Breaking down the wall between Nature and Nurture: An exploration of gendered work preferences in East and West Germany

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Abstract

We study a possible nurture effect of political systems on the evolution of gender differences in work preferences by exploiting the 41-year division of Germany and its reunification in 1990 as a natural experiment. We investigate whether disparate political and social systems produced different gender gaps in preferences with respect to work and specific job attributes (high income, promotion opportunities) as, e.g., the higher female labour force participation in the former German Democratic Republic (GDR) suggests. Based on the German General Social Survey (ALLBUS) in years 1991, 1998/2000 and 2010/2012, our analyses reveal substantial differences between East and West gender gaps in preferences for work directly after reunification and hardly any convergence over the following 20 years. Regarding job attributes, gender-specific preferences in 1991 do not differ between East and West regions. Until 2010, the gaps vanish in the East but remain stable, or even widen, in the West. Cohort analyses confirm that the effect is driven by respondents who lived their adolescence in separated Germany. Accordingly, our results provide strong evidence for the impact of nurture on preference formation, while age and length of exposure are important determinants of the extent of such impact.

JEL Codes: C21, J24, P51

Key words: German separation and reunification, importance of work, job attributes, natural experiment

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1 Introduction

Despite the enormous progress toward gender equality in most Western societies over the past several decades, many of the gender gaps related to labour market outcomes still persist. Across OECD countries, on average, women earn less than men, are less likely to be active in the labour market and, if they are, supply fewer hours of work. They are more likely to interrupt their employment due to child-rearing or other family-related responsibilities. A major part of these differences results from men's and women's individual choices (w.r.t. education, occupation, industry, employer, etc.), and may therefore be viewed as the expression of their individual preferences. Since we observe a systematic gender difference in these choices, this view suggests that male and female preferences regarding their labour market activity differ quite substantially on average.[1]

Although gender differences in preferences received increasing attention from economists in the past decade, this research has mainly been carried out in the lab (examining, e.g., gender differences in preferences for risk and competition – for a comprehensive overview, see Croson and Gneezy, 2009; Bertrand, 2011) and it is not clear at all how these results translate to real (labour) markets.[2] Moreover, another deficiency of this strand of literature, as Bertrand (2011) points out, is the lack of studies that explore the root cause of gender differences in preferences: On the one hand, they may be driven by cultural norms and institutional contexts; e.g., traditional labour division between spouses, direct or indirect discrimination, entry barriers, lack of childcare facilities, etc. Such mechanisms are often subsumed under the *effect of nurture*. On the other hand, the main driver for gender differences in preferences might also be prescribed through the biological sex, i.e., an *effect of nature*. Systematic evidence on which of the two effects dominates to date is scarce, despite its great practical relevance to equalising policy, as an emphasis on either a nature or a nurture explanation for gender differences in preferences would propose different strategies to achieve greater equality in the labour markets.

That "nature" alone may not fully explain gender differences in preferences seems obvious if we consider, for instance, the degree to which gender differences in "revealed" preferences vary across countries. The role of culture as a driver for women's labour market outcomes has recently received increasing attention among economists (Alesina et al., 2013; Fernández,

[1] It also points to the difficulty of identifying causal mechanisms driving these often momentous decisions. For example, it could be the case that women prefer family-related work to labour market work and therefore more often than men choose jobs that allow them to work part-time. It may as well be that women's preferences for labour market work might not differ so much from men's, but they tend to choose jobs that allow them to work part-time when facing certain constraints such as childcare availability and social norms concerning the "appropriate" labour division between partners.

[2] See also (Nelson, 2012, 2013) for a critical assessment of magnitude and economic relevance of gender differences in preferences for risk.

2013; Fogli and Veldkamp, 2011; Fortin, 2005). An even stronger case for the nurture hypothesis might arguably be seen in the variation *within* countries. In the case of Germany, for example, we (still) observe much higher female participation rates in the Eastern part, both at the extensive and intensive margins, compared to the Western part (German Federal Labour Bureau, 2013) as well more desired hours of work (Holst and Wieber, 2014). The German separation and reunification delivers an ideal natural experiment to study the role of nature versus nurture in the formation of gender-specific preferences. Experimentally, this has been attempted by Gneezy et al. (2009) who study the role of culture by comparing the gender differences in competitiveness across a patriarchal and a matrilineal tribe, and by Booth and Nolen (2012b,a) who study gender differences in competitiveness and risk behaviour across school types (mixed-sex versus single-sex schools). Bertrand (2011), while highlighting these studies' contributions as some of the few that offer insight into the interplay of nature and nurture, also raises concerns about the evolutionary distance between the societies that are compared by Gneezy et al. (2009), and, in the case of Booth and Nolan's experiments (2012a, b), about selection into the different school types. Both of these threats to the identification of a nurture mechanism are less of a concern in our study of Germany: The two societies we compare (East and West Germans) share a common past and identity up to the artificially imposed separation, and a "selection" of individuals into the different Germanies did not occur, at least at the time of the separation.[3]

This particular feature of German history, its separation and reunification, has attracted the interest of a number of economic scholars who aimed to identify the causal impact of differential political regimes on various preference or attitude variables, such as tax morale (Torgler, 2003), preferences for redistribution (Alesina and Fuchs-Schündeln, 2007), trust in others and government institutions (Rainer and Siedler, 2009), gender role attitudes (Bauernschuster and Rainer, 2011), inequality perceptions and equity norms (Kuhn, 2013), and, most recently, conspicuous consumption (Friehe and Mechtel, 2014). It is crucial to note, however, that all of these studies use this identification strategy to analyse differences in preferences between the *entire* East and West German populations, and none has considered the difference between genders across the two regions.

Our contribution is a synopsis of these two research fields by identifying the causal impact of political regimes on the magnitude of gender differences in preferences. More specifically, we examine gender differences in preferences for work and for the job attributes "high income" and "promotion opportunities". Using the German separation and reunification as a natural experiment allows us to test the hypothesis that two distinct political systems–differing markedly with

[3]In Section 2 we will explain that cross-migration flows between the two Germanies do thus not pose a threat for our identification.

respect to their institutional environments and the role they promote for women in society–produced heterogeneous gender gaps in these work preferences. We use "stated preference" measures that have been shown to account for (gender) differences in labour market outcomes (Fortin, 2008; Humlum et al., 2012; Zhan, 2014). These measures allow us to circumvent both *external* and *internal validity* issues. The former may arise in (field or lab) experimental studies when using rather abstract preference measures such as risk and competition preferences to extrapolate to real world labour market preferences. The latter issue, especially within our particular setting, may arise when examining "revealed preference" measures, such as labour force participation, as they not only reflect the true preferences, but may also be influenced by disparate region-specific constraints, e.g., the different institutions during separation and the heterogeneous economic development across East and West. Consequently, examining participation rates without taking into account the higher "desired work hours" among East German women might severely underestimate the regional gap in gender-specific work preferences. Our "stated preference" measures seem to provide a useful alternative.

To test our hypothesis that the separation treatment had an effect on gender differences in work preferences, we combine data from the German General Social Survey (ALLBUS) with official German register data. The ALLBUS since 1980 regularly surveys a random sample of the German population on a wide variety of social and political topics as well as demographic background characteristics and included a sample of East German respondents almost immediately after reunification, in 1991. It thus allows us to examine regional differences in gendered work preferences at a very early point in time that seems to be almost as good as if we had information for East and West *during* separation. We use five cross-sections, from 1991 to 2012. We construct our outcome variables such that they measure the relative importance an individual assigns to them, i.e., the importance of work compared to other aspects of life, as well as that of the two job attributes—high income and promotion opportunities—compared to other potentially desirable job attributes. In doing so, our measure captures the economic notion of diminishing marginal utility; i.e., an individual usually faces trade-offs between (the benefits generated by) "labour" and "leisure" when choosing her labour supply or different job characteristics when choosing the optimal job. Such benefits include, for example, "high income" or the intrinsic rewards that come from "helping others." We then use these measures to examine whether the German separation had an impact on gender differences in these importance rankings.

We find strong evidence for the "nurture hypothesis": In 1991, there is a significant gender gap in perceptions of the importance of work relative to other aspects of life in both parts of the country (with women finding work less important than men). However, this gap is

significantly smaller in the former GDR. By 2012, the gender gap narrowed in the West but remained significant, whereas the gap between Eastern men and women had vanished. Thus, the "gap in the gap" across the two parts of the country remains significant even after 20 years of unification. Furthermore, we find significant gender gaps regarding preferences for high income and promotion opportunities in both regions directly after reunification, with none of those differing significantly *between* regions. Again, these gender gaps persist among West Germans, whereas in East Germany they have vanished by 2010. As a result, a significant "gap in the gap" emerges in preferences for promotions–indicating that gender-specific preferences in the East and West have partly diverged over time. These findings are robust to the inclusion of a broad set of individual and macro-level control variables and to a to series of further robustness checks, such as, e.g., an analysis based on the region of Germany in which respondents lived during their adolescence rather than their residence at the time of the interview.

To summarize, our contribution spans three dimensions. Most importantly, we offer evidence regarding the role of nature and nurture in shaping gender differences in labour preferences. While building on the existing literature on the causal impact of political regimes for preference formation, our paper is the first to analyse gender differences in preferences between East and West Germany. Moreover, our analysis of historical Prussian data delivers more robust support for the identification strategy using the German separation and reunification not only in our context, but also for other studies relying on the assumption that no systematic differences existed between East and West Germany before separation. Secondly, we extend the experimental literature on gender differences in preferences by using a *natural* experiment that thus allows us to evaluate preference measures that are more directly relevant to labour market outcomes, i.e., preferences for work as such and, within a job, for high income and promotion opportunities. We construct the variables of interest as the *relative importance* an individual assigns to work as well as the job attributes of high income and promotion opportunities. This reduces the ambiguity in their interpretation as preferences that influence individual labour market decisions compared to more abstract concepts such as competition or risk aversion. Finally, we are able to trace out the nurture mechanism in preference formation more precisely by carefully examining the effects for different cohorts. We try to disentangle distinct mechanisms (e.g., is GDR socialisation or GDR work experience more important?) that may result in different patterns (convergence, persistence, divergence) evolving after reunification. Except for Kuhn (2013)—who analyses East-West differences in subjective inequality perceptions, equity norms, and preferences for redistribution by birth cohort—this has so far been largely overlooked.

The paper is organized as follows: Section 2 shortly reviews the division of Germany into

two countries and the respective political contexts of female employment in order to derive our hypotheses concerning work preferences. Section 3 introduces the data and measures we use, and Section 4 supplies the regression results for the aggregate sample and separate analyses by cohorts to trace out the specific mechanisms. Section 5 explores causality concerns by investigating historical data to verify that the differences we find are not likely to be determined prior to separation, and by examining East-West migrants as well as the variation of the effect across Eastern federal states. Section 6 concludes the paper.

2 The impact of the German separation and reunification on gender gaps in work preferences: What do we expect?

After World War II, Germany was divided into two distinct countries along the Soviet occupation zone borders. Having shared a common cultural past as one country until then, the German Democratic Republic (GDR) was constituted on the grounds of the Soviet occupation zone, which covered the five Eastern Laender. The remaining 11 Laender, occupied by the Americans, British, and French, formed the Federal Republic of Germany (FRG). In 1989, a peaceful revolution led to the fall of the Berlin Wall and a swift political reunification of the two German parts soon followed in 1990 (with a fast imposition of monetary union and FRG institutions in East Germany, see Krueger and Pischke, 1995). During the political division, people living in the two German states received differential treatment[4] through labour market and educational institutions, as well as gender role norms, in particular with respect to female employment. We thus expect that the treatment had an effect on the gender gap regarding preferences for work and extrinsic job characteristics, which are highly relevant for career choices.

Following the practice established in the aforementioned studies (Torgler, 2003; Alesina and Fuchs-Schündeln, 2007; Rainer and Siedler, 2009; Bauernschuster and Rainer, 2011; Kuhn, 2013; Friehe and Mechtel, 2014), we build on the assumption that East and West Germans did not differ systematically prior to separation, and that the separation and reunification itself can be treated as exogenous shocks that neither population was able to anticipate. Accordingly, we infer that we should observe regional differences in gender disparities with respect to work preferences shortly after reunification, in case these were impacted by a political regime (i.e. nurture). Over the course of time, however, we would expect a convergence as the East and

[4]Migration from the West to the East was possible, but practically negligible. Migration in the reverse direction was in principle possible until 1961(Fassmann and Munz, 1994), but exiting the GDR without a departure permit and handing in one's ID card was criminalised after 1954. During the existence of the wall from 1961-1989, only about 800,000 GDR citizens managed to legally depart to the FRG (Fassmann and Munz, 1994).

West now share the same political system and institutions.[5] With respect to preferences for gender roles, however, an issue most closely connected to our research question, Bauernschuster and Rainer (2011) uncover a *divergence* between East and West Germans over the course of time. This is an intriguing finding, which the authors hypothesise might be accounted for by an intensified identification of the former GDR population with what has generally been seen as a positive peculiarity of their socialist state: the politically promoted labour force participation of women, which was supported by widespread, publicly provided child care facilities.

From earlier studies we know that labour market participation was much higher among women in the GDR than the FRG–at both the intensive as well as extensive margin (Holst and Schupp, 2001; Rosenfeld et al., 2004). In the FRG, in the 1950s and 1960s, many social and tax provisions were introduced that favoured the breadwinner (with nonworking spouse) household, such as joint taxation of married couples (Gerhard, 1992). Up until the 1990s, child care for pre-schoolers was scarce and elementary schools had varying daily schedules or would even close over the lunch hour (Ostner, 1993).

The GDR, on the contrary, enforced women's obligation to work and supported maternal employment (Rosenfeld et al., 2004). For this purpose, in 1950, the Mother and Child Care and Women's Rights Acts established "a network of public child care centers, kindergartens, and facilities for free school meals, maternity leave, and days off to care for sick children" (Cooke, 2006: 5). In addition, the Family Law Code (Familiengesetzbuch) in 1965 emphasised the equality of spouses. Due to the state provision of universal child care and the East German citizen rights based on the status of labour force workers, most women, including mothers, were employed full-time (Duggan, 1995). Given these contrasting roles that the two states promoted for women in society, we expect women in the East to differ much less from men with respect to the relative importance that they assign to paid work (compared to, e.g., family and children) than in the West. Thus, we expect to find a regional gap in the gender disparity in preferences for work directly after reunification.

Over the course of time, however, we might anticipate that the gender gaps converge. Despite the state's progressivism in terms of the gender roles it promoted, the GDR legislation nonetheless assumed the domestic sphere to lie within women's responsibility, as exclusively married women had a monthly day off to perform housework, and mothers had fewer weekly working hours and were eligible for parental leave (Duggan, 1995). In absence of these support-

[5]Whereas the first hypothesis of distinct outcomes *directly* after reunification is supported by virtually all studies, the evidence on the convergence hypothesis is rather mixed. Convergence has been found with regard to preferences for work and work values among women (Adler and Brayfield, 1997), redistribution (Alesina and Fuchs-Schündeln, 2007), trust in government institutions (Rainer and Siedler, 2009), and tax morale (Torgler, 2003). On the contrary, no convergence is observed for trust in others (Rainer and Siedler, 2009) or solidarity (Brosig-Koch et al., 2011).

ing policies, East German women's preferences may move closer to those of the FRG women, who always had to balance work and family responsibilities on their own account, while men, in their role as the breadwinners, were responsible for providing income. Moreover, if gender differences in preferences are driven by nature, and the GDR regime had enforced "unnaturally" high female labour force participation counter to the true preferences, we would also observe Eastern women adapting the preferences of West German women. Hunt (2002) observes that female employment rates dropped by 23 percentage points over the four years following reunification, compared to a smaller drop of 17 percentage points for men. This would be consistent, she notes, with a convergence in female preferences for home production or, alternatively, a convergence in employers' taste for discrimination. If the former was the case, we should find a growing gender gap in preferences for work in the East, and thus a convergence toward Western levels.

Regarding the gender differences in preferences for the job characteristics of high income and promotion opportunities, however, the predictions are less clear-cut, even in 1991. We follow Fortin (2008), Pollmann-Schult (2009), (Humlum et al., 2012) and Busch (2013) in their argument that gender differences in preferences for job characteristics can partly explain the segregating occupational choices of (young) people. Their study reveals substantial gender differences in preferences for extrinsic job attributes, including high income and promotion opportunities (men tend to find them more important) and altruistic/social attributes (women tend to find them more important). Additionally, the likelihood of choosing a typically "male" occupation increases as the individual valuation of extrinsic job attributes increases (or, vice versa, the likelihood of choosing a characteristically "female" occupation increases with one's valuation of social job characteristics).[6]

Strikingly, even though the share of women who attended professional colleges and universities was much higher in the East than the West, East German women did not differ from West German women in selecting only sixteen traditionally female vocational tracks out of many hundreds available to them (Nickel 1992 cited by Cooke, 2006). Since gender-specific segregation was even more pronounced in the GDR (Rosenfeld and Trappe, 2002), which still persists (to a lesser extent) in the East today (Beblo et al., 2008), we might expect gender differences in preferences for job characteristics not to differ between the two parts of the country and remain alike over time. On the other hand, the very different development of the gender wage gaps in the two Germanies may have been accompanied by a similar development of the

[6]It is important to note that the above cited studies focus on individuals' absolute, unranked valuation of the job characteristics. However, we argue here that gender differences in preferences for these characteristics become particularly relevant for the prediction of economic outcomes if individuals have to balance to what degree they expect their job to provide them with, for instance, high income or the opportunity to help others, and we thus use their relative importance.

gender preference gaps for high income. From the comparable levels of about 25% at the time of reunification (Krueger and Pischke, 1995), the East German wage gap dropped to 8% in 2013 (German Statistical Office, 2014), while it remained nearly unchanged in the West.

3 Methodology

3.1 Data & Sample

We combine data from the German General Social Survey (ALLBUS) with official German register data. The ALLBUS regularly surveys a random sample of the German population on a wide variety of social and political topics as well as demographic background characteristics. The survey began with West German inhabitants in 1980 and has included East German respondents since 1991 (Terwey, 2000). For our research design, we use five cross-sections: 1991, 1998, 2000, 2010, and 2012. We chose these years because they are the only cross-sections that include our dependent variables[7] and they allow us to cover a meaningful time horizon from just after reunification up to two decades later. Additionally, two of these waves provide information on the federal state in which respondents lived throughout their youth (as opposed to where they were born and where they lived at the time of the survey). By distinguishing between the region in which a respondent spent her adolescence and her present residence, we are able to study the importance of socialization in preference formation and the influence of political environments more precisely than the aforementioned studies, which were limited to birth or residence information only.

Since we are interested in the influence of the two different political regimes formerly installed in East and West Germany on gender differences in preferences, we reduce the noise potentially introduced by individuals with more heterogeneous cultural backgrounds and restrict our sample to respondents of German citizenship. Furthermore, we exclude individuals above the age of 50 to avoid issues related to early retirement policies, a measure the German government applied in order to mitigate unemployment during the restructuring of the East German economy after the formation of the monetary union (Krueger and Pischke, 1995).[8] From a theoretical perspective, we can also argue that at this point in life, an individual's decisions that determine her labour market outcomes—such as human capital investment, oc-

[7] The importance of life aspects, including work, has been surveyed in 1991, 1998, and 2014, and the importance of job attributes was surveyed in 1991, 2000 and 2010. For each of our outcome variables, we can thus use three cross-sections.

[8] Moreover, there is evidence from the sociology and psychology literature that individuals' self-concept, i.e., their assessment of aspects they consider important in life, changes substantially in the middle-age life phase (Helson and Soto, 2005). One's assessment of the importance of work and job aspects also seems to change drastically in this phase of life, as retirement grows closer (Kalleberg and Loscocco, 1983; Ekerdt and DeViney, 1993; Ekerdt et al., 2000).

cupational choice, whether and for how long to interrupt employment in order to raise children, etc.—are virtually irreversible. Thus, if we consider gender differences in preferences to affect gender gaps in labour market outcomes, it is sensible to examine preferences up to a point where they can actually exert an influence through individual decisions. Finally, by excluding people born before 1940 and using the information on their residence during *adolescence*, we can essentially rule out any selection concern relating to the superior migration opportunities for East Germans before 1961.

We complement the survey information provided by ALLBUS with official register data compiled from different sources in order to construct a comprehensive set of federal-state-specific macro-controls. We will provide further details on the controls in section 3.3.

To mitigate concerns about potential historical differences between the two German parts, we finally also draw on an ancient Prussian data set that contains detailed information on agricultural, industry and occupational structure, income and taxes, educational systems, and demographic structure at the district level in the second half of the 19th century (Becker et al., 2012). We find no systematic differences between Eastern and Western regions; this finding is supported by an additional data source on sector and occupational structure, as well as marriage and fertility behaviour (by region), from the Statistisches Reichsamt for the year 1933.

3.2 Variables

3.2.1 Main independent variable

The key estimator in our set-up is a dummy variable indicating whether a respondent i lives in one of the former GDR federal states. Thus, the dummy $East_i$ takes on the value 1 if the respondent is a resident of the Eastern part of Germany (ER) at the time of the interview. The dummy is 0 if, on the contrary, the respondent resides in the Western part of Germany.

$$East_i = \begin{cases} 1 & \forall i \in ER = \{\text{Berlin (East), Brandenburg, Mecklenburg Pomerania, Saxony, Saxony-Anhalt, Thuringia}\} \\ 0 & \forall i \notin ER \end{cases}$$

For the robustness checks in Section 5.3, we use a refinement of this variable. In some of our cross-sections, respondents are additionally asked in which of the German federal states they have predominantly resided throughout their adolescence (or, alternatively, where they were born). This variable thus takes on the value 1 for all individuals who reported spending their youth in one of the Eastern states and zero for individuals who lived in one of the Western states. Thus, in this specification, all respondents who have not spent their youth in the FRG

or the GDR are excluded from the analysis.

3.2.2 Dependent variables

For our outcome variables, work preferences, we construct three measures: (1) the relative importance of work (compared to other aspects of life); (2) the relative importance of high income; and (3) the relative importance of promotion opportunity (compared to intrinsic and social job characteristics). The reason that we are interested to learn about their relative importance among alternative options is that we assume an individual to maximise her utility under constraints, i.e., she is forced to prioritise according to her preferences when choosing her hours of labour supply or her profession. According to Becker (1985), gender differences in labour market outcomes might stem from the higher non-market responsibilities of women. Under the assumption that each individual can divide a fixed supply of total effort to market and to household production,, the effort women invest in household activities, such as childrearing, reduces the effort they can exert at market activities. Less "effort", according to Becker, translates into less effective time at a job, but can also induce the choice of a work place that requires less effort. Thus, we evaluate the priority respondents assign to work compared to competing means of time use (leisure, family, etc.) and to the job attributes of high income and promotion opportunities compared to other job attributes (intrinsic, social). To achieve this, we use 11 items provided by the ALLBUS, each of which allows respondents to rate its importance on a 7-point Likert-type scale, where a higher value corresponds with higher importance. The items are presented to the respondents in a random order and are evaluated independently from each other.

Preferences for work as such

Specifically, for the measure of the relative importance of work, we use five items that ask respondents to rate the importance of the following aspects of life[9]: job and work, own family and children, leisure and relaxation, friends and acquaintances, and relatives. We choose these items because these aspects of life also exhibit competing means of time-use to a certain degree, i.e., it is likely that individuals who assign a relatively high importance to job and work are more likely to supply (more) labour.[10]

We thus take these five items to construct a measure of preference for work, p_w, as a function of the value v_w that an individual assigns to the item "importance of job and work," such

[9]The ALLBUS includes three further aspects that we do not use for the analysis since they do not seem relevant determinants of the available time-budget: religion and church, politics and public life, and neighbours.

[10]A probit regression confirms that a higher relative evaluation of the importance of work corresponds with a higher probability of being employed.

that the average of the values he assigns to each of n other life aspects, v_j is subtracted from the value assigned to work v:

$p_w(v_w, v_j) = v_w - \frac{\sum_{j \neq w}^{n} v_j}{n}$, with $j = \{1, ..., n\}$

Preferences for job characteristics

We can sort the six job characteristics that respondents are asked to evaluate broadly into three categories.[11] Specifically, respondents are asked to indicate how important it is for a job to provide:

- high income, good promotional opportunity (extrinsic)
- interesting tasks, self-directed working (intrinsic)
- the opportunity to be useful to society, the opportunity to help others (social)

We apply the identical procedure as we have done in the case of the relative importance of work: an individual's preference p_k for the job attribute k (either income or promotion) is a function of the value v_k that she assigns to this attribute, such that the average of the values she assigns to each of the n other attributes, v_j, is subtracted from the value she assigns to the attribute of interest v_k:

$p_k(v_k, v_j) = v_k - \frac{\sum_{j \neq k}^{n} v_j}{n}$, with $j = \{1, ..., n\}$

We focus on extrinsic job attributes relative to intrinsic and social attributes because they have been shown to exert the most powerful influence on job choices and occupational sex segregation (Busch, 2013; Pollmann-Schult, 2009). According to Pollmann-Schult (2009), individuals' probability to work in a male occupation is about 14% higher when they rate "high income" as an important job aspect. Busch (2013) shows that the gender gap in the job choices of 17-year-olds can partly be explained by girls' higher evaluation of social job characteristics, which implies that the relative importance they assign to extrinsic characteristics must be lower than boys'.

Magnitude, range and interpretation of outcome variables

Our dependent variables are continuous and, theoretically, range from $p_k = \{-6, 6\}$. They are zero in the extreme case where an individual assigns exactly the same value to all aspects of

[11] This categorisation is commonly used in the sociology literature, see Adler and Brayfield (1997).

life[12], i.e., if the value assigned to the importance of job and work, v_w, does not differ from the average score of all other values. Whenever "job and work" is rated as more important than all other aspects of life are on average, p_w takes on a positive value. In the extreme case, when only job and work receive the highest score of 7 points while all other life aspects receive the lowest point 1, $p_w = 6$. Analogously, if the value assigned to job and work is lower than the average score over all aspects, the work and job are less important and $p_w(v_w, v_j)$ is thus negative.

In the sample, the 'preference for work' measure ranges from -4.8 to 3.6 across all individuals, whereof West Germans are most responsible (see the smaller spread for the East German density functions for the year 1991 in Figure 1). The overall mean is 0.274 (0.432 for men and 0.127 for women). Shortly after reunification, the unconditional gender gap is slightly larger in the West, while East Germans assign a relatively higher rank to work overall, such that we have a scale shift for both women and men. From these figures, we cannot yet draw a conclusion on a different gender gap between regions. Responses to extrinsic job attributes do not look that different, at first glance, although they are rated as relatively less important than other intrinsic and social attributes on average (-0.20 for high income and -0.27 for promotion opportunities). Figure 1 plots the Kernel densities for our three dependent variables in 1991 by region (the left panels show densities in the East) and sex (dashed lines representing women). In general, the means of men and women appear to lie closer together in the East, but only with respect to the preference measure for work. We also observe that the entire distribution of male and female preferences is more similar in the East than in the West.

Further descriptive statistics for all preference measures are provided in Tables A.1 and A.2 in Appendix A.

3.3 Estimated model

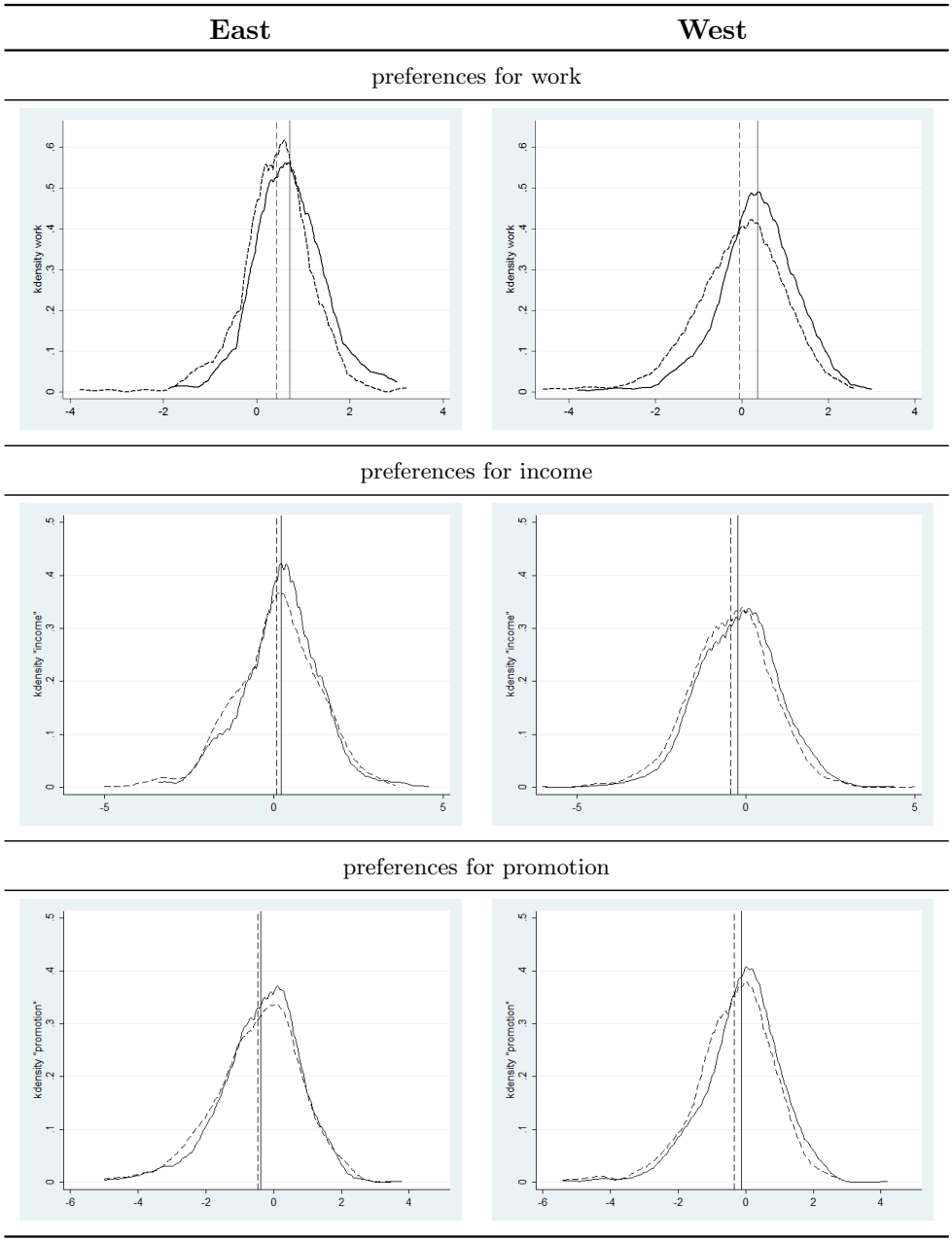
To investigate the influence of the Communist regime that was installed in the Eastern part of Germany during separation on the gender gap in work preferences, we estimate the following OLS model using the pooled cross-sections from 1991, 1998/2000, and 2010/2012:

$$Y_i = \sum_{t=1991}^{2012} year_t \boldsymbol{\Theta} + \sum_{t=1991}^{2012} (year_t \times East_i)\boldsymbol{\Gamma} + \sum_{t=1991}^{2012} (year_t \times Female_i)\boldsymbol{\Phi} + \sum_{t=1991}^{2012} (year_t \times East_i \times Female_i)\boldsymbol{\Pi} + \boldsymbol{X_i}\boldsymbol{\Lambda} + \epsilon_i$$

Where Y_i denotes one of the three outcome variables, $East_i$ is our dummy variable, indicating whether a respondent i was living within the borders of the former GDR at the time of

[12]For the sake of exposition, here we refer only to our measure of preference for work as such; however, the same logic applies to the job attributes.

Figure 1: Kernel densities for work-related preferences by gender and year



Note: Solid lines refer to male and dashed lines to female respondents. Curves show estimated Kernel densities; vertical lines show group means.

the interview. $Female_i$ indicates a female respondent. The vector $\boldsymbol{\Theta}$ contains the survey-year fixed effects including the constant and thus captures shifts in Y_i for West German men over time, i.e. for those interviewed just after reunification in 1991, around 2000 (i.e., in the year 1998 for work as such and in 2000 for job attributes), or around 2010 (i.e., 2012 for work and 2010 for job attributes). The vectors $\boldsymbol{\Gamma}$ and $\boldsymbol{\Phi}$ likewise capture the divergence in the time trend from East German men and West German women, i.e. the 'regional gap' between men and the 'gender gap' in the West. Our main interest focuses on the coefficients contained in the vector $\boldsymbol{\Pi}$, which we obtain from interacting the East dummy with the dummy for female respondents and the survey year, thus revealing variation in the gender gap between the two regions and over time (we will refer to this as the 'gap in the gap' or 'GiG'). $\boldsymbol{X_i}$ is a vector of individual and macro-level control variables, all of which allow to flexibly control for federal state and time heterogeneity. ϵ_i denotes the individual error term.

Please note that taking the double difference (by gender *and* region) rules out the potential problem of different response behaviour due to interpretative differences between East and West respondents. Therefore, we are not so much concerned that the effect might be driven by interpretative differences (i.e., that a measurement error occurred in the dependent variable), because this would be a problem only if we compared East/West differences for all respondents. For our difference-in-difference analysis, however, we only need to rely on the sensible assumption that men and women within the Eastern and Western region interpret the question in the same way.

Controls

Even though work preferences have been shown to causally affect labour market labour market outcomes (Fortin, 2008; Humlum et al., 2012; Zhan, 2014), one might be worried about the potential endogeneity of, e.g., individual human capital investment and labour market participation decisions. Thus we try to reduce the problem of reversed causality, that may arise even in a natural-experiment setting, by including only variables in $\boldsymbol{X_i}$ that cannot be influenced by the individual herself. Among the individual-level controls, this leaves us with the respondent's age and parents' level of schooling, as well as the father's occupational status[13]. We exclude individuals' employment status, income, marital status, and number of children from the analysis for intuitive reasons, since they are all likely to be outcomes of an individual's work preferences. Note, however, that the results we provide in the subsequent sections are relatively

[13]Mothers' occupational status was not recorded in the ALLBUS before 2002. In a robustness check, we include this variable using only the 2010/2012 cross-section to verify that this does not alter our 'gap in the gap' effect.

insensitive to the inclusion of these variables, except for employment status, naturally.[14]

Our macro variables capture a wide range of important federal state characteristics in order to mitigate the concern that any regional differences we find in the gender gaps regarding work preferences are merely driven by differences in respondents' economic conditions by virtue of living in a certain federal state. Still today, more than 20 years after reunification, the economic development and labour market conditions in the Eastern states lag behind the West. Since Goldin (1995) shows that economic development and female labour force participation are strongly interrelated, our main concern is to account for this heterogeneity. We thus include federal state level per-capita GDP, deflated at the state-level consumer price index, and the share of GDP in agriculture and industry. Since we are interested in East-West differences in the gender gaps with regard to preferences, we also include gender-specific unemployment rates[15], a measure of public childcare availability[16], the share of church members, and, among them, the share of Protestants[17].

4 Results

4.1 The evolution of the gaps

Table 1 shows the OLS-estimated coefficients of the importance of work in three different specifications, where we subsequently add more control variables. Column (1) displays the results for the fully interacted model without any further controls. Columns (2) and (3) add the individual and macro-level controls. Shortly after reunification, in 1991, we see that East German residents assign significantly more importance to work compared to other aspects of life than West Germans. A point estimate of 0.265 for the East dummy variable tells us that an average East German's evaluation of work relative to the individual mean is about a third of a point higher than that of a West German in the reference year 1991. The East-West difference shrinks in 1998 and vanishes to zero until 2012. This pattern applies almost equally to men and women, although women rate work lower than men and the gender gap becomes smaller over time. While it amounts to a statistically significant -0.407 in reunification-West Germany (see

[14]This result is indeed reassuring, since we expect (and in fact have examined) a high correlation between our work preference measures and individual probability to be employed.

[15]Ideally, we would also want to include gender pay gaps at the federal-state level. Unfortunately, for the years prior to 2006, this information could only be estimated from survey data. Since we use register data for all our macro controls, we checked the robustness of our findings for the 2010/2012 cross-sections, for which we have the administrative information. The results were unaffected.

[16]We constructed this measure from official register data as the ratio of the number of public childcare spaces for children below the age of 7 that have been allocated in a federal state in a given year to the number of children below the age of 7 who then lived in the same state.

[17]Becker and Woessmann (2008) show that, historically, female literacy in Germany first spread in regions with a higher share of Protestant church members. We thus include the share of Protestants as a proxy for different rates of female empowerment, which were predetermined prior to the German separation, in order to avoid over-estimating the effect of the separation on the 'gap in the gap' in work preferences.

Table 2), it falls to a still significant -0.263 within 20 years (the reduction by .13 is significant at the 10%-level). Only starting from around this level in reunification-East Germany, the gender gap disappears until 2012. Figure 4.1 illustrates that, given these parallel trends, the 'gap in the gap' remains more or less stable at around 10 percent over time, indicating that gender-specific preferences in the East and West follow a similar converging process after reunification, but still at very distinct levels.

Table 1: Preferences for work

VARIABLES	basic model	extended model	full model
East	0.348***	0.326***	0.265**
	(0.053)	(0.054)	(0.105)
Female	-0.417***	-0.416***	-0.407***
	(0.055)	(0.054)	(0.059)
East x Female	0.135**	0.138**	0.150**
	(0.064)	(0.061)	(0.060)
1998	0.080	0.059	0.086
	(0.088)	(0.088)	(0.102)
East x 1998	-0.097	-0.076	-0.078
	(0.125)	(0.117)	(0.117)
Female x 1998	-0.046	-0.035	-0.044
	(0.135)	(0.132)	(0.133)
East x Female x 1998	0.087	0.066	0.079
	(0.152)	(0.144)	(0.143)
2012	-0.154**	-0.160**	-0.130*
	(0.056)	(0.058)	(0.073)
East x 2012	-0.267***	-0.243***	-0.271***
	(0.075)	(0.070)	(0.078)
Female x 2012	0.161**	0.158**	0.148*
	(0.074)	(0.073)	(0.078)
East x Female x 2012	0.044	0.042	0.025
	(0.110)	(0.100)	(0.107)
Constant	0.358***	0.661***	1.058***
	(0.041)	(0.197)	(0.286)
Indiv. Controls	NO	YES	YES
Macro controls	NO	NO	YES
Observations	5,165	5,165	5,165
R-squared	0.068	0.081	0.082

Note: Robust standard errors in parentheses (clustered at the federal state level). *** p<0.01, ** p<0.05, * p<0.1

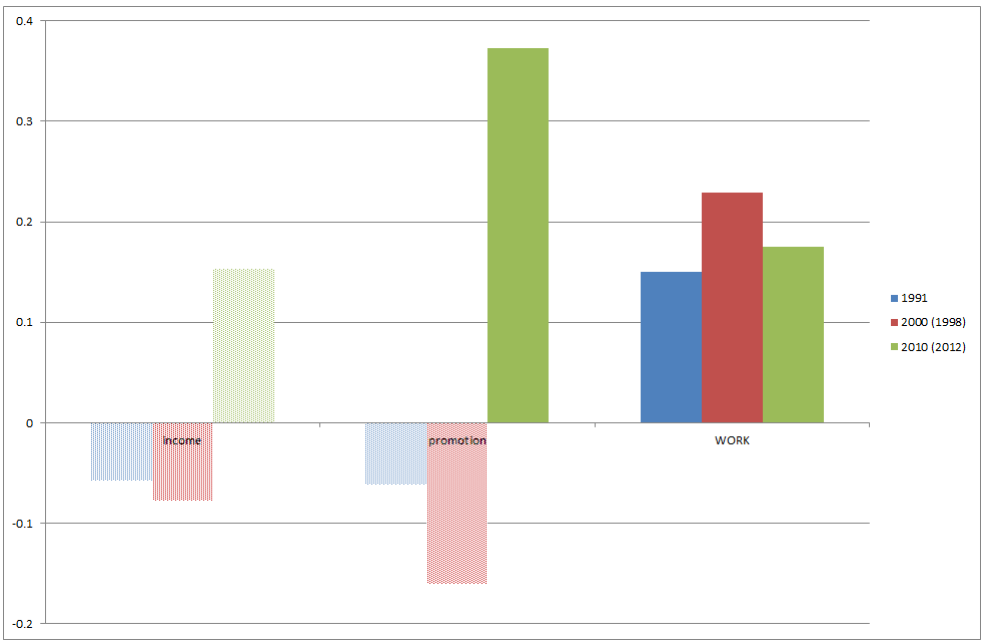
A comparison of the three specifications confirms the robustness of the gender effect to the inclusion of further control variables, and supports the need for variables that address, e.g., the condition of the labour market in both regions: Whereas the coefficient of the female dummy remains statistically significant and of similar magnitude across the models, the East

Table 2: The gender gap in preferences for work by region and year

	1991	1998	2012
West	-0.407***	-0.451***	-0.259***
East	-0.257***	-0.222***	-0.084
E–W	0.150**	0.229*	0.175**

Note: Calculations based on coefficients from the full estimation model (Table 1). Stars indicate joint F-test significance at the *** 1%, ** 5%, and * 10% level.

Figure 2: Evolution of the GiG in preferences for work



Note: Calculations of the GiG in preferences for income, promotion and work are based on the coefficients from the full estimation model (Table 1). Shaded bars indicate no joint F-test significance at conventional levels.

dummy loses economic significance when the variation in macroeconomic conditions and other structural differences are accounted for.

For this reason, we focus on the full model only when we turn to the estimation of job attributes. Overall, we find significant gender gaps in the evaluation of the two characteristics directly after reunification. According to Table 3, women in both parts of the country rate income and promotion opportunities lower than men, on average. In the West, the gender gap appears to grow larger over time, both in preferences for high income and promotion opportunities, which become increasingly less important to women. The gender gaps in the East, however, are insignificant in 2010. East German women's average preferences for promotion opportunities in 2010 counteract the lower average aspirations of West German women. As a result, we find a significant 'gap in the gender gap' (GiG) emerging for promotions (see Table 3), since East German women, as opposed to those in West Germany, do not rate promotion opportunities as less important than their male counterparts. This is especially remarkable since this gap did not exist around reunification (nor in the year 2000), but evolved only afterward, as unambiguously illustrated in Figure 4.1.

The development illustrated here, exhibits a somewhat striking pattern: before the gender gap in preferences for high income and promotion vanishes in the East in 2010, it had expanded in 2000 from its starting level in 1991. This is consistent with the observation that occupational sex segregation in East Germany increased further in the 1990s (and remained stable in the West) (Rosenfeld et al., 2004). Moreover, against the background of Hunt's (2002) finding that women had a disproportionately higher risk of losing their job in the years following reunification, it seems plausible that Eastern women at that time placed more value on having a job at all and found it less important whether it provided high income or good promotion opportunity.

Table 3: The gender gap in preferences for job attributes by region and year

	Income (N=5279)			Promotion (N=5276)		
	1991	**2000**	**2010**	**1991**	**2000**	**2010**
GG West	-0.150***	-0.350***	-0.319***	-0.14**	-0.193***	-0.309***
GG East	-0.208*	-0.427***	-0.166	-0.201***	-0.353**	0.064
GiG	-0.057	-0.077	0.153	-0.061	-0.16	0.373***

Note: Calculations based on coefficients from the full estimation model; see Table A.3 in Appendix A. Stars indicate joint F-test significance at the *** 1%, ** 5%, and * 10% level.

4.2 How much nurture does it take: Cohort analysis

Having identified the overall 'East effect' on gender differences regarding work preferences, we are now interested in studying its evolution. Our aim is to disentangle the underlying sources more precisely: Does the 'gap in the gap' result from pure exposure and length of exposure to different regimes, and can we determine a critical age for a nurture effect to unfold? East German cohorts differ by length of their exposure to the GDR system, the 'shock of reunification' and the dramatic changes that East German institutions and markets were undergoing in the subsequent years. The youngest respondents (from age 18 in 1991) in our sample had just experienced their childhood and adolescence in the GDR and were only about to commence their work lives in re-unified Germany, whereas the oldest (above age 43 in 1991) had already spent a substantial number of their employment years in the socialist system.

Because we might expect heterogeneous effects for the differential 'treatment intensities' resulting from the years of exposure to the GDR system, we run separate regressions for three different birth cohorts, defining them such that we achieve a reasonable degree of variation in their experiences with the GDR regime. For our first group, we choose those who were born and raised in the GDR and were impacted by reunification in the middle of their working lives (the eldest cohort, born 1948-61). This cohort has consciously experienced both regimes and arguably might have faced the greatest challenges in adapting to the new labour markets and institutions. For the second group, we examine those who experienced the GDR mostly during childhood and adolescence but spent most of their work life in reunified Germany with Western labour market institutions (intermediate cohort, born 1962-73). Hence for this group, the transition took place quite early in their lives and adaptation might have been less challenging. Finally, we look at the youngest cohort (born 1974-80), i.e., those without any direct employment experience within the GDR or its labour market (being 16 years of age or younger at the time of reunification), thus having only experienced the new West German institutions in their working life (youngest cohort). Over the full observation period from 1991 to 2012, we are able to observe the middle cohort (1962-73) at three points in time—1991, 1998, and 2012. The older and younger cohorts are only observed twice, as they either already hit the age limit of 50 years in 2012 (older cohort) or were still too young to be surveyed (and for the labour market) in 1991 (younger cohort).

Table 4 reveals very different gender dynamics in preferences for work in East and West Germany across age groups, although these do result in very different 'gaps in the gap' (as summarised in Figure 3) over time. We observe a persistent 'GiG' for the oldest cohort in the 1990s, which is due to significantly more pronounced gender differences in the West (and more than double in size). Since the preferences of East German men and women converge until

Table 4: Cohort Analysis: The gender gap in preferences for work by region and year

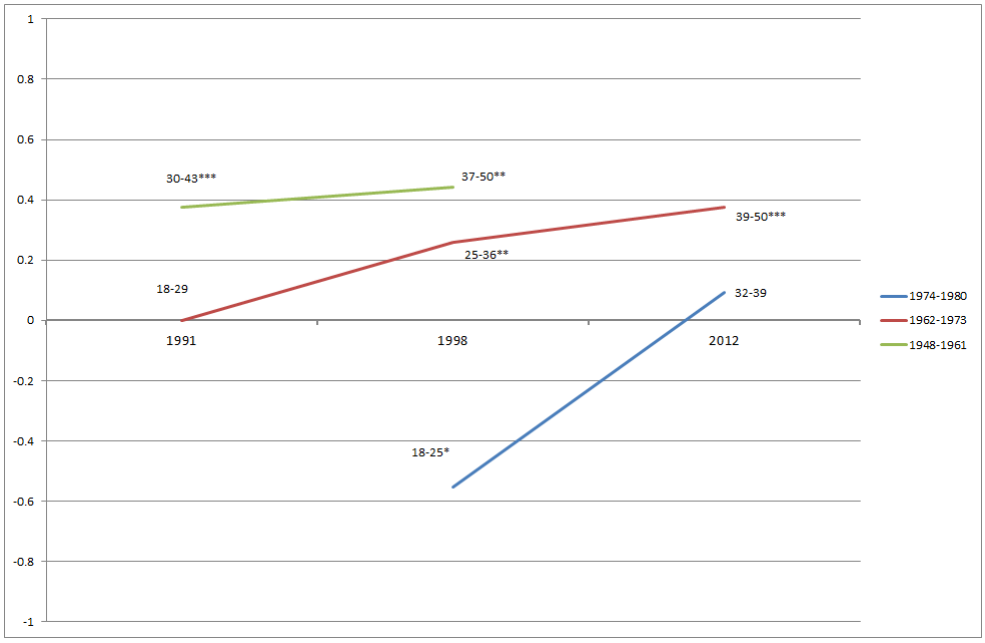
			1991	1998	2012
1948-1961	(N=1670)	**aged:**	**30-43**	**37-50**	**51-64**
		West	-0.589***	-0.566***	—
		East	-0.213**	-0.125	—
		GiG	0.376***	0.441**	—
1962-1973	(N=2035)	**aged:**	**18-29**	**25-36**	**39-50**
		West	-0.274***	-0.504***	-0.489***
		East	-0.234***	-0.245***	-0.113
		GiG	0.040	0.259**	0.376***
1974-1980	(N=492)	**aged:**	**11-17**	**18-24**	**32-38**
		West	—	0.042	-0.11
		East	—	-0.511**	-0.016
		GiG	—	-0.553*	0.094

Note: Calculations based on coefficients from the full model (see table A.4, Appendix A), estimated separately for each of the three cohorts. Stars indicate joint F-test significance at the *** 1%, ** 5%, * 10% level.

1998, the regional GiG even widens over time for this cohort. The second cohort of 1962-1973-borns (who experienced reunification in their 20s) in 1991 heads into unified Germany (and into their working life) without displaying any gap in the gap, due to similar gender gaps in the East and West, but then develops a statistically significant gap over the course of time. By the year 2012, the GiG has grown to a similar size as that of the older cohort for precisely the same reason: gender preferences converge in the East while they diverge in the West. Hence, these results suggest a perseverance of a life cycle- or age-related divergence of gender-specific work preferences grounded in West German society–in spite of formally identical institutions in the post-reunification period, such as taxes, labour, and family policy, West German women tend to detach from the labour market after entering marriage and parenthood, a pattern that does not appear within the borders of the former GDR.

The youngest cohort shows a very peculiar pattern, at least in 1998 when they are in their early twenties: While West Germany respondents do not exhibit any gendered preferences, the East German women appear to care much less for work than men. Thus, we find a negative gap in the gap—for the first time—that is remarkable in size (though not in statistical significance). One explanation for the negative GiG is that age at first birth still differed considerably between East and West German women at the end of the 1990s. As a result, the number of children is higher for the early twenties in the East than in the West; female employment rates also differ atypically at that age. A sensitivity analysis including these variables in the regression consequently yields a non-significant gap in the gap. Additional support for this family-timing explanation is provided by the subsequent responses of this cohort. When we observe them in

Figure 3: Cohort analysis: The evolution of the East-West gap in the gender gap in preferences for work



Note: Calculations based on coefficients from the full model (see table A.4, Appendix A), estimated separately for each of the three cohorts. Stars indicate joint F-test significance at the *** 1%, ** 5%, * 10% level.

their thirties in 2012, 14 years later, the East gender gap has reduced drastically and seems to be on track to become smaller than the one in the West, although this difference is not statistically significant. This finding could also be interpreted as the result of a transition shock: It is important to note that this youngest group is the most likely to be highly selected: Hunt (2006) shows that in 1990-2000, women aged 18-25 were 89% more likely than young men to emigrate to the West. We might thus expect, that the gender difference in work preferences in the West might be biased towards zero, while it could be upward biased in the East.[18] In another article, Hunt (2002) also shows that in the years following reunification, women in East Germany were disproportionately affected by unemployment, and Witte and Wagner (1995) demonstrate that these women, as opposed to the general trend of sharply declining fertility in the East, showed a *higher* likelihood of having children.

In an attempt to identify the "critical age" or amounts of years of exposure to the GDR, we also analyse the GiG in preference for work in the 2012 cross-section separately for smaller age groups (not displayed). Since the effect is noticeable for those who are 38 years old and older (that is, at least 16 at the time of reunification or 15 with the fall of the wall in 1989) but undetectable for those who are younger, we conclude that individuals must have spent at least 15 years of their life in the GDR in order to be influenced by a long-lasting nurture effect.

[18] Unfortunately, in 1998, the ALLBUS did not include the region where respondents lived throughout their adolescence; thus, we rely on residence information at the time of the interview for this cross-section.

Cohort analyses on extrinsic job attributes reveal a somewhat lower variation as illustrated by Table A.6 as well as Figures A and A in Appendix A, which depict largely non-significant GiGs, with the exception of promotion opportunities. Just as with the importance of work, the second cohort of 1962-1973-borns heads into unified Germany without any gap in the gap, but develops a statistically significant one until the year 2010. Again, the East gender gap closes while the West gap grows with age. For the youngest cohort, we observe a similar pattern with regard to the rating of high income relative to the importance of work: a statistically significant negative GiG (at the 10% level) among the 20- to 27-year-olds in 2000 dissolves 10 years later—the reason being presumably the same.

5 Causality Explorations

So far, our analyses provide evidence that political regimes can influence gender differences in preferences substantially. However, they do not necessarily exclude alternative channels through which the effect might be driven. In this section, we explore competing explanations for the regional differences in the gender gaps in work preferences, including historical differences such as the possibility that a specific Eastern federal state might be driving the results and potential selection.

5.1 Historical differences, pre-separation

To start with, one competing explanation for East-West differences in the gender gap may be that the historical conditions in Eastern and Western regions in Germany already differed systematically before the separation in 1949. If male and female inhabitants of the Eastern region were more likely to develop more similar preferences for job-characteristics, irrespective of the different political environment they later experienced, our findings would severely overestimate the causal effect of division and reunification. We investigate this issue with an historical data set of Prussia (Becker et al., 2012) that contains detailed information on the agricultural, industry, and service sector structures; occupational structures; and educational systems on the district level for several years during the 19th century. A second source is the yearbook of the Statistisches Reichsamt (1936), which includes 1933 data on industry sectors, marriage and fertility behaviour, and many other aspects.

With both data sources we identify districts that later, in succession of World War II, became part of the GDR and those that later became part of the FRG (until the fall of the wall in 1989) in order to determine whether systematic structural differences already existed between the two regions in the late 19th and early 20th century. It must be noted that the

GDR can be mapped almost entirely with Prussian districts, whereas only about a third of West Germany falls within Prussia, leaving mostly the North and the South outside the borders. A map illustrating the match is provided in Appendix A (see Figure A).

Table 5 lists the shares of employees in economic sectors in East and West districts for the years 1849, 1882, and 1933. The general trend is that agriculture has declined in relative workforce (from three-fourths to around one-fifth), while the industry sector has gained (from below 7 percent to almost 40, including handcraft). Services have increased only slightly in importance; retail is first mentioned in 1882, while transport first appears as a sector in 1933. Differences between East and West regions are rather negligible—despite a faster industrialization process in the West, documented by the respective shares of the agricultural and industry sectors in 1882—but they seem to level out until 1933. Hence, we have no reason to believe that systematic structural differences existed between the East and the West in types of economic activity prior to the political separation. Regarding the link between Protestantism, girls' education, female literacy, and economic outcomes throughout Prussia established by Becker and Woessmann (2008), we also examined gender-specific school enrolment and literacy. In the year 1886, about 50% of elementary school pupils were girls, both in the East and the West German county average. We do not see any systematic differences here, or for female literacy.

The 1933 statistics by the Statistisches Reichsamt (1936) further document similar marriage and fertility behaviour between later GDR and FRG districts. Unemployment rates and female labour force participation did not differ either. In 1934, the percentage of women among all employees varied between 26% and 38% across regions (Landesarbeitsamtsbezirke), with Saxony (=East) and Bavaria (=West) showing over-proportional and Hesse (=West) and Thuringia (=East) having under-proportional female labour force participation.

Table 5: Employment by sectors in Eastern and Western German regions, pre-separation

Sectors	**1849**		**1882**		**1933**	
	East	**West**	**East**	**West**	**East**	**West**
Agriculture %	72.76	74.46	56.32	49.91	18.99	21.79
Handcraft %	12.83	12.83	–	–	–	–
Industry %	6.78	6.88	26.54	31.61	–	–
Industry and Handcraft %	–	–	–	–	39.71	37.04
Services %	7.63	5.83	12.37	12.83	10.18	10.03
Retail %	–	–	4.78	5.66	–	–
Retail and transport %	–	–	–	–	16.83	18.04
Free occ./Self-employed %	–	–	–	–	14.29	12.95
Total workforce (m)	2.48	2.15	2.13	1.77	18.39	37.55

Sources: Own calculations based on Prussian data sets of 1849 and 1882 and on Statistisches Reichsamt (1936:27).
1849 and 1882: Only Prussian districts within the later GDR and FRG boundaries (1948 to 1989). 1882: Total workforce without handcraft.
1933: All regions of the later GDR boundaries, including Berlin, and FRG boundaries, excluding Berlin (1948 to 1989).

5.2 Federal states

Another concern is whether our estimated 'East effect', rather than representing a general East German particularity, may in fact be driven by only one or a few specific Eastern federal states. Despite controlling for the heterogeneous macro-environments, we are still concerned that the effect we observe may be driven by some environmental differences the respondents are exposed to and that our effect is thus driven by residency in that particular GDR state rather than by general exposure to a different political regime. Naturally, the GDR states were not homogeneous in terms of industry structure, economic power, etc.—but neither were the West German states. The GDR regions also varied in distance to the West German border and by reception of respective radio and TV channels. Variable exposure to West German programmes also implies a natural variation in exposure to respective norms that may contribute to preference formation. A study by Hyll and Schneider (2013), for instance, indicates that TV consumption in the former GDR was positively correlated with material aspirations. We consider this issue by applying the same regression analysis as before but focusing on the effects for the five former GDR states. Thus, we run a regression including all federal states as dummies, with the West German states constituting the reference group. Table 6 shows that the 'East effect' of assigning higher relative importance to work than other aspects of life is distributed quite equally across all Eastern federal states in 1991, though with varying magnitude, and statistical significance, between states.

5.3 Youth vs. residence and mover analysis

Our last objective in this section is to rule out selection issues resulting from East-West migration to drive our results. Right after the fall of the wall (and via Czechoslovakia and Hungary even before that), a substantial labour migration from East to West began. The migrants were highly selective in terms of education level, gender, and, presumably, labour market attachment. If highly educated East German women with an over-proportional labour market attachment (for the GDR) comprise a substantial portion of our West German residence sample, our results on the East-West gaps are likely to be underestimated. To examine this, we take advantage of the fact that, for some of our cross-sections, the ALLBUS also provides information on the federal state in which a respondent spent his or her youth. We perform analyses based on youth in the East, instead of residence for the full sample of East and West Germans, and for those presently living in a West German Bundesland, i.e., those who are under the influence of West German macro-conditions at the time of the interview but were socialised in East Germany.

With a subsample of 1991 and 2012 respondents, who were additionally asked which fed-

Table 6: OLS estimates for the gap in the gender gap, by federal state in which respondents resided during adolescence

Female interaction with:	1991 estimates
East Berlin	0.438***
	(0.146)
Brandenburg	0.106
	(0.079)
Mecklenburg Vorpommern	0.206**
	(0.082)
Saxony	0.176**
	(0.081)
Saxony-Anhalt	0.205***
	(0.073)
Thuringa	0.101
	(0.093)
Constant	0.827*
	(0.419)
Indiv. controls	YES
Macro controls	YES
Observations	1,791
R-squared	0.111

Note: Estimates from the full model ran for the 1991 cross section, which, instead of a single 'East dummy', includes each Eastern federal state and its interaction with females, leaving the entity of the Western states as the reference category.
Robust standard errors in parentheses, clustered at the federal state level. Significance levels are indicated by *** $p<0.01$, ** $p<0.05$, and * $p<0.1$.

eral state they resided in throughout their adolescence (unfortunately this information is not available in the ALLBUS 1998/2000 cross sections), we first address the potential selection bias in our results obtained for East and West German residents. Columns 1 and 2 of Table 7 serve as the reference; here we use, as before, the current "residence" to sort respondents into the East and West categories.[19] In columns 3 and 4, we sort respondents according to whether they have spent their youth in an Eastern or Western federal state.

For the mover analysis in columns 5 and 6, we restrict our sample to those respondents who live in the West at the time of the interview, i.e., have migrated to the West if they spent their youth in an Eastern federal state—and thus examine the gender gaps in preferences between "lifelong" West Germans and East-West migrants. Having been exposed to the socialist system and its institutions during a rather formative period of their lives may lead us to expect slightly greater preference gaps between this group of migrants and the lifelong West sample.

The composite effects in Tables 7 and 8 support our previous findings. The selection bias within the East German population seems rather negligible, as the gender gaps and also the gaps in the gaps with respect to East residence and East adolescence are very similar. Our main findings, a persistent GiG in preferences for work and an emerging GiG in promotion aspirations, are robust to the definition of the East dummy and therefore selection issues. Within the West German population, however, a selection bias due to the inflow of employment-oriented and likewise income- and career-oriented female migrants from East Germany becomes evident in the year 1991. As a result, we do not see any gaps between female and male East migrants (compare the GGs East in the column E-W Migrants). The fact that the GiG in preferences for work is much larger than the one between our East and West residence samples suggests the latter to be a lower bound estimate of the true effect. With a changing composition of migrants, the starting GiG of 0.874 in preferences for work disappears between 1991 and 2012. The GiGs with respect to income and promotion are never affected by migration selection.

6 Discussion & Conclusion

In summary, we find that women, on average, differ systematically from men in their preferences for work as such and for the job attributes of high income and promotion opportunity. However, the gender difference in preference for work over the whole observation period is much smaller in the East than in the West, i.e., a regional gap in the gender gap existed around the time of reunification and still persists in the year 2012. In contrast, a gap in the gap in preferences for the job attributes we examine cannot be observed at the time of reunification but emerges for

[19] Note that the estimated coefficients differ slightly from those presented in Table 1 since we, for the sake of comparability, re-estimated the model without the 1998 cross section.

Table 7: Youth vs. Residency: The gender gap in preferences for work by region and year

	East Residency (N=3562)		East Adolesence (N=3359)		E-W Migrants (N=1935)	
	1991	**2012**	**1991**	**2012**	**1991**	**2012**
GG West	-0.405***	-0.261***	-0.422***	-0.257***	-0.461***	-0.25***
GG East	-0.259***	-0.083	-0.251***	-0.092	0.413	-0.38
GiG	0.146**	0.178***	0.171**	0.165**	0.874**	-0.13

Note: Calculations based on coefficients from the full model (see Table A.7, Appendix A), using the 1991 and 2012 cross sections. In columns 1 and 2, we use 'current residency' to sort respondents into the East and West categories, and for columns 3 and 4, we replicate this procedure but sort respondents according to whether they spent their youth in an Eastern or Western federal state (this information is not available in the ALLBUS 1998 cross section). For columns 5 and 6, we restrict our sample to those respondents who live in the West at the time of the interview, i.e., have migrated to the West if they spent their youth in an Eastern federal state.
Stars indicate joint F-test significance at the *** 1%, ** 5%, and *10% level.

Table 8: Youth vs. Residency: The gender gap in preferences for job attributes by region and year

Income	East Residency (N=3248)		East Adolesence (N=3101)		E-W Migrants (N=1776)	
	1991	**2010**	**1991**	**2010**	**1991**	**2010**
GG West	-0.157***	-0.325***	-0.215***	-0.337***	-0.199***	-0.357***
GG East	-0.209*	-0.174	-0.16*	-0.152	0.378	0.156
GiG	-0.052	0.151	0.055	0.185	0.577	0.513
Promotion		(N=3248)		(N=3101)		(N=1779)
	1991	**2010**	**1991**	**2010**	**1991**	**2012**
GG West	-0.160***	-0.301***	-0.180***	-0.335***	-0.190***	-0.333***
GG East	-0.252***	0.077	-0.228***	0.06	0.264	-0.014
GiG	-0.092	0.378***	-0.048	0.395***	0.454	0.319

Note: Calculations based on coefficients from the full model (see Table A.8, Appendix A), using the 1991 and 2012 cross sections. The display of the results follows the same logic as in Table 7: East respondents are identified by "current residency" in columns 1-2, "adolescence" in 3-4 and 5-6 (this information is not available in the ALLBUS 2000 cross section). In 5-6, we use the restricted sample of respondents residing in the West at the time of the interview.
Stars indicate joint F-test significance at the *** 1%, ** 5%, and *10% level.

promotion opportunities in 2010, indicating that gender-specific preferences in East and West Germany, if any, diverge after reunification.

Although these findings support the notion that political regimes can influence gender differences in preferences substantially, they do not necessarily exclude alternative explanations. For example, differences in the importance of work and the ranking of job attributes could be driven by structural differences in the East and West German labour markets or institutions closely linked to them. We therefore included an exhaustive set of covariates that allow us to flexibly control for these differences at the federal state level. We show that our findings remain robust to the inclusion of these observables.

An investigation of regional differences before separation assures us that the differences are indeed causal to the natural experiment of exposure to differing political and social systems. However, our cohort analysis reveals that age at exposure and length of exposure are important determinants of the size of the effect: A "gap in the gender gap" for the relative importance of work among the 1948 – 1961 labour market cohort existed at the time of reunification already and only later evolved for the younger cohorts. For all those who experienced their full adolescence and their first venture into the labour market in the GDR, the "gap in the gap" seems to enlarge over time, since East German women and men now (2012) value work similarly, whereas the gender gap in West Germany appears rather stable. In particular, work preferences of those who were younger than 15 years at the time when the wall fell do not seem to be influenced by a nurture effect of the GDR regime in 2012 anymore.

Our findings contribute to a better understanding of how gender differences in preferences evolve. Evidence on the mechanisms at play is particularly relevant for the design of equalizing policies. Whether the *nature* or the *nurture* component has a stronger influence on shaping gendered preferences may lead to different conclusions about potential strategies to effectively reduce gender-specific inequalities in labour market outcomes, e.g., reducing occupational segregation vs. reducing unequal pay resulting from it. Our finding that preferences for work and job attributes vary systematically with the political and institutional setting during one's youth, at the height of preference formation, underlines the particular impact of nurture in this context.

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A Appendix

Table A.1: Descriptive statistics for preference measures for work and other aspects of life

Variable[a]	**n**	μ	σ
Job and work	5165	6.06	1.22
Own family and children	5166	6.28	1.4
Leisure time and relaxation	5167	5.78	1.22
Friends and acquaintances	5165	5.72	1.18
Relatives	5165	5.1	1.52
Relative importance of work	5165	0.274	0.98

Note: We use the first five items that capture respondents' absolute valuation of different aspects of life to construct the preference measure for work as described in section 3.2.2.

[a]Question: The cards here list various spheres of life. We would like to know how important each of these spheres of life is for you.

Table A.2: Descriptive statistics for preference measures for job characteristics

Variable[a]	**n**	μ	σ
Income	5279	5.35	1.27
Promotion	5276	5.29	1.31
Interesting work	5278	6.18	1.03
Work independently	5280	5.98	1.15
Help others	5277	5.22	1.47
Useful to society	5270	5.06	1.51
Relative importance of income	5279	-0.196	1.28
Relative importance of promotion	5276	-0.268	1.21

Note: We use the first six items that capture respondents' absolute valuation of different job characteristics to construct the last two preference measures for income and promotion as described in section 3.2.2.

[a]Question: On these cards there are various aspects of the world of work and careers. How important to you personally are these job characteristics?

Table A.3: Preferences for extrinsic job attributes – Full model

	(1)	(2)
VARIABLES	Income	Promotion
East	0.570***	-0.288**
	(0.127)	(0.113)
Female	-0.151***	-0.140**
	(0.051)	(0.064)
East x Female	-0.057	-0.061
	(0.111)	(0.069)
2000	-0.158*	0.049
	(0.079)	(0.099)
East x 2000	-0.058	0.029
	(0.166)	(0.171)
Female x 2000	-0.199**	-0.053
	(0.074)	(0.089)
East x Female x 2000	-0.020	-0.099
	(0.127)	(0.147)
2010	-0.081	-0.081
	(0.086)	(0.105)
East x 2010	-0.280*	0.014
	(0.158)	(0.130)
Female x 2010	-0.168**	-0.169**
	(0.068)	(0.079)
East x Female x 2010	0.210	0.434***
	(0.169)	(0.141)
Constant	-0.134	0.711**
	(0.250)	(0.273)
Indiv. Controls	YES	YES
Macro controls	YES	YES
Observations	5,279	5,276
R-squared	0.081	0.032

Note: Robust standard errors in parentheses (clustered at the federal state level). *** p<0.01, ** p<0.05, * p<0.1.

Table A.4: Cohort Analysis: Gender gap in preferences for work by region and year

VARIABLES	1948–1961	1962–1973	1974–1980
East	0.225	0.131	0.277
	(0.161)	(0.100)	(0.371)
Female	-0.589***	-0.274***	0.042
	(0.082)	(0.063)	(0.170)
East x Female	0.376***	0.040	-0.553*
	(0.105)	(0.089)	(0.277)
1998	0.026	0.163	
	(0.129)	(0.132)	
East x 1998	-0.102	0.051	
	(0.183)	(0.118)	
Female x 1998	0.023	-0.230*	
	(0.185)	(0.121)	
East x Female x 1998	0.065	0.219	
	(0.233)	(0.152)	
2012		-0.148	0.012
		(0.140)	(0.436)
East x 2012		-0.308**	-0.213
		(0.108)	(0.349)
Female x 2012		-0.215**	-0.152
		(0.077)	(0.287)
East x Female x 2012		0.336**	0.647
		(0.137)	(0.545)
Constant	0.580	1.069*	-2.287*
	(1.077)	(0.512)	(1.274)
Indiv. controls	YES	YES	YES
Macro controls	YES	YES	YES
Observations	1,670	2,035	492
R-squared	0.110	0.076	0.060
	0.077	0.060	

Note: Estimates from the full model, estimated separately for each of the three cohorts.
Robust standard errors in parentheses, clustered at the federal state level. Significance levels are indicated by *** p<0.01, ** p<0.05, * p<0.1.

Table A.5: Cohort Analysis: The gender gap in preferences for job attributes by region and year

	Income			Promotion		
VARIABLES	cohort 1	cohort 2	cohort 3	cohort 1	cohort 2	cohort 3
East	0.562***	0.689***	0.344	-0.238	-0.330*	-0.465
	(0.148)	(0.192)	(0.457)	(0.168)	(0.157)	(0.314)
Female	-0.161	-0.087*	-0.287**	-0.079	-0.190**	-0.379***
	(0.102)	(0.041)	(0.103)	(0.104)	(0.087)	(0.119)
East x Female	-0.099	0.017	-0.467*	-0.149	-0.002	-0.152
	(0.154)	(0.223)	(0.256)	(0.111)	(0.161)	(0.251)
2000	-0.199	0.040		0.030	-0.069	
	(0.158)	(0.077)		(0.166)	(0.114)	
East x 2000	-0.021	-0.060		0.082	0.036	
	(0.154)	(0.221)		(0.189)	(0.288)	
Female x 2000	-0.207*	-0.248**		0.086	-0.117	
	(0.110)	(0.088)		(0.123)	(0.142)	
East x 2000 x Female	-0.023	0.040		0.040	-0.226	
	(0.123)	(0.263)		(0.210)	(0.274)	
2010		0.273*	-0.793***		-0.496**	-0.397
		(0.147)	(0.210)		(0.184)	(0.294)
East x 2010		-0.287	-0.060		-0.029	0.381
		(0.199)	(0.354)		(0.170)	(0.328)
Female x 2010		-0.184***	0.111		-0.096	0.246
		(0.056)	(0.201)		(0.100)	(0.174)
East x Female x 2010		0.205	0.837**		0.337*	0.096
		(0.147)	(0.287)		(0.188)	(0.477)
Constant	1.312	0.499	-2.122**	0.289	0.545	-1.379
	(1.415)	(0.509)	(0.845)	(0.876)	(0.504)	(1.130)
Indiv. controls	YES	YES	YES	YES	YES	YES
Macro controls	YES	YES	YES	YES	YES	YES
Observations	1,750	1,993	651	1,749	1,990	651
R-squared	0.104	0.103	0.069	0.036	0.037	0.054

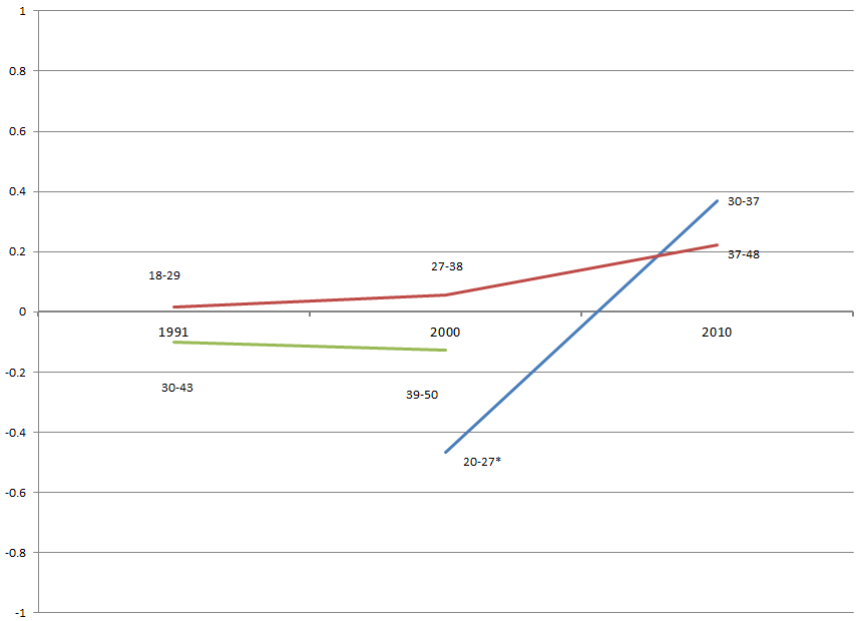
Note: Estimates from the full model, estimated separately for each of the three cohorts.
Robust standard errors in parentheses, clustered at the federal state level. Significance levels are indicated by *** p<0.01, ** p<0.05, * p<0.1.

Table A.6: Cohort Analysis: The gender gap in preferences for job attributes by region and year

			income			promotion		
			1991	2000	2010	1991	2000	2010
1948-1961	(N=1750)	**aged:**	**30-43**	**39-52**	**49-50**	**30-43**	**39-52**	**49-50**
		GG West	-0.161	-0.368***	—	-0.079	0.007	—
		GG East	-0.26**	-0.49***	—	-0.228**	-0.102	—
		GiG	-0.099	-0.122	—	-0.149	-0.109	—
1962-1973	(N=1993)	**aged:**	**18-29**	**27-38**	**37-48**	**18-29**	**27-38**	**37-48**
		GG West	-0.087**	-0.335***	-0.271***	-0.19**	-0.307***	-0.286***
		GG East	-0.07	-0.278*	-0.049	-0.192	-0.535***	0.049
		GiG	0.017	0.057	0.222**	-0.002	-0.228	0.335**
1974-1980	(N=651)	**aged:**	**11-17**	**20-26**	**30-36**	**11-17**	**20-26**	**30-36**
		GG West	—	-0.287***	-0.176	—	-0.379**	-0.133
		GG East	—	-0.754***	0.194	—	-0.531**	-0.189
		GiG	—	-0.467*	0.37	—	-0.152	-0.056

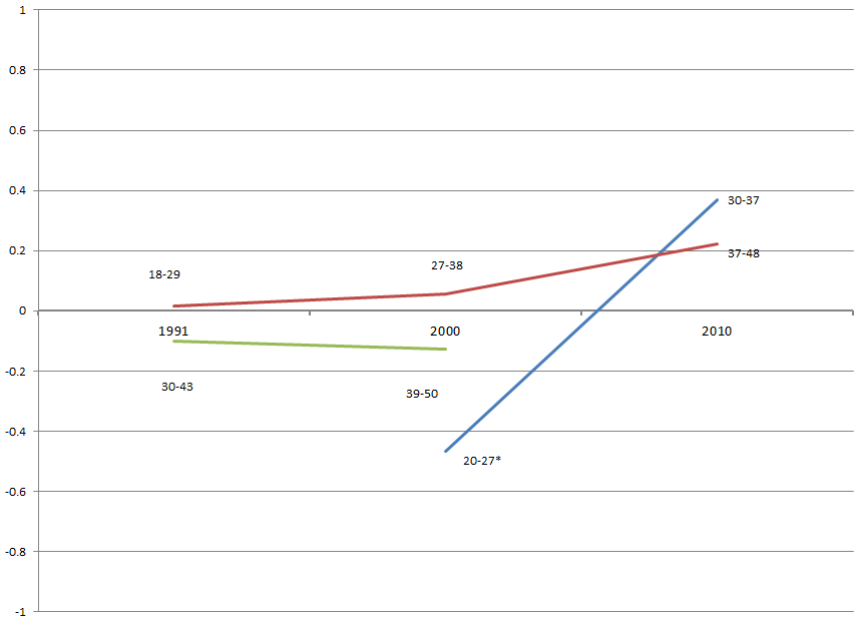
Note: Calculations based on coefficients from the full model (see table A.5, Appendix A), estimated separately for each of the three cohorts. Stars indicate joint F-test significance at the *** 1%, ** 5%, and * 10% level.

Figure A.1: Cohort analysis: The evolution of the East-West gap in the gender gap in preferences for high income



Note: Calculations based on coefficients from the full model (see table A.5, Appendix A), estimated separately for each of the three cohorts. Stars indicate joint F-test significance at the *** 1%, ** 5%, * 10% level.

Figure A.2: Cohort analysis: The evolution of the East-West gap in the gender gap in preferences for promotion



Note: Calculations based on coefficients from the full model (see table A.5, Appendix A), estimated separately for each of the three cohorts. Stars indicate joint F-test significance at the *** 1%, ** 5%, * 10% level.

Figure A.3: Geographical overlap of Prussian counties within the contemporary German borders

Table A.7: Preferences for Work: Youth in the GDR

VARIABLES	Residency	Youth	E-W Migrants
East	0.239*	0.247**	-0.277
	(0.113)	(0.097)	(0.240)
Female	-0.405***	-0.422***	-0.461***
	(0.055)	(0.054)	(0.066)
East x Female	0.146**	0.171**	0.874**
	(0.065)	(0.065)	(0.345)
2012	-0.160**	-0.174**	-0.252**
	(0.070)	(0.080)	(0.099)
East x 2012	-0.231**	-0.167	0.558*
	(0.097)	(0.118)	(0.259)
Female x 2012	0.144*	0.165**	0.211**
	(0.076)	(0.069)	(0.079)
East x Female x 2012	0.032	-0.006	-1.004***
	(0.109)	(0.104)	(0.249)
Constant	0.924***	0.987***	-0.121
	(0.283)	(0.232)	(0.655)
Indiv. controls	YES	YES	YES
Macro controls	YES	YES	YES
Observations	3,526	3,359	1,935
R-squared	0.086	0.089	0.060

Note: Estimates from the full model, using "youth" instead of "residency," ran for the full sample and the restricted sample of Western residents (1991 and 2012 cross sections).
Robust standard errors in parentheses, clustered at the federal state level. Significance levels are indicated by *** p<0.01, ** p<0.05, * p<0.1.

Table A.8: Preferences for Job Attributes: Youth in the GDR

VARIABLES	Residency	Youth	E-W Migrants	Residency	Youth	E-W Migrants
	Income			Promotion		
	(1)	(2)	(3)	(1)	(2)	(3)
East	0.709***	0.278**	-0.108	-0.133	-0.201	-0.177
	(0.215)	(0.131)	(0.312)	(0.148)	(0.146)	(0.466)
Female	-0.157***	-0.215***	-0.199**	-0.160**	-0.180***	-0.190**
	(0.052)	(0.064)	(0.069)	(0.055)	(0.054)	(0.079)
East x Female	-0.052	0.055	0.577	-0.092	-0.048	0.454
	(0.109)	(0.102)	(0.784)	(0.084)	(0.095)	(0.478)
2010	-0.038	-0.206**	-0.126	-0.028	-0.032	-0.182
	(0.092)	(0.093)	(0.100)	(0.083)	(0.095)	(0.269)
East x 2010	-0.263	-0.147	-0.090	-0.085	-0.100	-0.233
	(0.186)	(0.169)	(0.271)	(0.146)	(0.170)	(0.591)
Female x 2010	-0.168**	-0.122	-0.158	-0.141**	-0.155*	-0.143
	(0.068)	(0.092)	(0.096)	(0.063)	(0.080)	(0.101)
East x Female x 2010	0.203	0.130	-0.064	0.470***	0.443**	-0.135
	(0.173)	(0.197)	(0.858)	(0.154)	(0.195)	(0.682)
Constant	-0.435	0.244	0.097	0.576	0.774**	0.102
	(0.369)	(0.381)	(0.476)	(0.378)	(0.318)	(1.022)
Indiv. Controls	YES	YES	YES	YES	YES	YES
Macro controls	YES	YES	YES	YES	YES	YES
Observations	3,248	3,101	1,776	3,248	3,101	1,779
R-squared	0.083	0.084	0.048	0.036	0.039	0.040

Note: Estimates from the full model, using "youth" instead of "residency," ran for the full sample and the restricted sample of Western residents (1991 and 2012 cross sections).
Robust standard errors in parentheses, clustered at the federal state level. Significance levels are indicated by *** p<0.01, ** p<0.05, * p<0.1.