person level. The next-to-last row provides the differences between the coefficients on the variables for an East German woman and an East German man. The last row shows the result of the  $\chi^2$  test of the null hypothesis that this difference equals the coefficient on the variable for a West German woman. \*\*\* Statistically significant at the 1% level; \*\* at the 5% level; \* at the 10% level.



**Table 6:** Determinants of General Risk Tolerance; Separate Estimations for East and West Germany

	East Germany			West Germany		
	(1)	(2)	(3)	(4)	(5)	(6)
Woman	-0.600 (0.048)***	-0.617 (0.064)***	-0.595 (0.068)***	-0.698 (0.031)***	-0.753 (0.041)***	-0.718 (0.047)***
Woman x 2006	---	0.179 (0.063)***	0.158 (0.067)**	---	0.092 (0.039)**	0.092 (0.044)**
Woman x 2008	---	0.046 (0.068)	0.055 (0.072)	---	0.067 (0.043)	0.080 (0.048)*
Woman x 2009	---	0.089 (0.069)	0.090 (0.073)	---	0.152 (0.043)***	0.164 (0.048)***
Woman x 2010	---	-0.006 (0.071)	0.017 (0.075)	---	-0.019 (0.043)	-0.032 (0.049)
Woman x 2011	---	-0.038 (0.070)	-0.013 (0.074)	---	0.073 (0.043)*	0.096 (0.048)**
Woman x 2012	---	0.005 (0.068)	0.047 (0.071)	---	0.095 (0.043)**	0.099 (0.047)**
Woman x 2013	---	-0.124 (0.074)*	-0.129 (0.077)*	---	-0.004 (0.046)	0.015 (0.051)
Woman x 2014	---	-0.036 (0.073)	-0.037 (0.077)	---	0.069 (0.046)	0.091 (0.050)
Woman x 2015	---	-0.053 (0.076)	-0.043 (0.080)	---	0.073 (0.047)	0.079 (0.052)
Age	-0.023 (0.001)***	-0.023 (0.001)***	-0.021 (0.003)***	-0.029 (0.001)***	-0.029 (0.001)***	-0.028 (0.001)***
Height	0.010 (0.003)***	0.010 (0.003)***	0.009 (0.003)***	0.016 (0.002)***	0.016 (0.002)***	0.011 (0.002)***
Abitur father	0.073 (0.065)	0.074 (0.065)	-0.011 (0.065)	0.211 (0.039)***	0.211 (0.039)***	0.041 (0.039)
Abitur mother	-0.027 (0.079)	-0.030 (0.079)	-0.109 (0.083)	-0.003 (0.050)	-0.003 (0.050)	-0.072 (0.055)
Years of education	---	---	0.284 (0.078)***	---	---	0.265 (0.042)***
Years of education squared	---	---	-0.009 (0.003)***	---	---	-0.009 (0.002)***
Migration background	---	---	0.043 (0.079)	---	---	-0.024 (0.034)
Married	---	---	-0.052 (0.037)	---	---	-0.163 (0.024)***
Number of children	---	---	-0.023 (0.023)	---	---	-0.042 (0.013)***
Health	---	---	0.173 (0.014)***	---	---	0.138 (0.009)***
Fulltime	---	---	0.024 (0.037)	---	---	0.008 (0.023)
Unemployed	---	---	0.086 (0.049)*	---	---	-0.039 (0.043)
Out of labor force	---	---	-0.071 (0.042)	---	---	-0.081 (0.024)***
Ln(household income)	---	---	0.014 (0.032)	---	---	0.149 (0.018)***

Work experience	---	---	-0.018 (0.006)***	---	---	-0.001 (0.003)
Work experience squared	---	---	0.001 (0.0001)***	---	---	0.0002 (0.0001)***
Childhood spent in medium-sized city	---	---	0.007 (0.063)	---	---	-0.123 (0.039)***
Childhood spent in small city	---	---	-0.117 (0.058)**	---	---	-0.207 (0.037)***
Childhood spent in rural area	---	---	-0.200 (0.054)***	---	---	-0.210 (0.033)***
Moved back to childhood hometown	---	---	0.175 (0.122)	---	---	0.195 (0.070)***
Does not live in childhood hometown	---	---	0.056 (0.041)	---	---	0.163 (0.027)***
Constant	4.356 (0.464)***	4.386 (0.465)***	1.922 (0.753)***	3.285 (0.302)***	3.312 (0.303)***	0.911 (0.438)***
Year dummies	Included	Included	Included	Included	Included	Included
R <sup>2</sup>	0.071	0.072	0.087	0.101	0.101	0.114
Number of observations	45,419	45,419	40,690	130,516	130,516	105,667
Number of persons	8,065	8,065	7,452	25,561	25,651	21,574

Method: Random Effects GLS. The table shows the estimated coefficients. Standard errors in parentheses are clustered at the person level. \*\*\* Statistically significant at the 1% level; \*\* at the 5% level; \* at the 10% level.

## Appendix

**Table A.1:** Determinants of General Risk Tolerance; Alternative Estimation Method

	(1)	(2)
East Germany	0.104 (0.014)***	---
Woman	-0.435 (0.017)***	---
East German Woman	---	-0.303 (0.023)***
West German Woman	---	-0.465 (0.019)***
East German Man	---	0.041 (0.021)**
Age	-0.018 (0.001)***	-0.018 (0.001)***
Height	0.010 (0.001)***	0.010 (0.001)***
Abitur father	0.115 (0.022)***	0.116 (0.022)***
Abitur mother	-0.008 (0.027)	-0.008 (0.027)
Constant	3.548 (0.255)***	3.575 (0.255)***
Year dummies	Included	Included
Log Likelihood	-348167.24	-348158.67
Number of observations	175,935	175,935
Number of persons	33,716	33,716
East German woman - East German man	---	-0.344
$H_0$ : East German woman - East German = West German woman	---	18.47***

Method: Random Effects Ordered Probit. The table shows the estimated coefficients. Standard errors in parentheses are clustered at the person level. The next-to-last row provides the differences between the coefficients on the variables for an East German woman and an East German man. The last row shows the result of the  $\chi^2$  test of the null hypothesis that this difference equals the coefficient on the variable for a West German woman. \*\*\* Statistically significant at the 1% level; \*\* at the 5% level; \* at the 10% level.

## Endnotes

---

<sup>1</sup> For example, individuals with low willingness to take risk are more likely to work in occupations with low earnings risk (Bonin et al. 2007) and are less likely to sort into jobs with performance pay (Heywood et al. 2017). They also have a lower propensity for migration (Jaeger et al. 2010) and are less likely to be self-employed and to invest in stocks (Dohmen et al. 2011). Moreover, women with low willingness to take risk have a lower probability of an out-of-partnership birth (Jirjahn and Struewing 2016).

<sup>2</sup> The role of gender in negotiations is also discussed by Babcock and Laschever (2003) and Stuhlmacher and Walters (1999).

<sup>3</sup> While the concept of gender norms traditionally plays a key role in sociology, economists increasingly recognize that gender roles are crucial for understanding economic outcomes (e.g., Albanesi and Olivetti 2016, Alesina et al. 2013, Bertrand et al. 2015).

<sup>4</sup> Akerlof and Kranton assume that the two social categories ‘man’ and ‘woman’ are associated with specific behavioral prescriptions defining the identity of an individual. One’s identity directly enters the utility function of a person. Deviating from the behavior that is expected for one’s social category is assumed to decrease utility.

<sup>5</sup> A further reason for building up the comprehensive child care system was that the communist regime tried to control the socialization and education of its citizens from the very start of their lives.

<sup>6</sup> East Germans have also a higher likelihood of unplanned out-of-partnership birth. However, in contrast to planned out-of-partnership birth, the higher likelihood of unplanned out-of-partnership birth appears to reflect historical factors predating the 1945 separation of Germany (Jirjahn and Struewing 2018b).

<sup>7</sup> An intergenerational transmission of gender role models should involve also an intergenerational correlation of risk preferences. Dohmen et al. (2012) provide evidence from Germany that there is indeed such an intergenerational correlation of risk preferences.

---

<sup>8</sup> As shown in Appendix Table A.1, our results are also confirmed when using a random effects ordered probit model.