Universitat Pompeu Fabra

Department of Political and Social Sciences

Changing Gendered Expectations and Diverging Divorce Trends

Three Papers on Gender Norms and Partnership Dynamics

Léa Pessin

Director de la tesi: Gøsta Esping-Andersen

upf. Universitat Pompeu Fabra Barcelona

TESI DOCTORAL UPF 2016

To my mother, for being my rock, always.

Acknowledgements

Completing this PhD thesis would not have been possible without the support and guidance of many. From day one in academia, I have been blessed with wonderful mentors, encouraging colleagues, wonderful friends and understanding relatives. Each and everyone of you have made my PhD experience unique and special and I will be forever grateful for your support.

First and foremost, I am grateful for the guidance and support from my generous advisor, Gøsta Esping-Andersen. His valuable feedback and constant encouragement have been essential to this thesis but also to the researcher I am today. As a person, his unflinching support has given me the confidence to push my ideas forward and trust myself in the academic world. His intellect and creativity, together with an unassuming personality, will remain a true source of inspiration throughout my career. Thank you for everything!

I would also like to thank Michael Rendall, for hosting me at the Maryland Population and Research Center at the University of Maryland, College Park. His guidance and advice have been essential in the last year of my PhD. A special thanks goes to William Fennie and Tiffany Pittman for making my visiting stay productive and comfortable.

I will always be thankful to two professors who introduced me to the wonderful world of Demography and convinced me to apply to a PhD program: Arnie Aassve and Francesco Billari. Over the years, their constant guidance and support have been essential to my work. Starting from my first PAA to my postdoc applications, their support has been truly invaluable. Also, they have also introduced me to an incredible intellectual and friendly environment at the Dondena Centre for Research on Social Dynamics, at Bocconi University in Milan. There, I have met an incredible group of people, who have become over the years friends, colleagues and conference companions: Alice Goisis, Agnese Vitali, Elisabetta de Cao, Giulia Ferrari, Lara Tavares, Maria Sironi, Nicola Barban, Sissi Balbo.

A special thanks goes to my wonderful colleagues at the Political and Social Science Department in Pompeu Fabra for making my PhD journey so special. My col-

leagues have been a constant source of intellectual and emotional support but also of many fun years: Alessandro Di Nallo, Clara Cortina, Daniela Bellani, Diederik Boertien, Elena Meroni, Francesco Passeti, Jorge Cimentada, Julia Cordero, Lele Grotti, Lesia Nedoluzhko, Luīze Ratniece, Maike van Damme, Maricia Fischer-Souan, Natalia Malancu, Queralt Capsada, Roger Barres, and Sander Wagner. A very special thank you goes to Bruno Arpino and Roberta Rutigliano who are my go-to people for simply everything, ranging from statistics to existential crises and, of course, for their unconditional support for my baking skills.

I am extremely grateful to my family for their unconditional love and support throughout the years. My family structure is so unique and has given me so many inspiring and loving figures to rely on: Benoit, Cynthia, Didier, Dominique, Elsa, Enrico, Jean-Louis, Gaspard, Patricia, Philippe, Rosella, Sofia, Thomas and Vittorio. To all of my parents, brothers and sisters, I thank you for your encouragement and for being always there, regardless of the geographical distance. I would not be here without my Houston-acquired sister, Béatrice and her so special family: Constantin and Éloïse. A special thanks goes to my father for his relentless enthusiasm for my studies. Without forgetting my new Catalan family, who, in recent years, have provided me with incredible support and love: Carme, Martí, els avis, tiet Joan.

Finally, my biggest thank you goes to you, Joan. This PhD would not have been possible without you. Your constant encouragement and unflinching trust in my work have kept me going, especially in the last year of my PhD. I would not have had to courage to complete this journey had it not been for you. Thank you for making these years so special and I cannot wait for the ones to come.

Abstract

The dissertation addresses how changes in gender norms influence demographic behaviors. It is composed of three articles. The first focuses on the macro-micro association between regional gender norms and couples' divorce risk in the United States. Using event-history analysis, I find a reverse U-shaped relationship between gender norms and marital instability. The second article turns to the relationship between female education and marital instability over the past five decades in the United States. The results show that, in recent years, college-educated women have a higher risk of entry into marriage along with a lower propensity to divorce than their less-educated counterparts. The third article uses the migration experience as a natural experiment to study the effects of gender norms on gender role attitudes. Applying cross-classified multilevel models to a sample of first- and second-generation immigrants, results show that origin-country gender norms are significantly associated with immigrants' gender attitudes.

Resum

Aquesta tesi investiga com els canvis en les normes de gènere influeixen en comportaments demogràfics d'escala general. Està dividida en tres articles. El primer estudia l'associació macro-micro entre les normes de gènere a nivell regional als Estats Units i el risc de divorci. Emprant un model d'anàlisi d'esdeveniments, es troba una relació en forma de U inversa entre les dues variables. El segon article s'enfoca en la relació entre l'educació de les dones i l'estabilitat del matrimoni en els darrers últims anys als Estats Units. Els resultats demostren que les dones amb grau universitari tenen una probabilitat més alta d'entrar en una relació matrimonial i, a la vegada, una menor propensió al divorci comparat amb dones amb nivells d'educació inferiors. El tercer article utilitza l'experiència migratòria com un experiment natural per estudiar els efectes de les normes de gènere sobre les actituds envers els rols de gènere en les parelles. Aplicant models estadístics multinivell de classificació creuada ("cross-classified") a una mostra d'immigrants de primera i segona generació s'obtenen resultats que demostren una relació significativa entre les normes de gènere en el país d'origen i les actituds de gènere dels immigrants.

Contents

List of Tables

List of Figures

CHAPTER 1

Introduction

To understand recent changes in demographic behavior, demographers have emphasized in recent research the importance of analyzing how gender norms and women's roles outside the household interact (Esping-Andersen & Billari, 2015; McDonald, 2000). According to this line of research, lowest-low fertility and heightened marital instability are the bi-product of the increasing incompatibility between women's dual roles as both mothers and workers. Previous findings have focused almost exclusively on the consequences for fertility (Aassve, Billari & Pessin, 2012; Arpino, Esping-Andersen & Pessin, 2015; Liefbroer & Billari, 2010; McDonald, 2000), while assuming that fertility trends are in part driven by changes in marital stability. For example, Arpino et al. (2015) argue that fertility declines in the first stage of the gender revolution due to instability within the marriage.

Until recently, demographic trends across advanced countries increasingly suggested the end of the traditional family –the 1960s breadwinner-homemaker model. Women's redefined gender roles, at home and in the labor market, translated into equally profound changes in family behaviors (Cherlin, 2010). Initially, fertility and marriage rates rapidly declined while marital instability increased considerably. Starting in the late 2000s, to the surprise of demographers, fertility decline slowed down (Goldstein, Sobotka & Jasilioniene, 2009; Myrskylä, Kohler & Billari, 2009) and divorce rates stabilized across most industrialized countries (Cherlin, 2010; Goldstein, 1999; Härkönen, 2014; Raley & Bumpass, 2003). Contradicting the prediction of the New Home Economics, the "return of the family" started in the most advanced countries with regard to gender equality (Esping-Andersen & Billari,

2015).

Existing evidence on the changing relationship between gender norms and divorce risk is still limited. This dissertation seeks to address how changes in the normative setting regarding gender roles has affected marital stability over time. I focus on how the tension between women's empowerment in the labor market and the persistent traditional normative expectations about their role in the household may contribute to our understanding of long-run trends in marital instability. Furthermore, I explore the stratified nature of family change at the individual-level by studying the changing educational gradients of partnership dynamics. As illustrated in Figure 1.1, the overall objective of this dissertation is to bring together the individual-level and macro-level factors to depict a broader picture of the direct and indirect mechanisms linking gender norms to divorce.
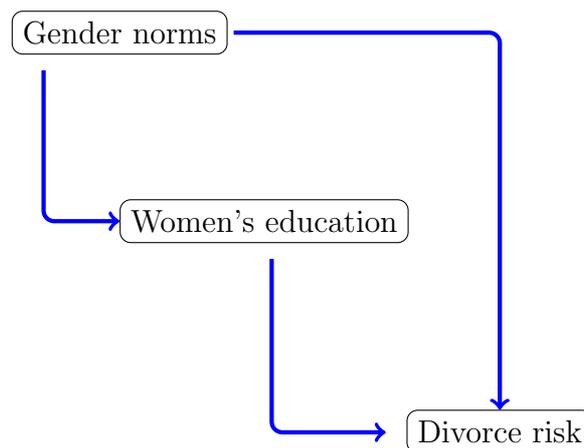
Figure 1.1 – Research design: From gender norms to divorce

The dissertation is structured around three empirical articles, each providing a different piece of the puzzle linking gender norms to divorce risk. These articles are chapters 2, 3 and 4 of this dissertation. Chapter 2 addresses the changing relationship between contextual gender norms and marital stability in the United States over the past five decades. Chapter 3 turns to the individual-level to study the changing relationship between female education and partnership formation and outcomes. The first two articles take a historical perspective to address how contextual- and individual-level factors contribute to our understanding of American partnership dynamics. Chapter 4 uses recent but cross-national data to disentangle the

role played by cultural heritage in shaping gender-roles attitudes towards working women.

1.1   The Case of The United States

In this section, I introduce the specific case of the United States, which is the focus of the second and third chapters of this dissertation. The United States is an excellent case for studying changing trends in gender norms and demographic behaviors for several reasons. First, American women's participation in higher education has historically been greater than in many Western countries and continues to increase (Buchmann & DiPrete, 2006). Also, married women's labor force participation started increasing as early as the fifties, followed by women with young children in the seventies (Goldin, 2006). Second, from a practical perspective, the Panel Study of Income Dynamics and the General Social Surveys provide a unique opportunity to study changes over time in both partnership decisions and changing gender norms. The historical coverage of both surveys provide the adequate information to capture the post-war period of rapid family changes and the growth of American women's educational attainment and labor force participation.

Increased female labor force participation over the last five decades has redefined how families organize their work and family lives (Bianchi & Milkie, 2010). Until recently, men were expected to remain employed throughout their life, while women tailored their labor supply to the necessities of their families. Yet social norms about gender and family have become increasingly egalitarian, generating the expectation that American men and women should share similar patterns of labor force participation over their life course (Cotter, Hermsen & Vanneman, 2011).

These expectations, however, have not been fulfilled, as women continue to carry the burden of responsibility for most family demands (Hook, 2010). Moreover, gender differences in the interrelation between family and employment trajectories also depend on structural factors (England, 2010). In the United States, the challenges of combining work and family have been particularly uneven across socio-economic classes (Cherlin, 2004, 2010). The less educated face both unstable family lives and bleak economic prospects, while highly educated men and women have more

resources and form steadier partnerships (McLanahan, 2004).

Moreover, the complexity of the American family system has increased dramatically in recent decades. Divorce, out-of-wedlock childbearing, cohabitation and multiple partnerships have become common features of the contemporary family (Cherlin, 2010, 2014). The "de-standardization" of family formation (Elzinga & Liefbroer, 2007; Shanahan, 2000) is paralleled by equally profound gendered changes in education and employment. Educational attainment has steadily increased, with more women now completing a university degree as compared to men (Buchmann & DiPrete, 2006). Continuous employment for women, and even for mothers, has become the new norm for American women (Damaske & Frech, 2016; García-Manglano, 2015; Goldin, 2006). While gender roles are rapidly converging in the labor market, equality at home has slowly moved forward (Hochschild & Machung, 1989; Hook, 2006, 2010). Women are still more likely than men to adjust their paid and unpaid labor supply to the arrival of a child (Schober, 2013). Nevertheless, there are signs that these gendered behaviors might be changing in recent years, with fathers increasingly likely to engage in childcare and housework (Dribe & Stanfors, 2009).

In the United States, low educational attainment generally predicts a higher risk of experiencing various forms of family instability. For example, less-educated men and women are increasingly more likely to divorce and to experience serial cohabitation (Lichter & Qian, 2008; Lichter, Turner & Sassler, 2010) and multipartnered parenthood (Carlson & Furstenberg, 2006; Guzzo & Furstenberg, 2007). At the opposite end of the educational distribution, the most educated appear to have found a new family equilibrium (Esping-Andersen, 2009; McLanahan, 2004), which involves steady partnerships and childbearing with a unique partner. Recent findings also show that the fertility of women with a college degree has increased in recent years in the United States (Baizán, Arpino & Delclós, 2016; Hazan & Zoabi, 2015; Shang & Weinberg, 2013).

On the one hand, higher educated men and women are forming steadier families, in which both partners can contribute to the financial stability of the household. Highly educated men have more egalitarian gender attitudes (see Davis & Greenstein (2009) for a review) and they have also increased their contribution to childcare and

housework in recent years (Sullivan, Billari & Altintas, 2014). As a consequence, higher educated women have more resources to reconcile their career with their family lives. Their partners also provide enough resources for them to have the freedom to choose whether they want to adapt their labor supply to family events. On the other hand, less-educated women are more likely to raise their children alone and, if partnered, to have a partner with more traditional views on gender roles. Therefore, less-educated men and women may have disconnected work and family events due to economic constraints rather than choice.

1.2 Overview of The Dissertation

In this dissertation, I examine the following three research questions: (1) How has the changing prevalence of egalitarian gender norms influenced marital stability starting in the late sixties in the United States? (2) How has the association between women's education and partnership dynamics changed over the past five decades in the United States? (3) From a cross-national perspective, how does gender ideology influence individual-level gender attitudes? Does the relationship between norms and gender role attitudes hold net of contextual factors?

The second chapter, entitled "Divorce Trends and Changing Gender Norms in the United States", focuses on the macro-micro association between regional gender norms and couples' divorce risk in the United States. The contradiction between women' empowerment in the labor market and persistent traditional normative expectations about their role in the household is expected to contribute to our understanding of changes in marital instability. Using event-history analysis and data from the Panel Study of Income Dynamics and the General Social Survey, I find a reverse U-shaped relationship between gender norms and marital instability. The shift away from traditional gender norms is initially positively related to divorce risk, but the relationship reverses as gender norms become aligned with women's gender roles outside the household. Thus, in the second chapter, I test the macro-micro relation between norms and divorce, building on the argument that gender norms influence couples' investments in household and market capital.

In chapter 3, "Changing educational gradients of US partnership formation and

dissolution - A multilevel multistate competing risks assessment", I explore the changing educational gradients of partnership formation and outcomes among American women over the past five decades. While in the second chapter I explore the macro-micro relationship between gender norms and divorce risk, in the third I focus on the changing underlying micro-mechanisms over the same period of time. The emphasis on education as a micro-determinant of partnership dynamics is motivated by the well-established finding that education is one of the most robust predictors of gender-egalitarian attitudes (Davis & Greenstein, 2009) but also of full-time employment for women (Cunningham, Beutel, Barber & Thornton, 2005; Damaske & Frech, 2016; García-Manglano, 2015). Furthermore, chapter 3 puts a particular emphasis in the empirical strategy on potential unobserved factors that drive both education and partnership decisions, which may be strongly related to gender ideologies. Using longitudinal data from the Panel Study of Income Dynamics and multiprocess modeling, the results show that, in recent years, college-educated women have higher a risk of entry into marriage, along with a lower propensity to divorce than their less-educated counterparts. Therefore, the second and third chapters argue that changing gender norms at the regional-level and women's education influence partnership dynamics.

The fourth chapter, co-authored with Bruno Arpino, is entitled "Gender Role Attitudes Towards Female Employment: The Role of Country-of-Origin Gender Ideology. Evidence from first- and second-generation immigrants in 33 destination countries". In this chapter, we study the influence of cultural heritage on gender role attitudes by exploiting country-of-origin variation in gender ideology among immigrants living in 33 destination countries. Using the European Social Survey and cross-classified multilevel models to a sample of first- and second-generation immigrants, the results suggest that origin-country gender ideology plays an important role in explaining gender role attitudes among immigrants across different destination countries. This relationship is particularly strong among recently arrived migrants and weakens as immigrants remain longer in the country of destination. The empirical findings are robust even after controlling for individual-level characteristics and confounding variables at the origin- and destination-level.

Finally, the fifth chapter summarizes the contribution and main findings of chapter 2-4. Then, I discuss the limitations of each study and provide some possible directions for future research.

References

Aassve, A., Billari, F. C., & Pessin, L. (2012). Trust and fertility dynamics. Dondena Working Papers n°55.

Arpino, B., Esping-Andersen, G. s., & Pessin, L. (2015). How do changes in gender role attitudes towards female employment influence fertility? A macro-level analysis. *European Sociological Review*, *31*(3), 370–382.

Baizán, P., Arpino, B., & Delclós, C. (2016). The effect of gender policies on fertility: The moderating role of education and normative context. *European Journal of Population*, *32*(1), 1–30.

Bianchi, S. M. & Milkie, M. A. (2010). Work and family research in the first decade of the 21st century. *Journal of Marriage and Family*, *72*(3), 705–725.

Buchmann, C. & DiPrete, T. A. (2006). The growing female advantage in college completion: The role of family background and academic achievement. *American Sociological Review*, *71*(4), 515–541.

Carlson, M. J. & Furstenberg, F. F. (2006). The prevalence and correlates of multipartnered fertility among urban US parents. *Journal of Marriage and Family*, *68*(3), 718–732.

Cherlin, A. J. (2004). The deinstitutionalization of American marriage. *Journal of Marriage and Family*, *66*(4), 848–861.

Cherlin, A. J. (2010). Demographic trends in the United States: A review of research in the 2000s. *Journal of Marriage and Family*, *72*(3), 403–419.

Cherlin, A. J. (2014). *Labor's Love Lost: The Rise and Fall of the Working-Class Family in America*. Russell Sage Foundation.

Cotter, D., Hermsen, J. M., & Vanneman, R. (2011). The end of the gender revolution? Gender role attitudes from 1977 to 20081. *American Journal of Sociology*, *117*(1), 259–289.

Cunningham, M., Beutel, A. M., Barber, J. S., & Thornton, A. (2005). Reciprocal relationships between attitudes about gender and social contexts during young adulthood. *Social Science Research*, *34*(4), 862–892.

Damaske, S. & Frech, A. (2016). Women's work pathways across the life course. *Demography*, *53*(2), 365–391.

Davis, S. N. & Greenstein, T. N. (2009). Gender ideology: Components, predictors, and consequences. *Annual Review of Sociology*, *35*, 87–105.

Dribe, M. & Stanfors, M. (2009). Education, work and parenthood: Comparing the experience of young men and women in Sweden. *Journal of Family and Economic Issues*, *30*(1), 32–42.

Elzinga, C. H. & Liefbroer, A. C. (2007). De-standardization of family-life trajectories of young adults: A cross-national comparison using sequence analysis. *European Journal of Population/Revue européenne de Démographie*, *23*(3-4), 225–250.

England, P. (2010). The gender revolution uneven and stalled. *Gender & Society*, *24*(2), 149–166.

Esping-Andersen, G. (2009). *The Incomplete Revolution: Adapting to Women's New Roles*. Cambridge, UK; Malden, USA: Polity Press.

Esping-Andersen, G. & Billari, F. C. (2015). Re-theorizing family demographics. *Population and Development Review*, *41*(1), 1–31.

García-Manglano, J. (2015). Opting out and leaning in: The life course employment profiles of early baby boom women in the united states. *Demography*, *52*(6), 1961–1993.

Goldin, C. (2006). The quiet revolution that transformed women's employment, education, and family. *The American Economic Review*, *96*(2), 1–21.

Goldstein, J. R. (1999). The leveling of divorce in the United States. *Demography*, *36*(3), 409–414.

Goldstein, J. R., Sobotka, T., & Jasilioniene, A. (2009). The end of "lowest-low" fertility? *Population and Development Review*, *35*(4), 663–699.

Guzzo, K. B. & Furstenberg, F. F. (2007). Multipartnered fertility among American men. *Demography*, *44*(3), 583–601.

Härkönen, J. (2014). Divorce trends, patterns, causes, consequences. In J. Treas, J. Scott, & M. Richards (Eds.), *The Wiley-Blackwell Companion to the Sociology of Families*. Chichester: John Wiley & Sons.

Hazan, M. & Zoabi, H. (2015). Do highly educated women choose smaller families? *The Economic Journal*, *125*(587), 1191–1226.

Hochschild, A. R. & Machung, A. (1989). *The Second Shift: Working Parents and the Revolution at Home*. New York: Viking Penguin.

Hook, J. L. (2006). Care in context: Men's unpaid work in 20 countries, 1965–2003. *American Sociological Review*, *71*(4), 639–660.

Hook, J. L. (2010). Gender inequality in the welfare state: sex segregation in housework, 1965-2003. *American Journal of Sociology*, *115*(5), 1480–523.

Lichter, D. T. & Qian, Z. (2008). Serial cohabitation and the marital life course. *Journal of Marriage and Family*, *70*(4), 861–878.

Lichter, D. T., Turner, R. N., & Sassler, S. (2010). National estimates of the rise in serial cohabitation. *Social Science Research*, *39*(5), 754–765.

Liefbroer, A. C. & Billari, F. C. (2010). Bringing norms back in: A theoretical and empirical discussion of their importance for understanding demographic behaviour. *Population, Space and Place, 16*(4), 287–305.

McDonald, P. (2000). Gender equity in theories of fertility transition. *Population and Development Review, 26*(3), 427–439.

McLanahan, S. (2004). Diverving destinies: How children are faring under the second demographic transition. *Demography, 41*(4), 607–627.

Myrskylä, M., Kohler, H.-P., & Billari, F. C. (2009). Advances in development reverse fertility declines. *Nature, 460*, 741–743.

Raley, R. K. & Bumpass, L. (2003). The topography of the divorce plateau. *Demographic Research, 8*, 245–260.

Schober, P. S. (2013). Maternal labor market return and domestic work after childbirth in britain and germany. *Community, Work & Family, 16*(3), 307–326.

Shanahan, M. J. (2000). Pathways to adulthood in changing societies: Variability and mechanisms in life course perspective. *Annual Review of Sociology, 26*, 667–692.

Shang, Q. & Weinberg, B. A. (2013). Opting for families: Recent trends in the fertility of highly educated women. *Journal of Population Economics, 26*(1), 5–32.

Sullivan, O., Billari, F. C., & Altintas, E. (2014). Fathers' changing contributions to child care and domestic work in very low–fertility countries the effect of education. *Journal of Family Issues, 35*(8), 1048–1065.

CHAPTER 2

Divorce Trends and Changing Gender Norms in the United States

Abstract: This chapter studies the relationship between changes in gender norms and divorce risk. The main argument builds on the idea that shifts towards gender-egalitarian norms create competing incentives for how spouses divide their time between home production and the workforce. I test this theoretical relationship with data from the United States for the period between 1968 and 2012. I combine marital histories from the Panel Survey of Income Dynamics with a regional and time-varying measure of gender norms from the General Social Survey. The empirical results suggest a reverse U-shaped relationship between gender norms and marital instability. The shift away from traditional gender norms is initially positively related to divorce risk, but the relationship reverses as gender norms become aligned with women's gender roles outside the household.

2.1 Introduction

Until recently, family trends across industrialized countries increasingly suggested the end of the traditional family. As predicted by Becker (1991), women's redefined gender roles at home and in the labor market translated into a withdrawal from marriage, a decline in fertility and an increase in marital instability. However, by the late 2000s fertility trends stopped declining across the developed world, with only a few exceptions (Goldstein, Sobotka & Jasilioniene, 2009; Myrskylä, Kohler & Billari, 2009). Also, unexpectedly, in several European countries divorce rates reached a plateau (Härkönen, 2014). In the United States, the forerunner country of marital instability, divorce rates not only stabilized in the late seventies but also appear to have been declining since then (Cherlin, 2010; Goldstein, 1999; Raley & Bumpass, 2003). In contradiction to Becker's (1991) prediction, this "return of the family" started in the most advanced countries with regard to gender equality (Esping-Andersen & Billari, 2015; Goldscheider, Bernhardt & Lappegård, 2015).

Several studies have pointed to the importance of culture and gender norms in explaining recent changes in demographic behaviors (Esping-Andersen, 2009; Esping-Andersen & Billari, 2015). According to this line of research, lowest-low fertility rates and heightened marital instability can be attributed to the tension between women's empowerment in the workforce and traditional normative expectations about their roles in the household. Families are expected to stabilize when gender norms support women's dual role as mothers and workers. Aassve, Billari & Pessin (2012) show that women's increased education negatively affects completed fertility levels only in countries where generalized trust is low (generalized trust is defined as a cultural catalyzer for the diffusion of gender egalitarian norms). Also, Arpino, Esping-Andersen & Pessin (2015) find a U-shaped relationship between the prevalence of egalitarian gender roles and fertility trends across industrialized countries.

One hypothesis is that changes in marital stability are linked to the relationship between gender norms and fertility trends. For example, Arpino et al. (2015) argue that fertility declines in the first stage of the gender revolution because, in part,

marriages are becoming more unstable. However, the mechanisms that link changes in social expectations about gender roles to couples' marital stability are yet to be theoretically explored and empirically tested.

Building upon Akerlof & Kranton's (2000; 2010) identity model, I argue that gender norms affect marital stability by changing the dominant gendered expectations of spouses' investment in household and market capital. In a patriarchal context, social norms favor a traditional division of labor within couples, where wives take care of the household and husbands provide for their family economically. However, as society moves towards gender equality, social expectations regarding wives' and husbands' contribution to the home and labor market become increasingly symmetric. Therefore, the shift from traditional to egalitarian contexts modifies the social costs and incentives of labor market and home production investments for men and women within marriages. Furthermore, gender norms also indirectly affect marital stability by changing how individuals select themselves into marriage, and thus also transforms the composition of the married population.

The objective of this article is to provide a better understanding of the role played by changes in contextual gender norms and divorce risk at the couple level. The empirical approach focuses on a single country, the United States, but spans a much longer time period than previous studies, namely 1970s-2010s . Marital histories from the years 1968-2011 of the Panel Survey of Income Dynamics (PSID) are combined with a time-varying regional gender index derived from the 1972-2012 General Social Surveys.

This research makes several important contributions to the existing literature on changing demographic behaviors by (1) combining fifty years of gender attitudes with longitudinal marital data rather than making a cross-country comparison over a shorter period of time, (2) testing competing theoretical hypotheses on the link between gendered social expectations and demographic trends while focusing on a less developed outcome, marital stability, (3) and disentangling the relationship between gender norms, women's labor force participation and divorce risk.

2.2 Gender norms and divorce

Akerlof & Kranton (2000) developed the concept of "identity economics" to stress the importance of the role played by social norms in every day decisions. Social norms define how people should behave depending on which "social categories" they belong to, but also on the social setting they are in. Akerlof & Kranton (2010, p.18) incorporate social norms in the rational agent's decision process by adding an "identity utility" to the maximization problem. People experience utility gains or losses depending on whether they conform or deviate from the norms to which they are subjected to. Individuals make a decision that they know will maximize their utility, and therefore deviation from social rules can be understood as a social tax on one's utility.

In the context of marriage, gender norms dictate which behaviors and tasks are appropriate according to each partner's gender. For example, in the fifties, a married couple would be complying with the dominating gender norms if the wife dedicated her time to raising children and taking care of the household while the husband worked full time in the labor market. In this scenario, the social rules foster a strict specialization in home production between spouses. Any deviation from the prevailing gender norms would incur a loss of utility for wives and husbands. For instance, it would not have been considered appropriate if men actively participated in housework. Similarly, married women were frowned upon if they worked outside the household.

In order to identify the mechanisms through which gender norms affect women's divorce risk, I apply a simplified household production model. As in Becker's marriage model, wives and husbands engage in two types of activities: market and home production. Each spouse invests his or her time in diverse household tasks, e.g. housework and child rearing, and market activities, e.g. working in the labor market. The gains from marriage are derived from the joint consumption of market-produced goods and home-produced goods. The sum of the spouses' wages and time invested in market production determines the consumption of the market-produced goods. Also, the consumption of home-produced goods depends on how much time

the couple spends on home production. Wives and husbands choose to stay married if their utility as married is higher or equal to their utility as single.

Following Sevilla-Sanz (2010) and Gimenez-Nadal, Molina & Sevilla-Sanz (2012) on partnership formation, and De Laat & Sevilla-Sanz (2011) on fertility, gender norms influence individual family decisions by constraining the household division of labor. In this article, gender norms are incorporated in the household maximization problem through two different channels. First, the costs attributed to dedicating time to home production for men rise or fall depending on the prevailing gender norms. When gender norms are traditional, the identity utility loss experienced by husbands when dedicating time to the home is high, while it is expected to decrease when gender norms become egalitarian. In a traditional setting, men's contribution to childrearing activities or housework may be frowned upon (Cherlin, 2014, pp.30-34). In an egalitarian setting, however, the social costs for men to perform what are typically considered to be women's tasks should decline. Several studies show that contextual indicators of objective gender equality positively correlate with couples' equal division of housework (Batalova & Cohen, 2002; Fuwa, 2004; Knudsen & Wærness, 2008) and men's participation in housework (Hook, 2006). Also, Frank & Hou (2015) find that, in Canada, source-country gender equality indicators predict positively immigrant men's participation in housework.

Taken together, previous findings suggest that men's involvement in the household increases in more egalitarian contexts. By contributing to housework and childcare, husbands improve the production of shared marital goods, increasing the gains from staying married with respect to being single. For example, a woman married to a man who performs housework can, not only enjoy a clean house, but also substitute some of her housework time for either leisure or market work. Therefore, I expect that, in a more gender-egalitarian context, husbands' increased contribution to housework and child caring should be beneficial for marital stability by increasing the gains from marriage (Hypothesis 1a).

Second, in parallel to men's participation in household production, women's investment in the labor market, when married, is also taxed according to the prevailing social rules. In a traditional setting, working women with families deviate from pre-

vailing social expectations for married women. Wives are expected to dedicate the majority of their time to raise children and to take care of the family home. Therefore, married women, and even more so married mothers, broke social rules in the 1950s when they opted to join the labor force. A married woman that worked signaled that her husband could not provide for his family (Cherlin, 2014; Fernández, 2013; Goldin, 2006). As society moves towards gender-egalitarian norms, the social costs of being, for instance, a working mother with young children is expected to decline. Egalitarian gender norms are found to positively affect women's decision to work. For example, Fernández, Fogli & Olivetti (2004) find that the wives of men that had a working mother are more likely to work themselves. Fernández (2007) and Frank & Hou (2015) show that source-country gender equality indicators predict positively wives' participation in the labor market among, respectively, second-generation immigrants in the United States and first-generation immigrants in Canada.

As society embraces gender-egalitarian norms, women become more likely to participate in the labor market. A classical prediction of the New Home Economics is that women's participation in the workforce reduces the mutual interdependence between spouses (Becker, 1991). Indeed, wives' investment outside the household reduces the gains to marriage by decreasing the production of home-produced goods. When women work, they also have to decrease the time they spend in taking care of the house and the children. Also, economically independent wives can more easily end an unhappy marriage compared to housewives because they have the financial capacity to be on their own. As a consequence, marital stability is expected to weaken when wives engage in the labor market. Therefore, I expect that, in a more gender-egalitarian context, married women have a stronger incentive to invest their time in market production rather than home production. As derived from the New Home Economics, a decrease in home production should lead to an increase in marital instability (Hypothesis 1b).

To summarize, gender norms influence marital stability through two main channels: husbands' contribution to home production and wives' investment in market production. Each of these micro mechanisms predicts conflicting hypotheses on the

effects of gender norms on divorce. On the one hand, as society embraces egalitarian gender norms, men have a stronger incentive to get involved in the household and participate in housework and childrearing activities. In parallel, married women experience less social pressure to stay in the household and are, therefore, more likely to engage in the labor market. The outcome of a shift towards more egalitarian gender norms on marital stability depends on what extent each mechanism compensates one another.

Furthermore, the competing predictions of the effects of gender norms on marital stability is also mediated by changes in women's earnings potential in the labor market. Gender norms may facilitate or hinder married women's decision to work outside the household, but women's changing earnings capacity also plays an important role in influencing work and home decisions. As shall be discussed in the next section, the mechanisms linking gender norms to divorce also depend on the context in which such changes are occurring.

2.3   Contextualizing the relationship between gender norms and divorce

Two recent theoretical frameworks, the "two-part gender revolution" by Goldscheider et al. (2015) and the "multiple equilibria" approach by Esping-Andersen & Billari (2015), emphasize the importance of studying changes in demographic behaviors in the context of the gender revolution as a two phase phenomenon. The first phase of the gender revolution is characterized by an increase in family instability because society has yet to adapt to women's emancipation (Arpino et al., 2015). In the second phase, the synergy between egalitarian gender norms and women's established roles in the labor market creates a better environment for the reconciliation of work and motherhood. As a consequence, the family is expected to make a return in the second phase of the gender revolution (Esping-Andersen & Billari, 2015). I take this approach to disentangle the competing hypotheses on the role of gender norms in predicting divorce risk for the case of the United States.

In the United States, married women's labor market participation started increasing as early as 1950 (see Goldin, 2006). Married women first entered the labor market temporarily to replace mobilized men during WW2 (Acemoglu, Autor &

29

Lyle, 2004; Doepke, Hazan & Maoz, 2015; Fernández et al., 2004). In the following two decades, their presence in the workforce was reinforced by two other important technological changes that had long lasting effects on women's education and their labor force participation: The Pill (Goldin & Katz, 2002) and labor-saving consumer durables, e.g. washing machines, etc. (de V. Cavalcanti & Tavares, 2008; Greenwood, Seshadri & Yorukoglu, 2005). Both played a role in increasing women's educational attainment and female labor force participation, at a time when gender norms were still predominantly traditional (Fernández, 2013; Goldin, 2006).

The first increase in married women's participation in the labor market came from exogenous shocks, and therefore, preceded any shifts away from traditionalism. As a consequence, women's gender roles were rapidly changing in terms of education and labor market outcomes but existing norms and expectations about wives and mothers in the household lagged behind (Breines, 1986). The first phase of the gender revolution in the United States resulted in a discrepancy between the incentives for women to participate in higher education and the labor market and the prevailing gender norms. Wives' time investments in market production were not compensated by their husbands' participation in home production because the dominating gender identity still reflected a traditional breadwinner-homemaker model. Women had to either choose between family life and a career. Alternatively, they could juggle between both and take upon what Hochschild & Machung (1989) called the "second-shift" or the "double day". In other words, working women came home to find another full-time job as wives and mothers waiting for them.

Taken together, the first phase of the revolution destabilized families by creating competing opportunities for women between family life and the labor market. The opportunity-cost of choosing to stay at home increased, as their earning capacities in the labor market were improving. In the meantime, combining both proved difficult as gender norms still created strong expectations that women should be the sole or main care-giver when it came to children and the house. As a consequence, in the first phase of the gender revolution, the initial shift towards gender equality is expected to produce marital conflicts and tensions within families. Contextualizing the micro mechanisms described previously, in the first phase of the gender

revolution, traditional gender norms still dominate, and as a consequence, divorce is expected to increase because the destabilizing effects of women's dedication to the labor force are not yet compensated by men's involvement in the housework and child caring.

Focusing on fertility, McDonald's gender equity theory (2000a; 2000b; 2013) posits that it is when career and motherhood become competing alternatives that fertility levels plunge to what are known as "lowest-low fertility" levels (Kohler, Billari & Ortega, 2002). McDonald (2000b) argues that fertility levels will continue to decline as long as gender equity is limited to "individual-oriented institutions", i.e. tertiary education and the labor market, but does not extend to "family-oriented social institutions". Extending this argument to marital instability, the first phase of the gender revolution in the United States is characterized by a rapid increase in gender equity in education and the labor market but is not followed by an increase in gender equity in the family.

It is only in the second phase of the gender revolution that marital instability is expected to decline again. The decrease in divorce is reinforced by two complementary mechanisms: a gender normative setting in support of dual-earner couples, and better partner selection before marriage. As argued by Esping-Andersen & Billari (2015), it is only when a "critical mass" adopts egalitarian attitudes about men's and women's roles at home and in the labor market that the gender revolution can be expected to produce a return of the family. The dominance of egalitarian gender roles creates the right conditions to foster the reconciliation of women's gender roles within and outside of families. At the micro level, the social costs for husbands to participate in home production and wives in market production slowly disappear. As a consequence, women are able to take advantage of their increased earning capacity in the labor market without having to sacrifice or struggle with their family lives. Within partnerships, husbands compensate for women's dedication to work production by participating in housework and childrearing activities, making it easier for women to reconcile motherhood with their career.

In fact, between 1960 and 2000 in the United States, women's time-dedication to housework has declined by a half while men's involvement has doubled (Bianchi,

Milkie, Sayer & Robinson, 2000). Also, men's relative contribution to housework is associated with lower divorce risk among Americans, and in particular, among dual-earner couples (Cooke, 2006). Overall, in the second phase of the gender revolution, marriages are expected to become increasingly stable as society fully embraces egalitarian gender norms. Within McDonald's framework, marital instability should decline because there is a close match between the dominant gender norms and women's gender roles outside the household.

The decrease in marital instability during the second phase of the gender revolution can also be attributed to partner selection. The gender revolution does not only come with changes regarding gender norms but is part of a larger ideational change (Lesthaeghe, 2010; Stevenson & Wolfers, 2007; van de Kaa, 2001). In particular, when it comes to family values, divorce has become a socially accepted exit from marriage and the social stigma associated with out-of-wedlock childbearing has also declined. Overall, marriage has lost its importance as a 'rite of passage' to start a family or to continue to be defined as one. In recent years, men and women have increasingly postponed marriage and dedicate more time to searching for the right partner (Cherlin, 2004; Oppenheimer, 1994). At the same time, gender egalitarian norms have been adopted by a majority of society, providing a clear normative framework regarding gender norms, but also a larger pool of men and women with gender-equal attitudes (Breen & Cooke, 2006). As a consequence, women may choose not to marry men that will not participate in housework and/or childrearing tasks, or even, reject marriage altogether when there are no suitable men. For instance, Sevilla-Sanz (2010), in a cross-country study, finds that gender-egalitarian women are less likely to form a partnership.

Also, in the United States marriage is on the decline among the lower-educated (Goldstein & Kenney, 2001; Schoen & Cheng, 2006; Sweeney, 2002; Torr, 2011). This is particularly relevant because gender egalitarian attitudes positively correlates with education, but also, highly educated men are found to increasingly participate in housework and child (Sullivan, Billari & Altintas, 2014). Therefore, a complementary mechanism that contributes to explaining the decline in marital instability in the second phase of the gender revolution may be higher quality matches

32

at the time of marriage, thanks to reduced uncertainty in the marriage market but also a decline in the social pressure to marry.

The main hypotheses for the expected effects of gender norms on divorce in the context of the United States are summarized in Figure 2.1. As shown in the left-hand side panel of Figure 2.1, I hypothesize that the destabilizing effects of an increase in egalitarian gender norms dominate in the first phase of the gender revolution; conversely, marital stability should return when the second phase has been reached and gender egalitarian norms prevail. In other words, the prevalence of egalitarian gender norms and divorce risk should follow a reverse U-shaped relationship (Hypothesis 2).

2.4 Data and Analytic Strategy

2.4.1 Data

The analysis combines individual- and regional-level data to study how contextual gender norms influence couple's divorce risk. I match individual-level data from the Panel Study of Income Dynamics to an aggregated regional index of gender norms constructed from the General Social Surveys. I also include time-varying contextual variables, which are based on the March Current Population Surveys (CPS) data from the Integrated Public Use Microdata Series (IPUMS) (King, Ruggles, Alexander, Flood, Genadek, Schroeder, Trampe & Vick, 2010). The individual divorce data are constructed using marital histories from the Panel Study of Income Dynamics, a survey that started in 1968 with a nationally representative sample of over 18,000 individuals residing in 5,000 family units. The survey includes information on employment, earnings, and demographic behavior. Interviews were collected annually from 1968 until 1997 and biennially thereafter until the most recent wave in 2013. Means, standard deviations, minimum and maximum for all variables are presented in Table 2.1 (See the supplementary material S3 for a detailed description of the variables' definition and their construction).

The prevalence of gender-egalitarian attitudes is measured at the region-level and for every year between 1968 and 2013. The gender values data are based on

33

gender-items questions from the General Social Surveys. They consist of repeated cross-sectional individual-level surveys on attitudes, behaviors and demographic information of the American adult population. The surveys have been conducted every year, between 1972 and 1994 , and every two years onwards. The unit of focus is the region rather the state for two main reasons: (1) The public version of the GSS data only provides the region at interview; (2) The target sample is of about 1,500 respondents, which is excessively small to derive reliable state-level indicators. The region of residence variable is defined according to the 9 following categories: New England; Middle Atlantic; East North Central; West North Central; South Atlantic; East South Central; West South Central; Mountain; Pacific (See the supplementary material S1 for a detailed description of the region classification).

Divorce Event - The dependent variable is defined as a binary variable that takes the value of 1 in the year in which the couple either separates or divorces. Whenever both the separation and divorce dates are reported, the separation date is considered as the end of the marriage. Higher-order marriages are included but I control for marriage order in the analysis. In the robustness checks section, the results are presented for first marriages only and are consistent with the main findings. The marital histories are defined from the woman's perspective and are restricted to marriages that occur between 1968 and 2012 for spouses between the ages of 16 and 40 (See Schwartz & Han (2014) for a similar sample selection to compare marriages over a long period of time). Observations are censored if a marriage did not end before a respondent exited the PSID, reached the latest wave of the survey, or if the wife becomes a widow. The final sample is composed 7,812 women who experience 8,493 marriages of which 2,010 end in divorce, which represent a 24% divorce rate. Marriages have an average duration of about 5.5 years, first order marriages represent 83% of the sample, and the average age at marriage is 25 years old.

Gender Normative Context - Several questions regarding gender attitudes have been included in different rounds of the GSS. The following three questions are selected:

- Do you strongly agree, agree, disagree, or strongly disagree with the following

statement:

- "It is much better for everyone involved if the man is the achiever outside the home and the woman takes care of the home and family" (FEFAM).

- "A working mother can establish as warm and secure a relationship with her children as a mother who does not work" (FECHLD)

- "A preschool child is likely to suffer if his or her mother works" (FEPRESC)

These questions have been often used in the literature to capture trends in gender attitudes in the United States (see for an example Cotter, Hermsen & Vanneman, 2011). These three survey questions have been asked in the following 18 survey years: in 1977, 1985-1986, 1988-1991, 1993 and every two years from 1994 to 2012. All the available surveys are pooled and a principal-factor analysis is carried out to obtain a unique gender index where higher scores represent more egalitarian gender role attitudes[1]. In order to fill the missing years before 1977 and between 1977 and 2010, an interpolation is carried out (See the supplementary material S2 for a detailed explanation of the construction of gender norms index). The regional trends in the gender norms index are presented in Figure 2.2. As illustrated in Figure 2.2, gender ideology varies between region, but overall, the index follows a cubic trend in line with the existing literature using similar attitudinal measures in the United States (Cotter et al., 2011).

Control variables[2] - In the event-history analysis, I include several sets of control variables. At the individual-level, standard control variables are included regarding the wife's characteristics such as race, educational attainment, age at marriage and its squared value, and whether it is her first marriage. For the husband, educational attainment is included, whereas race and age at marriage are excluded because they are highly correlated with the wife's race and age. A categorical variable to capture age difference between husband and wife is also added to the individual-level models. Finally, the duration variable is specified as a logarithmic function because it fits

---

[1]The index is rescaled to take only positive values. This does not affect in any case the final results but makes the interpretation of the quadratic effects more intuitive.

[2]The range of control variables available in the PSID is limited. A main limitation is the absence of information on parental divorce and religiosity (These variables are available in the more recent waves of the PSID but not for the complete 1968-2013 waves)

the data well and is highly significant in all models. Overall, the composition of the sample is fairly consistent with other studies using the PSID to study divorce (e.g. Teachman, 2002; Schwartz & Han, 2014)

At the region-level, I consider alternative contextual mechanisms to gender norms, which have been found to be relevant in the literature (See Lyngstad & Jalovaara (2010) for a review). Using IPUMS March CPS, I construct yearly variables to control for women's changing roles in the labor market and tertiary education by including the regional female labor force participation rate and the regional share of women with tertiary education. Then, I include regional male unemployment rate to capture the deterioration of men's position in the labor market. All the regional variables are centered on their minimum value.

2.4.2 Analytic Strategy

Marital separation is estimated using a discrete event-history model with random effects at the woman-level. In its simplest form, our model is specified as follows:

$$h_{irt} = \beta_1 X_{irt} + \beta_2 GI_{rt} + \beta_3 I_r + \beta_4 I_m + \beta_5 L_r + \beta_6 Z_{rt} + u_i \tag{2.1}$$

where the subscripts i, r and t refer, respectively, to the individual, the region and the year. X_{irt} is a vector of couple- and individual-level characteristics. The equation has one explicit error term u_i, which represents a woman-specific random effect and captures unobserved time-invariant characteristics. The gender normative context in region r and year t is represented by GI_{rt}. I control for regional fixed effects I_r, marriage year fixed effects I_m as well as regional-specific cohort trends L_r. The regional and marriage year fixed effects control for unobservable and time-invariant differences in divorce propensities of each marriage cohort and region (See Kneip, Bauer & Reinhold (2014) for a similar approach). Also, the region-specific marriage cohort trends account for unobservable trends within any marriage cohort and region, which could be correlated with changes in gender-norms. For example, one would expect that religiosity and the acceptance of divorce follow similar trends to gender norms for each marriage cohort and within the different regions in the

sample. Finally, I introduce region-year variables Z_{rt} in the model to control for spuriousness between gender norms and individual divorce risk. Other factors may be changing together with gender norms and also affect individual divorce propensities. If I fail to control for such variables, I cannot disentangle whether the coefficient for gender norms captures the effect of gender norms or of other confounding variables, which also affect divorce risk. The models are estimated using STATA 13 and the xtlogit command with the random effects option.

To test the hypotheses 1a and 1b, the first set of analysis includes the regional gender norms index linearly as described in Equation 2.1. To test for the non-linear association between the prevalence of gender-egalitarian norms and divorce risk defined by Hypothesis 2, the gender norms index and its squared term are included in the model. In line with Hypothesis 2, I expect β_2 to be positive and significant and β_3 to be negative and significant.

$$h_{irt} = \beta_1 X_{irt} + \beta_2 GI_{rt} + \beta_3 GI_{rt}^2 + \beta_4 I_r + \beta_5 I_m + \beta_6 L_r + \beta_7 Z_{rt} + u_i \qquad (2.2)$$

2.4.3 Model Setup

For each hypothesis, I show the results using three different specifications. Specification 1 includes region and marriage cohort fixed effects but no trends. Specification 2 introduces regional marriage cohort linear trends, which capture linear changes in unobservable factors within regions. In Specification 3, I consider three contextual covariates to control for regional factors that could be correlated to both gender norms and divorce risk. In particular, I focus on men's labor market prospects and women's educational attainment and labor market participation. I include the male unemployment rate in each region and year to capture varying opportunities in the labor market for men. Also, female employment rate and the share of women with tertiary education are incorporated into the third specification.

2.5 Results

The structure of the results section is as follows. First, I focus on the association between regional gender norms and divorce risk to assess the first and second hy-

potheses. In line with the theoretical mechanisms described previously, I consider both linear and quadratic specifications. Finally, I assess the robustness of the results by carrying further analyses for the main findings of the article.

2.5.1 Gender Norms and Divorce Risk

Table 2.2 presents the results from the discrete event history analysis of the association between gender norms and divorce risk. For each of the three models, I test whether there is a linear relationship between the gender norms index and divorce risk. The main variable of interest is the gender norms index, which captures the relationship between regional gender norms and women's probability to divorce. In Table 2.2, the results show that the coefficient for the gender index is lower than 1 when included linearly. This suggests suggest that an increase in gender egalitarian norms is negatively associated with divorce risk. The relationship is statistically significant in the first two model specifications but loses significance in Model 3 as the linear marriage cohort trends and time-varying regional variables are included. Therefore, the results do not support the hypotheses 1a and 2b of a linear relationship between region-level gender norms and divorce risk.

In the quadratic specification presented in Table 2.3, however, the coefficients of the linear and quadratic terms of the gender index are statistically significant and of opposite sign, suggesting a nonlinear relationship between gender norms and divorce. In line with Hypothesis 2, the coefficients imply a reverse U-shaped relationship between regional gender norms and the probability to divorce. When gender norms are traditional, a shift towards equality is positively associated with divorce risk. In opposition, when gender norms become dominantly egalitarian, the relationship reverses.

Coefficient estimates, reported in Table 2.3 are difficult to interpret given the quadratic specification and the non-linear model. To ease the interpretation of the results, Figure 2.3 shows predicted divorce risk corresponding to different levels of the gender norms index. To calculate the predicted values, I use Model 3 in Table 2.3, which includes the linear marriage cohort trends and time-varying regional variables. The black line illustrates the predicted divorce risk using the quadratic

form regression. The dashed lines represent the 95% confidence intervals around the predicted values. The red lines indicates the value of the gender norms index at which the relationship reverses. The predicted divorce risk as the gender norms index moves from low to high levels is characterized by a reverse U-shape and thus supports the second hypothesis.

The results suggest that it is only when a larger share of society has adopted egalitarian gender attitudes that an increase in gender norms becomes negatively associated with marital instability. The reversal in the relationship between gender norms and divorce risk occurs when the index takes a value of about 6.5. Substantively, this corresponds to when about 50% of the respondents have adopted gender-egalitarian attitudes on each of the gender items used in the index[3]. Also, according to the region, Figure 2.2 shows that this value of the gender norms index is reached in the mid-eighties.

In the first phase of the gender revolution, society does not provide a supportive normative and institutional setting to promote women's dual roles as both wife and worker. Therefore, the destabilizing effect of women's investment in the labor market dominates when society is in transition from traditional gender norms towards an intermediary stage of the gender revolution. This mechanism is in line with the micro-level studies, which find that in earlier decades employed women had a higher risk of divorce (Özcan & Breen, 2012). Echoing the theoretical arguments of Arpino et al. (2015) on fertility, in the first stage of the transition, women are more likely to adopt the 'exit' strategy because the diffusion of gender-egalitarian attitudes is too low to make the 'voice' strategy viable.

In the second phase of the gender revolution, marriages become more stable as society comes closer to fully egalitarian norms. In line with recent findings, as society embraces egalitarian ideals with respect to gender norms, we observe a reversal in many individual- and couple-level indicators of marital instability (Esping-Andersen & Billari, 2015). Furthermore, men's engagement in the home is becoming increasingly normative (Goldscheider et al., 2015). Hypothetically, the decrease in the

---

[3]Gender-egalitarian attitudes correspond to disagreeing that women should take care of the home and family (FEFAM) and that preschooler suffers if mother works (FEPRESC) and agreeing that working mother can have a warm relationship with her children

social costs of men's involvement in the home fosters a decline in marital instability as the gender revolution reaches a mature stage. In this stage, a majority of the population agrees with gender-egalitarian views towards gender roles. As a consequence, not only norms but also institutions should adapt quicker to women's new roles in the home and labor market.

Turning to the control variables in the models, Table 2.3 also shows that husbands' and wives' education is negatively associated to divorce risk (Martin, 2006; Raley & Bumpass, 2003; Sweeney, 2002). Lower ages at marriage and higher order marriages are associated with a higher propensity to divorce (Teachman, 2002). Black women have a higher risk of divorce with respect to white women (Bulanda & Brown, 2007). The race category 'other' has a lower risk of divorce with respect to white women, it is, however, difficult to interpret this result given that it is a residual category. Couples where spouses have the same age have a lower probability of divorcing and having children decreases the odds of divorce. Turning to the regional-level variables, living in a country where male unemployment rate is higher increases the odds of divorce (Edin & Kefalas, 2005), while the contrary is true for female employment rate (Greenstein & Davis, 2006) and tertiary educational attainment (Glass & Levchak, 2014).

2.5.2 Robustness Checks

Several checks are carried out to assess the robustness of the final models (Model 3 in Table 2.3). The first robustness test regards the reversed U-shape relationship between the prevalence of egalitarian gender norms and divorce risk. To reinforce the robustness of the non-linear empirical findings, a piecewise regression model is estimated where the threshold is the inflection point derived from the quadratic regression model. The model is specified in the following way:

$$h_{irt} = \beta_1 X_{irt} + \alpha^{low} I_{rt}^{GI^{low}} + \alpha^{high} I_{rt}^{GI^{high}} + \beta^{low} GI_{rt}^{low} + \beta^{high} GI_{rt}^{high} +$$
$$\beta_2 I_r + \beta_3 I_m + \beta_4 L_r + \beta_5 Z_{rt} + u_i \tag{2.3}$$

where

$GI_{rt}^{max} = \frac{-\beta_2}{2\beta_3}$, from Equation 2.2

$$GI_{rt}^{low} = \begin{cases} GI_{rt} - GI_{rt}^{max}, & \text{if } GI_{rt} \leq GI_{rt}^{max} \\ 0 & , \quad \text{otherwise} \end{cases}$$

$$GI_{rt}^{high} = \begin{cases} GI_{rt} - GI_{rt}^{max}, & \text{if } GI_{rt} > GI_{rt}^{max} \\ 0 & , \quad \text{otherwise} \end{cases}$$

$$I_{rt}^{GI^{low}} = \begin{cases} 1, & \text{if } GI_{rt} \leq GI_{rt}^{max} \\ 0, & \text{otherwise} \end{cases}$$

$$I_{rt}^{GI^{high}} = \begin{cases} 1, & \text{if } GI_{rt} > GI_{rt}^{max} \\ 0, & \text{otherwise} \end{cases}$$

If the association between gender ideology and divorce is characterized by an inverted U relationship, then in Equation 2.3, β^{low} should be positive and significant and β^{high} should be negative and significant. In Table 2.4, I replicate the quadratic models presented in Table 2.3 with the piecewise specification. The results are in line with the previous findings: the coefficient of gender norms below the threshold is positive and significant, while the coefficient above the threshold is negative throughout the three different model specifications. These results bring further support for the functional form of the association between gender norms and divorce.

Second, I investigate whether the calibration of the marriage cohort trends may influence the main findings. The preferred estimates, presented in Table 2.3, include only linear trends because the quadratic and cubic coefficients are not found to be significant. Nevertheless, it is still worth assessing to what extent the results vary to the inclusion of quadratic and cubic terms to account for region-specific marriage cohort trends. In Table 2.5, Model 1 includes quadratic-marriage cohort trends and Model 2 cubic-marriage cohort trends. Comparing the final estimates to Model 1 and 2, I find that the results remain robust to the two different trend specifications.

Third, one potential concern is that higher-order marriages represent a selected sample of couples with different unobservable characteristics, such as lower commitment levels or religiosity for example. Such characteristics are also related to gender norms and could mediate the relationship between gender norms and divorce risk. The full sample includes an important share of higher-order marriages (about 17% of the final sample, see Table 2.1). Therefore, the final models are estimated restricting the sample to first marriages only. Model 3 in Table 2.5 presents the

main results excluding higher-order marriages. The reversed U-shaped relationship between gender norms and divorce risk appears to be robust to this narrower sample selection.

Finally, in Model 4, I replicate Model 3 presented in Table 2.3 and excluding the years where the gender norms index is extrapolated. For the quadratic model, the non-linear relationship between egalitarian gender norms and divorce risk is corroborated. The results show that the relationship is non-linear: the linear term coefficient is significant and superior to 1 and the quadratic term coefficient is significant and inferior to 1. The results, therefore, do not appear to be driven by the extrapolation.

2.6 Discussion

This article emphasizes the importance of gender norms to understand historical changes in demographic trends (Liefbroer & Billari, 2010). I find that when gender norms are traditional, an increase towards equality is positively associated with individual divorce risk. This relationship, however, reverses at higher levels of the gender index. In other words, when the prevalence of gender-egalitarian attitudes has reached intermediary levels, the association between gender-egalitarian attitudes and divorce risk becomes negative. This finding is robust to the inclusion of region and marriage cohort fixed effects, region-cohort linear trends and alternative regional variables. The analysis suggests that as society moves towards equality, one should expect a return of the family, that is, to more stable demographic behaviors and a closer match between outcome and preferences (Esping-Andersen & Billari, 2015).

Several checks are carried out to assess the robustness of the main findings of this article. First, I provide further evidence for the reversed U-shaped relationship between gender norms and divorce risk. Second, I consider both quadratic and cubic region-cohort trends and show that the main results are robust to different trend specifications. Third, I exclude higher-order marriages from the sample to assess whether the main findings hold for first marriages only. Finally, I replicate the analysis excluded the years in which the gender norms index is extrapolated (the years before 1977). The main findings are robust to the different sensitivity tests.

Overall, this article contributes to our understanding of changing demographic behaviors by considering and testing competing theoretical hypotheses on the relationship between gender norms and marital decisions. With respect to previous studies, I limit the analysis to one country, the United States, but I study five decades of demographic changes together with changing gender norms. By doing so, I fully take into account the diffusion of gender norms rather than assume it. Most importantly, I test whether the association found in previous studies (e.g. Arpino et al., 2015) between contextual measures of gender norms and aggregate behaviors also holds at the individual-level.

The analysis does not come without caveats. While a strength of this article is the longitudinal approach, I still cannot fully disentangle why couples decide to divorce. Only data on marital conflicts or divorce decisions could provide better insights for this mechanism. In line with the findings, the work by Ruppanner (2010) shows couples have less conflict over housework in countries with both high levels of female labor participation and GEM (Gender Empowerment Index). Also, in another study by Ruppanner (2013), she finds that fathers have less family-to-work and mothers less work-to-family conflict in countries that facilitate work and parenthood reconciliation.

Also, while the PSID provides exceptional historical coverage to study change over time, a limitation when using the entire sample is that few control variables can be included in the analysis. For example, religiosity, parental divorce and mother's employment during childhood are three important variables that cannot be considered in the 1968-2012 analysis. Similarly, another data limitation is the geographical unit to measure gender norms in the General Social Surveys. The US census divisions capture important regional variation in attitudes, nevertheless, recent studies that use cross-sectional data have shown that lower levels of geographical analysis can reveal important differences in the relationship between contextual variables and partnership behaviors (e.g. Glass & Levchak (2014)).

Finally, the findings of this article may reflect another case of US exceptionalism for several reasons (Lesthaeghe & Neidert, 2006). First, divorce rates remain relatively high in the United States with respect to other countries making meaning-

ful comparison difficult. Second, the nature of both marriage and cohabitation are quite specific to the United States (Cherlin, 2004). Only future comparative work on gender norms and demographic behaviors will provide answers to these questions.

References

Aassve, A., Billari, F. C., & Pessin, L. (2012). Trust and fertility dynamics. Dondena Working Papers n°55.

Acemoglu, D., Autor, D. H., & Lyle, D. (2004). Women, war, and wages: The effect of female labor supply on the wage structure at midcentury. *Journal of Political Economy*, *112*(3), 497–551.

Akerlof, G. A. & Kranton, R. E. (2000). Economics and identity. *Quarterly Journal of Economics*, *115*(3), 715–753.

Akerlof, G. A. & Kranton, R. E. (2010). *Identity Economics: How Identities Shape Our Work, Wages, and Well-Being*. Princeton, NJ: Princeton University Press.

Arpino, B., Esping-Andersen, G. s., & Pessin, L. (2015). How do changes in gender role attitudes towards female employment influence fertility? A macro-level analysis. *European Sociological Review*, *31*(3), 370–382.

Batalova, J. A. & Cohen, P. N. (2002). Premarital cohabitation and housework: Couples in cross-national perspective. *Journal of Marriage and Family*, *64*(3), 743–755.

Becker, G. S. (1991). *A Treatise on the Family (enlarged ed.)*. Cambridge, USA; London, England: Harvard University Press.

Bianchi, S. M., Milkie, M. A., Sayer, L. C., & Robinson, J. P. (2000). Is anyone doing the housework? Trends in the gender division of household labor. *Social Forces*, *79*(1), 191–228.

Breen, R. & Cooke, L. P. (2006). The persistence of the gendered division of domestic labour. *European Sociological Review*, *21*(1), 43–57.

Breines, W. (1986). The 1950s: Gender and some social science. *Sociological Inquiry*, *56*(1), 69–92.

Bulanda, J. R. & Brown, S. L. (2007). Race-ethnic differences in marital quality and divorce. *Social Science Research*, *36*(3), 945–967.

Cherlin, A. J. (2004). The deinstitutionalization of American marriage. *Journal of Marriage and Family*, *66*(4), 848–861.

Cherlin, A. J. (2010). Demographic trends in the United States: A review of research in the 2000s. *Journal of Marriage and Family*, *72*(3), 403–419.

Cherlin, A. J. (2014). *Labor's Love Lost: The Rise and Fall of the Working-Class Family in America*. Russell Sage Foundation.

Cooke, L. P. (2006). "Doing gender" in context: Household bargaining and risk of divorce in Germany and the United States. *American Journal of Sociology*, *112*(2), 442–472.

Cotter, D., Hermsen, J. M., & Vanneman, R. (2011). The end of the gender revolution? Gender role attitudes from 1977 to 20081. *American Journal of Sociology*, *117*(1), 259–289.

De Laat, J. & Sevilla-Sanz, A. (2011). The fertility and women's labor force participation puzzle in oecd countries: the role of men's home production. *Feminist Economics*, *17*(2), 87–119.

de V. Cavalcanti, T. V. & Tavares, J. (2008). Assessing the "engines of liberation": Home appliances and female labor force participation. *The Review of Economics and Statistics*, *90*(1), 81–88.

Doepke, M., Hazan, M., & Maoz, Y. D. (2015). The baby boom and World War II: A macroeconomic analysis. *The Review of Economic Studies*, *82*(3), 1031–1073.

Edin, K. & Kefalas, M. (2005). *Promises I can Keep: Why Poor Women Put Motherhood Before Marriage*. University of California Press.

Esping-Andersen, G. (2009). *The Incomplete Revolution: Adapting to Women's New Roles*. Cambridge, UK; Malden, USA: Polity Press.

Esping-Andersen, G. & Billari, F. C. (2015). Re-theorizing family demographics. *Population and Development Review*, *41*(1), 1–31.

Fernández, R. (2007). Alfred marshall lecture women, work, and culture. *Journal of the European Economic Association*, *5*(2-3), 305–332.

Fernández, R. (2013). Cultural change as learning: The evolution of female labor force participation over a century. *American Economic Review*, *103*(1), 472–500.

Fernández, R., Fogli, A., & Olivetti, C. (2004). Mothers and sons: Preference formation and female labor force dynamics. *The Quarterly Journal of Economics*, *119*(4), 1249–1299.

Frank, K. & Hou, F. (2015). Source-country gender roles and the division of labor within immigrant families. *Journal of Marriage and Family*, *77*(2), 557–574.

Fuwa, M. (2004). Macro-level gender inequality and the division of household labor in 22 countries. *American Sociological Review*, *69*(6), 751–767.

Gimenez-Nadal, J. I., Molina, J. A., & Sevilla-Sanz, A. (2012). Social norms, partnerships and children. *Review of Economics of the Household*, *10*(2), 215–236.

Glass, J. & Levchak, P. (2014). Red states, blue states, and divorce: Understanding the impact of conservative protestantism on regional variation in divorce rates. *American Journal of Sociology*, *119*(4), 1002–1046.

Goldin, C. (2006). The quiet revolution that transformed women's employment, education, and family. *The American Economic Review*, *96*(2), 1–21.

Goldin, C. & Katz, L. F. (2002). The power of the pill: Oral contraceptives and women's career and marriage decisions. *Journal of Political Economy*, *110*(4).

Goldscheider, F., Bernhardt, E., & Lappegård, T. (2015). The gender revolution: A framework for understanding changing family and demographic behavior. *Population and Development Review, 41*(2), 207–239.

Goldstein, J. R. (1999). The leveling of divorce in the United States. *Demography, 36*(3), 409–414.

Goldstein, J. R. & Kenney, C. T. (2001). Marriage delayed or marriage forgone? New cohort forecasts of first marriage for US women. *American Sociological Review, 66*(4), 506–519.

Goldstein, J. R., Sobotka, T., & Jasilioniene, A. (2009). The end of "lowest-low" fertility? *Population and Development Review, 35*(4), 663–699.

Greenstein, T. N. & Davis, S. N. (2006). Cross-national variations in divorce: Effects of women's power, prestige and dependence. *Journal of Comparative Family Studies, 37*(2), 253–273.

Greenwood, J., Seshadri, A., & Yorukoglu, M. (2005). Engines of liberation. *The Review of Economic Studies, 72*(1), 109–133.

Härkönen, J. (2014). Divorce trends, patterns, causes, consequences. In J. Treas, J. Scott, & M. Richards (Eds.), *The Wiley-Blackwell Companion to the Sociology of Families*. Chichester: John Wiley & Sons.

Hochschild, A. R. & Machung, A. (1989). *The Second Shift: Working Parents and the Revolution at Home*. New York: Viking Penguin.

Hook, J. L. (2006). Care in context: Men's unpaid work in 20 countries, 1965–2003. *American Sociological Review, 71*(4), 639–660.

King, M., Ruggles, S., Alexander, J. T., Flood, S., Genadek, K., Schroeder, M. B., Trampe, B., & Vick, R. (2010). Integrated public use microdata series, current population survey: Version 3.0.[machine-readable database]. Minneapolis: University of Minnesota.

Kneip, T., Bauer, G., & Reinhold, S. (2014). Direct and indirect effects of unilateral divorce law on marital stability. *Demography, 51*(6), 2103–2126.

Knudsen, K. & Wærness, K. (2008). National context and spouses' housework in 34 countries. *European Sociological Review, 24*(1), 97–113.

Kohler, H.-P., Billari, F. C., & Ortega, J. A. (2002). The emergence of lowest-low fertility in europe during the 1990s. *Population and Development Review, 28*(4), 641–680.

Lesthaeghe, R. (2010). The unfolding story of the second demographic transition. *Population and Development Review, 36*(2), 211–51.

Lesthaeghe, R. J. & Neidert, L. (2006). The second demographic transition in the United States: Exception or textbook example? *Population and Development Review, 32*(4), 669–698.

Liefbroer, A. C. & Billari, F. C. (2010). Bringing norms back in: A theoretical and empirical discussion of their importance for understanding demographic behaviour. *Population, Space and Place, 16*(4), 287–305.

Lyngstad, T. H. & Jalovaara, M. (2010). A review of the antecedents of union dissolution. *Demographic Research, 23*(10), 257.

Martin, S. P. (2006). Trends in marital dissolution by women's education in the United States. *Demographic Research, 15*, 537–560.

McDonald, P. (2000a). Gender equity in theories of fertility transition. *Population and Development Review, 26*(3), 427–439.

McDonald, P. (2000b). Gender equity, social institutions and the future of fertility. *Journal of Population Research, 17*(1), 1–16.

McDonald, P. (2013). Societal foundations for explaining fertility: Gender equity. *Demographic Research, 28*(34), 981–994.

Myrskylä, M., Kohler, H.-P., & Billari, F. C. (2009). Advances in development reverse fertility declines. *Nature, 460*, 741–743.

Oppenheimer, V. K. (1994). Women's rising employment and the future of the family in industrial societies. *Population and Development Review, 20*(2), 293–342.

Özcan, B. & Breen, R. (2012). Marital instability and female labor supply. *Annual Review of Sociology, 38*, 463–481.

Raley, R. K. & Bumpass, L. (2003). The topography of the divorce plateau. *Demographic Research, 8*, 245–260.

Ruppanner, L. (2010). Conflict and housework: Does country context matter? *European Sociological Review, 26*(5), 557–570.

Ruppanner, L. (2013). Conflict between work and family: An investigation of four policy measures. *Social Indicators Research, 110*(1), 327–347.

Schoen, R. & Cheng, Y.-H. A. (2006). Partner choice and the differential retreat from marriage. *Journal of Marriage and Family, 68*(1), 1–10.

Schwartz, C. R. & Han, H. (2014). The reversal of the gender gap in education and trends in marital dissolution. *American Sociological Review, 79*(4), 605–629.

Sevilla-Sanz, A. (2010). Household division of labor and cross-country differences in household formation rates. *Journal of Population Economics, 23*(1), 225–249.

Stevenson, B. & Wolfers, J. (2007). Marriage and divorce: Changes and their driving forces. *Journal of Economic Perspectives, 21*(2), 27–52.

Sullivan, O., Billari, F. C., & Altintas, E. (2014). Fathers' changing contributions to child care and domestic work in very low–fertility countries the effect of education. *Journal of Family Issues, 35*(8), 1048–1065.

Sweeney, M. (2002). Two decades of family change: The shifting economic foundations of marriage. *American Sociological Review*, *67*(1), 132–147.

Teachman, J. D. (2002). Stability across cohorts in divorce risk factors. *Demography*, *39*(2), 331–351.

Torr, B. M. (2011). The changing relationship between education and marriage in the United States, 1940-2000. *Journal of Family History*, *36*(4), 483–503.

van de Kaa, D. J. (2001). Postmodern fertility preferences: From changing value orientation to new behavior. *Population and Development Review*, *27*, 290–331.

Tables

Table 2.1 – Descriptive statistics

	Mean	Sd	Min	Max
Region-level variables				
Gender norms index	8.63	2.20	0.00	13.27
Gender norms index sq.	79.27	32.70	0.00	176.21
Male unemployment rate $(0 = 2.01)$	5.04	2.24	0.00	12.97
Female employment rate $(0 = 37.74)$	16.89	5.81	0.00	31.61
% of tertiary educated women $(0 = 6.81)$	14.29	6.85	0.00	33.79
Couple- and Individual-level variables				
Log of marriage duration	1.72	0.83	0.00	3.26
Wife's first marriage	0.83	0.37	0.00	1.00
Wife's age at start of marriage	24.95	5.47	16.00	40.00
Wife's age at start of marriage^2	652.53	296.74	256.00	1600.00
Wife's race				
White	0.67	0.47	0.00	1.00
Black	0.24	0.43	0.00	1.00
Other	0.09	0.28	0.00	1.00
Wife's education				
Less than high school diploma	0.17	0.38	0.00	1.00
High school diploma	0.34	0.47	0.00	1.00
Some college	0.27	0.44	0.00	1.00
College degree	0.23	0.42	0.00	1.00
Husband's education				
Less than high school diploma	0.19	0.39	0.00	1.00
High school diploma	0.37	0.48	0.00	1.00
Some college	0.23	0.42	0.00	1.00
College degree	0.20	0.40	0.00	1.00
Age difference				
Husband is older	0.42	0.49	0.00	1.00
Wife is older	0.15	0.35	0.00	1.00
Same age	0.44	0.50	0.00	1.00
Number of children living in the household	1.57	1.26	0.00	12.00
Region				
New England	0.03	0.18	0.00	1.00
Middle Atlantic	0.11	0.31	0.00	1.00
East North Central	0.15	0.36	0.00	1.00
West North Central	0.09	0.28	0.00	1.00
South Atlantic	0.23	0.42	0.00	1.00
East South Central	0.09	0.28	0.00	1.00
West South Central	0.12	0.32	0.00	1.00
Mountain	0.05	0.23	0.00	1.00
Pacific	0.13	0.33	0.00	1.00
Marriage year $(1968 = 0)$	21.17	12.05	0.00	44.00
Number of women		7,812		
Number of marriages		8,493		
Woman-years		68,241		

Notes: Sd = Standard deviation, Min = Minimum, Max = Maximum.

Table 2.2 – Multilevel logistic regression of gender norms on marital instability - linear specification

	Model 1		Model 2		Model 3	
Gender norms index	0.926	(0.027)**	0.912	(0.027)**	0.979	(0.040)
Male unemployment rate					1.059	(0.015)***
Female employment rate					0.970	(0.018)
% of tertiary educated women					0.877	(0.018)***
Log of marriage duration	1.580	(0.107)***	1.587	(0.107)***	2.239	(0.186)***
Wife's age at start of marriage	0.881	(0.046)*	0.879	(0.046)*	0.861	(0.044)**
Wife's age at start of marriage^2	1.002	(0.001)*	1.002	(0.001)*	1.003	(0.001)**
First marriage	0.984	(0.102)	0.974	(0.100)	0.943	(0.095)
Wife's education (< H-S)	ref.		ref.		ref.	
High school diploma	0.849	(0.069)*	0.850	(0.069)*	0.855	(0.067)*
Some college	0.713	(0.066)***	0.712	(0.065)***	0.724	(0.065)***
College degree	0.390	(0.047)***	0.393	(0.047)***	0.405	(0.048)***
Wife's race (White)	ref.		ref.		ref.	
Black	1.394	(0.104)***	1.389	(0.103)***	1.372	(0.099)***
Other	0.670	(0.093)**	0.679	(0.094)**	0.687	(0.093)**
Husband's education (< H-S)	ref.		ref.		ref.	
High school diploma	0.855	(0.066)*	0.856	(0.066)*	0.855	(0.064)*
Some college	0.666	(0.061)***	0.664	(0.061)***	0.668	(0.060)***
College degree	0.420	(0.049)***	0.425	(0.049)***	0.433	(0.049)***
Age difference (Hus. older)	ref.		ref.		ref.	
Wife is older	1.032	(0.086)	1.034	(0.085)	1.045	(0.085)
Same age	0.810	(0.050)***	0.808	(0.049)***	0.881	(0.055)*
Number of children	0.859	(0.022)***	0.860	(0.021)***	0.881	(0.022)***
Constant	0.078	(0.061)**	0.078	(0.064)**	0.112	(0.091)**
Regional fixed effects	+		+		+	
Marriage year fixed effects	+		+		+	
Region-specific cohort linear trend			+		+	
Number of women	7,812		7,812		7,812	
Number of marriages	8,493		8,493		8,493	
Woman-years	68,241		68,241		68,241	
Log likelihood	-8,768		-8,758		-8,712	

Notes: Hazard ratios are displayed. + p<0.10 * p<0.05 ** p<0.01 *** p<0.001.

Table 2.3 – Multilevel logistic regression of gender norms on marital instability - quadratic specification

	Model 1		Model 2		Model 3	
Gender norms index	1.686	(0.154)***	1.967	(0.197)***	2.157	(0.248)***
Gender norms index sq.	0.954	(0.006)***	0.940	(0.007)***	0.942	(0.008)***
Male unemployment rate					1.045	(0.015)**
Female employment rate					0.927	(0.019)***
% of tertiary educated women					0.916	(0.020)***
Log of marriage duration	1.743	(0.123)***	1.833	(0.130)***	2.441	(0.209)***
Wife's age at start of marriage	0.874	(0.046)*	0.872	(0.046)**	0.854	(0.044)**
Wife's age at start of marriage^2	1.002	(0.001)*	1.002	(0.001)*	1.003	(0.001)**
First marriage	0.989	(0.103)	0.976	(0.100)	0.954	(0.097)
Wife's education (< H-S)	ref.		ref.		ref.	
High school diploma	0.842	(0.069)*	0.851	(0.069)*	0.856	(0.068)+
Some college	0.711	(0.066)***	0.715	(0.066)***	0.725	(0.066)***
College degree	0.388	(0.047)***	0.394	(0.047)***	0.403	(0.048)***
Wife's race (White)	ref.		ref.		ref.	
Black	1.383	(0.103)***	1.371	(0.101)***	1.361	(0.099)***
Other	0.677	(0.094)**	0.698	(0.096)**	0.702	(0.095)**
Husband's education (< H-S)	ref.		ref.		ref.	
High school diploma	0.853	(0.066)*	0.851	(0.065)*	0.851	(0.064)*
Some college	0.664	(0.061)***	0.658	(0.060)***	0.662	(0.059)***
College degree	0.417	(0.048)***	0.424	(0.049)***	0.429	(0.049)***
Age difference (Hus. older)	ref.		ref.		ref.	
Wife is older	1.046	(0.087)	1.053	(0.087)	1.057	(0.087)
Same age	0.832	(0.051)**	0.836	(0.051)**	0.889	(0.055)+
Number of children	0.867	(0.022)***	0.871	(0.022)***	0.887	(0.022)***
Constant	0.020	(0.016)***	0.009	(0.008)***	0.014	(0.012)***
Regional fixed effects	+		+		+	
Marriage year fixed effects	+		+		+	
Region-specific cohort linear trend			+		+	
Number of women	7,812		7,812		7,812	
Number of marriages	8,493		8,493		8,493	
Woman-years	68,241		68,241		68,241	
Log likelihood	-8,740		-8,720		-8,681	

Notes: Hazard ratios are displayed. + p<0.10 * p<0.05 ** p<0.01 *** p<0.001.

Table 2.4 – Multilevel logistic regression of gender norms on marital instability - piecewise regression

	Model 1		Model 2		Model 3	
Gender norms index^{low}	1.488	(0.130)***	1.502	(0.136)***	1.359	(0.088)***
Gender norms index^{high}	0.734	(0.030)***	0.703	(0.030)***	0.750	(0.043)***
Male unemployment rate					1.047	(0.015)**
Female employment rate					0.950	(0.019)**
% of tertiary educated women					0.909	(0.019)***
Log of marriage duration	1.720	(0.119)***	1.751	(0.121)***	2.360	(0.200)***
Wife's age at start of marriage	0.867	(0.045)**	0.865	(0.045)**	0.850	(0.044)**
Wife's age at start of marriage^2	1.002	(0.001)*	1.003	(0.001)*	1.003	(0.001)**
First marriage	0.971	(0.100)	0.958	(0.098)	0.943	(0.095)
Wife's education (< H-S)	ref.		ref.		ref.	
High school diploma	0.845	(0.068)*	0.851	(0.068)*	0.856	(0.068)*
Some college	0.715	(0.066)***	0.716	(0.065)***	0.726	(0.065)***
College degree	0.392	(0.047)***	0.397	(0.047)***	0.405	(0.048)***
Wife's race (White)	ref.		ref.		ref.	
Black	1.387	(0.103)***	1.378	(0.101)***	1.365	(0.099)***
Other	0.690	(0.095)**	0.708	(0.097)*	0.709	(0.096)*
Husband's education (< H-S)	ref.		ref.		ref.	
High school diploma	0.857	(0.066)*	0.856	(0.065)*	0.853	(0.064)*
Some college	0.666	(0.061)***	0.661	(0.060)***	0.663	(0.059)***
College degree	0.421	(0.049)***	0.426	(0.049)***	0.430	(0.049)***
Age difference (Hus. older)	ref.		ref.		ref.	
Wife is older	1.050	(0.087)	1.055	(0.087)	1.059	(0.087)
Same age	0.828	(0.051)**	0.827	(0.051)**	0.883	(0.055)*
Number of children	0.869	(0.022)***	0.872	(0.022)***	0.887	(0.022)***
I$^{GI^{low}}$	0.137	(0.106)**	0.104	(0.084)**	0.220	(0.185)+
I$^{GI^{high}}$	0.138	(0.105)**	0.112	(0.090)**	0.191	(0.161)*
Regional fixed effects	+		+		+	
Marriage year fixed effects	+		+		+	
Region-specific cohort linear trend			+		+	
Number of women	7,812		7,812		7,812	
Number of marriages	8,493		8,493		8,493	
Woman-years	68,241		68,241		68,241	
Log likelihood	-8,725		-8,710		-8,678	

Notes: Hazard ratios are displayed. + p<0.10 * p<0.05 ** p<0.01 *** p<0.001.

Table 2.5 – Multilevel logistic regression of gender norms on marital instability - robustness checks

|	Model 1		Model 2		Model 3		Model 4	
Gender norms index	2.209	(0.262)***	2.235	(0.267)***	2.172	(0.267)***	1.646	(0.298)**
Gender norms index sq.	0.939	(0.008)***	0.939	(0.008)***	0.942	(0.008)***	0.961	(0.011)***
Male unemployment rate	1.047	(0.015)**	1.048	(0.015)**	1.047	(0.016)**	1.031	(0.015)*
Female employment rate	0.928	(0.019)***	0.924	(0.019)***	0.930	(0.020)***	0.919	(0.020)***
% of tertiary educated women	0.922	(0.020)***	0.920	(0.020)***	0.911	(0.021)***	0.920	(0.020)***
Log of marriage duration	2.441	(0.210)***	2.438	(0.208)***	2.333	(0.248)***	2.218	(0.193)***
Constant	0.013	(0.012)***	0.011	(0.010)***	0.058	(0.054)**	0.048	(0.052)**
Regional fixed effects	+		+		+		+	
Marriage year fixed effects	+		+		+		+	
Region-specific cohort linear trend	+		+		+		+	
Time-varying regional variables	+		+		+		+	
Region-specific cohort quadratic trend	+		+					
Region-specific cohort cubic trend			+					
First marriages only					+			
Excluding years prior to 1977							+	
Number of women	7,812		7,812		7,063		6,478	
Number of marriages	8,493		8,493		7,063		7,155	
Woman-years	68,241		68,241		60,039		62,713	
Log likelihood	-8678		-8674		-7373		-8160	

Notes: Hazard ratios are displayed. + p<0.10 * p<0.05 ** p<0.01 *** p<0.001. The full results are presented in the Supplementary materials in Table 2.S1.

Figures

Figure 2.1 – The expected relationship between gender norms and divorce risk in the context of the gender revolution
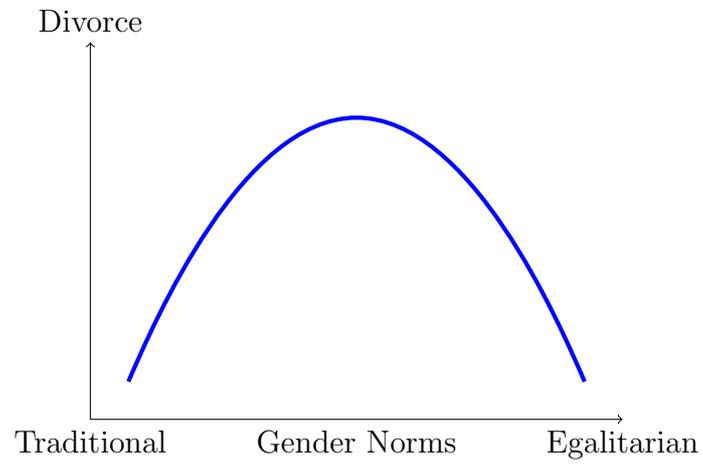
Figure 2.2 – Gender norms index by region, 1968-2012
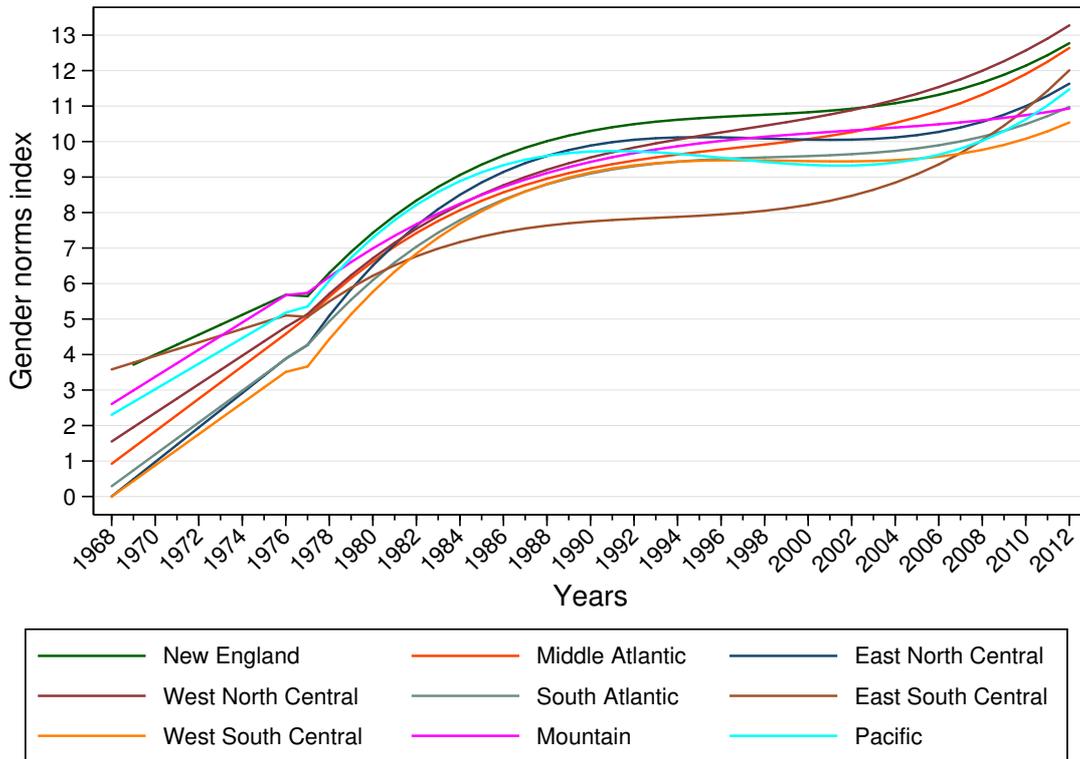
Notes: The regions correspond the US census divisions (Supplementary material S1). See the supplementary material S2 for more details on the gender norms index construction.
Source: General Social Surveys.

Figure 2.3 – Average predicted divorce risk at different levels of the gender norms index
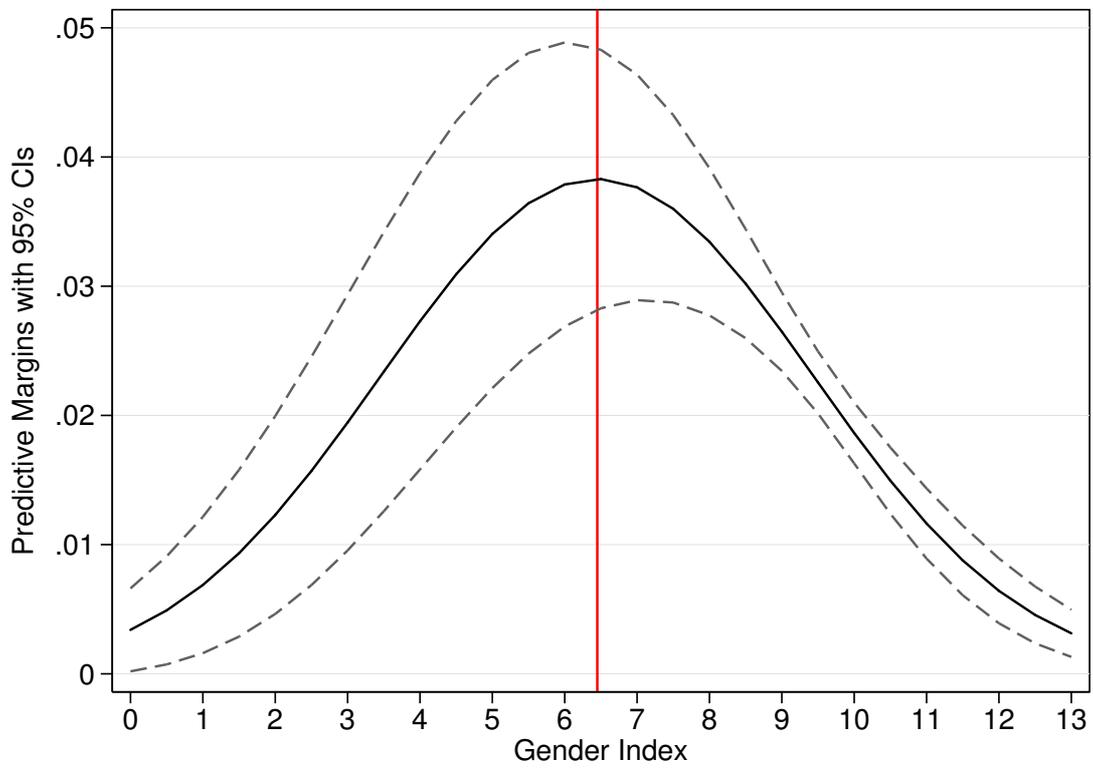
Notes: The predicted values are based on Model 3 in Table 4.3 using the quadratic form model.

Supplementary materials

S1   Description of Regions

New England: Maine, Vermont, New Hampshire, Massachusetts, Connecticut, Rhodes Island
Middle Atlantic: New York, New Jersey, Pennsylvania
East North Central: Wisconsin, Illinois, Indiana, Michigan, Ohio
West North Central: Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas
South Atlantic: Delaware, Maryland, West Virginia, Virginia, North Carolina, South Carolina, Georgia, Florida, District of Columbia
East South Central: Kentucky, Tennessee, Alabama, Mississippi
West South Central: Arkansas, Oklahoma, Louisiana, Texas
Mountain: Montana, Idaho, Wyoming, Nevada, Utah, Colorado, Arizona, New Mexico
Pacific: Washington, Oregon, California, Alaska, Hawaii

S2   Gender Norms Index Construction

To construct the gender norms index the following three questions are selected from the GSS:

- Do you strongly agree, agree, disagree, or strongly disagree with the following statement:

  - "A working mother can establish as warm and secure a relationship with her children as a mother who does not work." (FECHLD).
  - "A preschool child is likely to suffer if his or her mother works." (FEPRESC).
  - "It is much better for everyone involved if the man is the achiever outside the home and the woman takes care of the home and family" (FEFAM).

The sample size and distribution of each of the variable is described in the table below.

	Mean	Sd	Min	Max
Mother working doesnt hurt children	2.19	0.88	1	4
Preschool kids suffer if mother works	2.56	0.81	1	4
Better for man to work, woman tend home	2.68	0.86	1	4
Observations		24,296		

A factor analysis is carried out using the principal-component factor method, retaining one factor. After applying the orthogonal Varimax rotation, the score is predicted and corresponds to an index of gender norms. The Cronbach's alpha is of about 0.74, which suggests that the factor analysis is reliable.

To supplement to the missing between 1977 and 2010, gender ideology index is predicted using an OLS regression and specifying time as a cubic function interacted with the respondent's region of residence. For the 1968-1976, the gender norms index is extrapolated using linear interpolation by region of residence.

S3 Variables' Construction and Definition

March Current Population Surveys (CPS) data from the Integrated Public Use Microdata Series: Regional variable construction

Men's unemployment rate is defined as the share of men in region r who are looking for employment among men currently in the labor force. The employment status is constructed using the empstat variable (unemployed, unemployed, experienced worker and unemployed new worker are treated as being unemployed). The labor force status is constructed using the labforce variable (Yes in the labor force is treated as being in the labor force). Armed forces are excluded from the variable construction.

Female labor force participation is defined as the share of women in region r who are either employed or actively looking for employment. The employment status is constructed using the empstat variable (at work, has a job, not at work, unemployed, unemployed, experienced worker are treated as being part of the labor force). The labor force status is constructed using the labforce variable (No, not in the labor force is treated as not being in the labor force). Armed forces are excluded from the variable construction.

Share of tertiary educated women is defined as the share of women in region r who have obtained a 4 years of college and above among women between age 25 and 65. The variable educ is used to construct education attainment (4 years of college, Bachelor's degree, 5+ years of college, 5 years of college, 6+ years of college, Master's degree, Professional school degree and doctorate degree).

Panel Study of Income Dynamics 1968-2013: Individual-level variables

Missing report for key independent variables

Variable	Missing	Total	Percent Missing
Wife's race	411	72,594	0.57
Wife's education	190	72,594	0.26
Husband's education	676	72,594	0.93
Region of residence	1,225	72,594	1.69
Number of children	2253	72,594	3.1

Marriage Dates

The marriage dates are constructed using the 1985-2011 Marriage History File, which contains the marriage histories of any PSID participants living in a PSID family at the time of the interview in any wave from 1985 through 2011. Marriages are excluded if the dates are missing (about 6%) and/or if the status of the marriage is missing or unknown (about 0.6%) and/or if the spouse cannot be identified (0.5%) and/or if the marriage order is missing or unknown (1.3%). When both the separation and divorce dates are available, the separation date is used to define the marriage dissolution event.

Marriage Order

The marriage order variable is taken from the 1985-2011 Marriage History File and corresponds to the wife's marriage order. When the marriage order is missing, the marriage order is imputed using the marriage year in case the respondent has experienced several marriages (2%).

Education

The education variable is constructed using the variables asking about the head's and wife's education: "How many grades of school did you [your Wife] finish?". Heads and wives are asked about their educational level only when they become a new head or wife. The education question was re-asked of all heads and wives in 1985, 2009, 2011 and 2013. Other Family Unit Members (OFUMS) aged 16 years or older are asked about their education at each interview. Whenever possible educational attainment is measured prior to the marriage start year (67% for wives, 48% of cases for husbands).

Race

Heads were asked about their race from 1968 until 1972. Between 1972 and 1985, members of a PSID family who formed their own household were assumed to be the same race as those of their main families. Only new heads were asked about their race between 1972 and 1985 and wives were assumed to be of the same race than the head of the household. The race question was re-asked of all heads and wives in 1985, 2009, 2011 and 2013. The race variable is constructed from the most recent survey year in which respondents were asked the question (either in a year where all

the heads and wives were re-asked the question or when they become a new head or a new wife).

The question changed several times over the years. To keep a consistent measure of race over the survey years, the race variable is simplified into three categories: white, African-American, and 'other'. The category 'other' includes respondents that identified as: 'American Indian', 'Alaska Native', 'Asian', 'Latin Descent', 'Native Hawaian', 'Other mentions', 'More than 2 mentions', 'Other.'. If race is missing in the final sample, the race of either the respondents' parents or siblings is used (0.28%).

State

The state of residence variable is used to identify where the couple resides. If the state is missing (this is particularly important after 1997 when the PSID switched to biennial interviews), four strategies are used to reduce missing information:

- If the respondent answers 'no' to the question on 'Have you moved since last spring/last interview', it assumed that the state of residence is the same as in the last survey year. (12%)
- If the state of residence is missing at year t but the state of residence at t-1 and at t+1 are identical, the respondent is assumed not to have moved at year t. (6%)
- If the state of residence is missing at year t but the state of residence at t-1 and at t+1 are different, the questions 'Have you moved since last spring/last interview?' and the question 'In which year have you moved?' are used. If the year of move is equal to year t-1, then state at year t is assumed to be equal to state at year t+1. If the year of move is superior to year t-1, then the state at year t is assumed to be equal to the state at year t-1. (1%)
- Survey participants are asked whether they have always lived in the state in which they grew up. If the respondents answer yes, then the state of residence is assumed to be the state where they grew up in case of missing values. (3%) The state variable is then categorized into region of residence.

Birth Year

For the wife's and husband's year of birth, the variable "year individual is born" is used. When the birth year is either inconsistent or misreported, the age at interview and year of interview variables are used to correct the year of birth (For wives 0.1% and for husbands 0.06%).

Table 2.S1 – Multilevel logistic regression of gender norms on marital instability - robustness checks

	Model 1		Model 2		Model 3		Model 4	
Gender norms index	2.209	(0.262)***	2.235	(0.267)***	2.172	(0.267)***	1.646	(0.298)**
Gender norms index sq.	0.939	(0.008)***	0.939	(0.008)***	0.942	(0.008)***	0.961	(0.011)***
Male unemployment rate	1.047	(0.015)**	1.048	(0.015)**	1.047	(0.016)**	1.031	(0.015)*
Female employment rate	0.928	(0.019)***	0.924	(0.019)***	0.930	(0.020)***	0.919	(0.020)***
% of tertiary educated women	0.922	(0.020)***	0.920	(0.020)***	0.911	(0.021)***	0.920	(0.020)***
Log of marriage duration	2.441	(0.210)***	2.438	(0.208)***	2.333	(0.248)***	2.218	(0.193)***
Wife's age at start of marriage	0.853	(0.044)**	0.851	(0.044)**	0.763	(0.047)***	0.850	(0.045)**
Wife's age at start of marriage^2	1.003	(0.001)**	1.003	(0.001)**	1.005	(0.001)***	1.003	(0.001)**
First marriage	0.956	(0.097)	0.948	(0.096)			0.895	(0.090)
Wife's education (Ref: < H-S)	ref.		ref.		ref.		ref.	
High school diploma	0.854	(0.068)*	0.855	(0.068)*	0.876	(0.073)	0.874	(0.070)+
Some college	0.723	(0.065)***	0.725	(0.065)***	0.746	(0.071)**	0.735	(0.067)***
College degree	0.402	(0.048)***	0.404	(0.048)***	0.401	(0.051)***	0.417	(0.049)***
Wife's race (ref. white)	ref.		ref.		ref.		ref.	
Black	1.366	(0.099)***	1.365	(0.099)***	1.260	(0.095)**	1.407	(0.103)***
Other	0.707	(0.096)*	0.709	(0.096)*	0.709	(0.101)*	0.701	(0.095)**
Husband's education (Ref: < H-S)	ref.		ref.		ref.		ref.	
High school diploma	0.849	(0.064)*	0.851	(0.064)*	0.832	(0.066)*	0.831	(0.063)*
Some college	0.660	(0.059)***	0.662	(0.059)***	0.693	(0.066)***	0.652	(0.059)***
College degree	0.428	(0.049)***	0.431	(0.049)***	0.413	(0.051)***	0.442	(0.050)***
Age difference (Husband is older)	ref.		ref.		ref.		ref.	
Ref: Wife is older	1.057	(0.087)	1.060	(0.087)	1.094	(0.100)	1.064	(0.089)
Same age	0.888	(0.055)+	0.889	(0.055)+	0.907	(0.060)	0.910	(0.058)
Number of children	0.888	(0.022)***	0.889	(0.022)***	0.873	(0.025)***	0.893	(0.023)***
Constant	0.013	(0.012)***	0.011	(0.010)***	0.058	(0.054)**	0.048	(0.052)**

Table 2.S1 – continued from previous page

	Model 1	Model 2	Model 3	Model 4
Regional fixed effects	+	+	+	+
Marriage year fixed effects	+	+	+	+
Region-specific cohort linear trend	+	+	+	+
Time-varying regional variables	+	+	+	+
Region-specific cohort quadratic trend	+	+		
Region-specific cohort cubic trend		+		
First marriages only			+	
Excluding years prior to 1977				+
Number of women	7,812	7,812	7,063	6,478
Number of marriages	8,493	8,493	7,063	7,155
Woman-years	68,241	68,241	60,039	62,713
Log likelihood	-8678	-8674	-7373	-8160

Notes: Hazard ratios are displayed. + $p<0.10$ * $p<0.05$ ** $p<0.01$ *** $p<0.001$.

CHAPTER 3

Changing educational gradients of US partnership formation and dissolution

A multilevel multistate competing risks assessment

Abstract: This chapter investigates the changing effects of female education on partnership formation and dissolution taking into account interrelationships between partnership dynamics and educational choices. Using data from 1968-2011 of the Panel Survey of Income Dynamics (PSID), a multilevel multi-state competing risks approach is taken to model partnership transitions and education outcomes jointly across women's life courses. Correcting for selection into partnership and education, college-educated women have higher a risk of entry into cohabitation as well as marriage, along with a lower propensity to divorce than their less-educated counterparts. Indeed, the educational gradients of both cohabitation and divorce appear to be widening in younger birth cohorts. At the same time, the education gap for marriage via cohabitation is narrowing over time, and there is no significant or changing relationship between education and cohabitation dissolution. Ignoring the possibility that education and partnership events share common unmeasured influences would bias the estimates of the effects of education on partnership transitions.

3.1 Introduction

Much of the debate on the changing relationship between women's education and partnership transitions in the United States is motivated by the increasing divergence in demographic patterns across educational groups (McLanahan, 2004; Perelli-Harris & Gerber, 2011). In the post-war period, highly-educated women were less likely to marry and generally had a higher propensity to forego marriage altogether (Isen & Stevenson, 2010). Today, however, it is less-educated women who are retreating from marriage and opting for cohabitation (Copen, Daniels & Mosher, 2013; Lichter, Qian & Mellott, 2006; Lundberg & Pollak, 2013). Also, the risk of experiencing dissolution of any type of partnership has become more pronounced among less-educated women (McLanahan, 2004).

In this article, I study how the educational gradients of partnership formation and outcomes have changed over time among American women over the past five decades. Specifically, the focus is on how selection on unobservable characteristics, which jointly influence education and partnership events, may complicate the estimation of the effects of education on partnership transitions. Although education and partnership events are tightly linked, previous studies have usually treated educational attainment as a covariate, with a given partnership event as the outcome (e.g. for an exception see Upchurch, Lillard & Panis (2002) on the role of education on non-marital childbearing). Ignoring the possibility that partnership and education decisions may be driven by common unmeasured factors can, however, cause the estimated education gradients of partnership transitions to be biased. For instance, if women with strong family preferences selected themselves out of higher education and into marriage, the negative effects of higher education attainment on entry into marriage would be overstated.

Furthermore, previous research on the changing effects of education on partnership transitions has mostly focused on first order events such as the formation or the dissolution of first-order marriages. Existing studies also tend to focus on one typology of transitions at a time, usually treating union formation and union dissolution separately. In doing so, none of these studies fully take into account

67

the sequence and diversity of all possible partnership events (Steele, Kallis & Joshi, 2006). Therefore, it is unclear to what extent changing educational gradients in family formation and dissolution might be driven by education per se or rather by the interplay between women's unobservable characteristics, education outcomes, and family decisions.

The contribution of this article is two-fold. First, I investigate how the relationship between education and women's partnership formation and dissolution has changed across US cohorts. This builds on previous findings by including recent birth cohorts and by studying jointly entry and exit from both marriage and cohabitation. Second, a key argument in this paper is that education and partnership choices are shaped by a common decision-making process. In order to fully understand the effects of women's education on partnership transitions, they need to be considered as joint decisions. I model partnership and education transitions simultaneously in order to disentangle the effect of education from time-invariant unmeasured characteristics, which may jointly affect educational outcomes and partnership decisions. To my knowledge, no previous study has considered education and partnerships as joint decisions to study the changing effects of education on partnership events.

This article, therefore, builds upon the existing literature on joint-estimation of simultaneous processes to analyze both partnership behaviors and educational decisions. More specifically, I apply the multilevel discrete model for competing risks and multiple states developed by Steele et al. (2006) to study joint partnership behaviors, extending this model by allowing for the joint determination of education in addition to partnership dynamics. By modeling simultaneously both processes, I am able to, first, test for the endogeneity of education decisions on partnership transitions and, second, show how the estimated effects of education on partnership events would be biased if ignoring the possibility that education and partnership events share unmeasured influences.

The empirical analysis is based on a combination of panel data and retrospective histories from the Panel Study of Income (PSID). This longitudinal dataset, which started in 1968, provides the time frame to capture the post-war period of rapid family changes and the rise of US women's educational attainment. This article

therefore traces the effect of education on partnership dynamics taking in account the intersections of both educational and family decisions.

3.2 Previous Findings on the Educational Gradient of US Women's Partnership Transitions

In this section, I review the existing literature on the female educational gradients of entry into and exit from both marriage and cohabitation. Because research has found the relationship to be highly context dependent, I focus mostly on the case of the United States[1].

In the United States, the rising retreat from marriage has been uneven across educational groups. In the post-war period, highly educated women were less-likely to marry (Bumpass & Sweet, 2001; Goldin, 2006). In recent years, however, a majority of studies find a reversal in the education gradient of marriage, from negative to positive (Goldstein & Kenney, 2001; Schoen & Cheng, 2006; Sweeney, 2002; Torr, 2011). In younger cohorts, tertiary-educated women experience on average a higher risk of marriage with respect to their less-educated contemporaries. Isen & Stevenson (2010), however, report that the effect of female education on marriage is still negative but that the marital educational gap is diminishing over time. Overall, these findings suggest that, as women participate in tertiary education and in the labor market in greater numbers, the marriage bargain shifts from a "specialization model of marriage" (Becker, 1973, 1974, 1991) to an "adaptive family strategy" model (Oppenheimer, 1994).

Studies of historical change in divorce risk factors have produced weak empirical support for Becker's "mutual interdependence" hypothesis (Becker, 1973, 1974, 1991). Indeed, most empirical findings show that the US female educational gradient for divorce is negative and decreases over time (Castro Martin & Bumpass, 1989; Härkönen & Dronkers, 2006; Isen & Stevenson, 2010; Martin, 2006; Raley & Bumpass, 2003; Sweeney & Phillips, 2004). Accordingly, marriage stability increasingly depends on the ability of both partners within a couple to pool resources (Op-

---

[1]See Matysiak, Styrc & Vignoli (2014) for an excellent meta-analysis of the female educational gradient of divorce across European countries.

penheimer, 1988, 1994, 1997). In contrast, both South (2001) and Teachman (2002) find that the role of education has remained stable over time, even though South (2001) finds a negative relationship between education and divorce and Teachman (2002) a positive one.

Furthermore, while several studies explore the determinants of cohabitation transitions (see Smock, 2000), it is still an open question whether the effect of women's education on entry into and exit from cohabitation has changed over time. One exception is the study by Ní Bhrolcháin & Beaujouan (2013) for the UK, in which they show that cohabitation used to be more prevalent among higher educated women and that the differential is disappearing over time, in particular when taking into account the timing of partnership formation. Existing evidence for the US show that education is negatively correlated with having ever cohabited, and this negative differential seems to be widening over time (Kennedy & Bumpass, 2008; Manning, 2013). However, these studies take a cross-sectional approach and do not take into account the timing of partnership formation. This could be problematic if college-educated women enter cohabitation at later ages than their less-educated contemporaries. Also, once cohabitating, higher educated women are more likely to marry their cohabiting partners (Copen et al., 2013; Lichter et al., 2006; Lundberg & Pollak, 2013).

In summary, existing studies have shown that US women's educational attainment and their partnership behaviors are closely linked together. As a general approach, most research has focused on one direction of the relationship: from education to partnership outcomes. To the author's knowledge, no previous study has considered education and partnership decisions as jointly determined processes. Furthermore, existing findings on the relationship between education and partnership dynamics consider either formation or dissolution of partnerships and are usually limited to first order events (Steele et al., 2006). Taken these findings together, two main sources of bias have not yet been jointly considered when studying the changing education gradients of partnership dynamics: selection in and out of either marriage or cohabitation and the endogeneity of educational attainment on partnership decisions.

Using multi-process modeling, previous studies find that partnership formation and outcomes are jointly determined by common unmeasured characteristics. For instance, Lillard, Brien & Waite (1995) for the US and also Steele et al. (2006) for the UK show that unobserved characteristics influence both the propensities to enter cohabitation and to divorce. In other words, women with an above-average risk to cohabit also have an above-average risk to divorce net of observed characteristics. Similarly, Steele, Kallis, Goldstein & Joshi (2005) show that some common unmeasured factors at the individual-level influence positively both marital and cohabitation dissolution suggesting that some women have a higher propensity for exiting a partnership regardless of the type of union. These empirical findings provide evidence that there are unobserved factors that influence both partnership formation and outcomes.

While none of these multi-process approach studies has considered jointly education decisions and partnership transitions, Upchurch et al. (2002) model jointly education, marital and fertility transitions to study the effects of education on non-marital fertility. They find a strong and negative cross-correlation between non-marital fertility and progressing in school, which provides evidence of the endogeneity of education on out-of-wedlock fertility outcomes. Also, Bernardi & Martínez-Pastor (2011) study of the changing educational gradient of divorce among Spanish women takes into account self-selection into marriage, however, they do not find evidence for such a source of bias. Nevertheless, they only consider selection into marriage, whereas this paper argues that unobserved factors that drive both education and partnership transitions may be at play. In fact, from a substantive stand point, the timing of education is generally considered endogenous to family formation (e.g Blossfeld & Huinink, 1991).

Building upon previous findings, I posit that net of observed characteristics, education decisions and partnership events are driven by common unobserved characteristics (Upchurch et al., 2002). To understand the role played by education in predicting entry and exit from partnerships, both processes, i.e. education and partnership dynamics, should be considered simultaneously. This study will shed light on how time-invariant unmeasured characteristics link education and partnership

71

decisions. Also, simultaneously estimating both processes will help provide a better understanding of the changing role played by education in predicting partnership dynamics controlling for such unobserved factors.

3.3   The Changing Context of Partnership Dynamics in the United States

Partnership dynamics in the United States follow distinctive logics with respect to other nations but also across socio-economic groups within the country. In industrialized countries, both the value and the frequency of marriages have declined (Cherlin, 2004). For instance, in the Scandinavian countries and France, cohabitation has become an alternative form of committed partnership. Research shows that this is not the case in the United States (Cherlin, 2004; Edin, Kefalas & Reed, 2004). Indeed, marriage is still a relevant institution in the United States, both for its prevalence and as an ideal (Cherlin, 2004). In the most recent wave of the World Values Survey (2005-2008), only 13% of Americans agreed with the statement "marriage is an outdated institution" against 22% in Sweden.

The decline of marriage and rise of out-of-wedlock childbearing among lower-educated women could wrongly suggest that they have come to value marriage less. However, Cherlin (2004) argues that the value of marriage has shifted from conformism to prestige, and, as a consequence, marriage is highly valued among low income individuals as a sign of social achievement. The marriage bar is set very high regarding both the actual ceremony and the financial prerequisites to consider the possibility of marriage, such as a mortgage, a car and the ability to "make ends meet" (Edin et al., 2004). Furthermore, Edin & Kefalas (2005) in their ethnographic work on low-income single mothers in Philadelphia show that there is a great deal of distrust between partners in low-income households. Therefore, cohabitation is considered a crucial trial before the actual marriage. Low-income women postpone or even forgo marriage as a consequence of the high value they place on marriage. Conflicting with women's expectations, men's relative socio-economic position has declined in the last decades, leaving low-educated women with fewer marriageable men (McLanahan, 2004).

The changing context of family life not only influences partnership formation

but also marital stability. Goode (1951) was the first to argue that the association between education and divorce changes according to the degree of diffusion of divorce in society (Härkönen & Dronkers, 2006). When divorce is a rare phenomenon, marital instability is concentrated among individuals with higher social status (as predicted by their education level) because the legal and social costs of divorce are high. Thus, high social status individuals will be able to face the costs of a divorce. As divorce becomes more widespread in society, the relationship between social status and marital instability reverses and becomes concentrated among those with low social status. While the value of marriage remains high in the United States, in line with Goode's prediction, the legal and social barriers of ending a marriage have substantially decreased over time (Wolfers, 2006). In a recent survey by the Pew Research Center, about half of Americans agree that divorce is preferable to an unhappy marriage and this share goes up to two-thirds when the question is whether divorce is preferable for children in the case of an unhappy marriage (Taylor, Funk & Clark, 2007). These trends suggest that the social acceptability of divorce has increased in the American society. Also, the legal barriers to divorce have decreased since the 1960s with the shift from consent to unilateral or 'no-fault' divorce laws (Stevenson & Wolfers, 2007).

3.4 Methods

3.4.1 Model

The empirical strategy of this paper is a direct application of the model developed by (Steele et al., 2006) in which the authors use a multilevel discrete time model for competing risks and multiple states to allow for residual correlation between the hazards of partnership formation and outcomes. I extend this model by allowing for the joint determination of education in addition to partnership dynamics. This empirical approach facilitates the distinction between marriage and cohabitation, the inclusion of repeated events rather than first-order transitions, and the correction of some potential endogeneity from unmeasured co-determinants of partnerships and educational decisions.

73

Model for Partnership Dynamics

In the partnership transitions model, three different partnership states are: single, cohabiting and married. Figure 3.1 summarizes the structure of the empirical model and the different states and transitions that will be included in the analysis. The partnership transitions can be divided between the partnership formation model and partnership outcomes model. In the partnership formation model, two equations are included. Each models the transitions from the state single-to-married or single-to-cohabiting, with marriage and cohabitation treated as competing risks. In the partnership outcomes model, three different transitions are possible. The first two arise from the state cohabiting and are treated as competing risks: cohabiting-to-married and cohabiting-to-single. The last one stems from the state married and is simply the transition married-to-single (separated or divorced).

The hazard of making a transition of type r_s (r_s=1,...,R_i) from state s (i=1,...,S) can be defined as a two-level random-effects logistic model:

$$h_{sijt}^{r_s} = log(\frac{p_{sijt}^{r_s}}{1 - p_{sijt}^{r_s}})$$

where $p_{sijt}^{r_s}$ is the probability that a transition of type r_s occurs from state s at time t during episode i for the j$^{\text{th}}$ individual.

$$h_{sijt}^{r_s} = \boldsymbol{\delta}^{(r_s)^T} \boldsymbol{D}_{st}^{r_s} + \boldsymbol{\beta}^{(r_s)^T} \boldsymbol{Z}_{sijt}^{r_s} + \boldsymbol{u}_{sj}^{r_s}$$
$$\boldsymbol{u}_{sj}^{r_s} \sim N(0, \boldsymbol{\Omega}^R)$$

where $\boldsymbol{\delta}^{(r_s)^T} \boldsymbol{D}_{st}^{r_s}$ is a function of the cumulative duration and $\boldsymbol{Z}_{sijt}^{r_s}$ is a vector of covariates with coefficients $\boldsymbol{\beta}^{(r_s)^T}$. The women-specific random effects, which capture unobserved time-invariant characteristics, are represented by $\boldsymbol{u}_{sj}^{r_s}$ and are assumed to follow a multivariate normal distribution with zero mean and variance $\boldsymbol{\Omega}^R$.

Model for Education Transitions

The model for education decisions includes the sequential transitions from one level of education to another, i.e. From age 16 to high-school diploma, from high-school diploma to some college, from some college to college graduation. Similarly to a

fertility equation, each transition is treated as a repeated event within the education model. The hazard of making an educational transition can be defined as a two-level random-effects logistic model:

$$h_{ijt}^E = log(\frac{p_{ijt}^E}{1 - p_{ijt}^E})$$

where p_{ijt}^E is the probability that a transition occurs at time t during episode i for the jth individual.

$$h_{ijt}^E = \boldsymbol{\delta}^{E^T} \boldsymbol{D}_t^E + \boldsymbol{\beta}^{E^T} \boldsymbol{Z}_{ijt}^E + \boldsymbol{u}_j^E$$
$$u_j^E \sim N(0, \sigma_E^2)$$

where $\boldsymbol{\delta}^{E^T} \boldsymbol{D}_t^E$ is a function of the cumulative duration and $\boldsymbol{Z}_{ijt}^E$ is a vector of covariates with coefficients $\boldsymbol{\beta}^{E^T}$. The women-specific random effects, which capture unobserved time-invariant characteristics, are represented by $\boldsymbol{u}_j^E$ and are assumed to follow a normal distribution with zero mean and variance σ_E^2.

Joint Modeling of Partnership and Education Transitions

Partnership and education models are estimated in two different ways. In the first single-process specification, I do not take into account the interdependency between the different partnership decisions and education transitions. The assumption is that the random errors are not correlated between the transitions[2]. In the second multi-process specification I estimate partnership and education transitions jointly. This specification allows me to take into account shared unmeasured factors that influence both partnership and education decisions. In the multi-process estimation,

---

[2]I allow for cross-correlation between the random effects term between the competing risks transition even in the single-process specification. For instance, the transition from single to either cohabiting or marriage is estimated jointly. I apply the same technique to the competing risks between dissolution and marriage from the state of cohabitation. However, in the single-process estimation, the cross-correlations are set to zero between processes, i.e. Partnership formation transitions, outcomes of cohabitation and outcomes of marriage. The random error matrix takes the following form:

$$\begin{pmatrix} u_j^{S(1)} \\ u_j^{S(2)} \\ u_j^{C(1)} \\ u_j^{C(2)} \\ u_j^M \end{pmatrix} \sim N \left(\begin{pmatrix} 0 \\ 0 \\ 0 \\ 0 \\ 0 \end{pmatrix} \begin{pmatrix} \sigma_{S(1)}^2 & 0 & 0 & 0 & 0 \\ \sigma_{S(1)S(2)} & \sigma_{S(2)}^2 & 0 & 0 & 0 \\ 0 & 0 & \sigma_{C(1)}^2 & 0 & 0 \\ 0 & 0 & \sigma_{C(1)C(2)} & \sigma_{C(2)}^2 & 0 \\ 0 & 0 & 0 & 0 & \sigma_M^2 \end{pmatrix} \right)$$

the random error is allowed to correlate across the six different transitions, which produces the following random error matrix

$$
\begin{pmatrix}
u_j^{S(1)} \\
u_j^{S(2)} \\
u_j^{C(1)} \\
u_j^{C(2)} \\
u_j^{M} \\
u_j^{E}
\end{pmatrix}
\sim N
\left(
\begin{pmatrix}
0 \\
0 \\
0 \\
0 \\
0 \\
0
\end{pmatrix},
\begin{pmatrix}
\sigma_{S(1)}^2 & 0 & 0 & 0 & 0 & 0 \\
\sigma_{S(1)S(2)} & \sigma_{S(2)}^2 & 0 & 0 & 0 & 0 \\
\sigma_{S(1)C(1)} & \sigma_{S(2)C(1)} & \sigma_{C(1)}^2 & 0 & 0 & 0 \\
\sigma_{S(1)C(2)} & \sigma_{S(2)C(2)} & \sigma_{C(1)C(2)} & \sigma_{C(2)}^2 & 0 & 0 \\
\sigma_{S(1)M} & \sigma_{S(2)M} & \sigma_{C(1)M} & \sigma_{C(2)M} & \sigma_{M}^2 & 0 \\
\sigma_{S(1)E} & \sigma_{S(2)E} & \sigma_{C(1)E} & \sigma_{C(2)E} & \sigma_{ME} & \sigma_{E}^2
\end{pmatrix}
\right)
$$

where on the diagonal of matrix are the women-level time-invariant residuals for each transition and on the lower quadrant are the residual correlations between each transition. Each of the following terms corresponds to a transition:

S(1): Transition from single to married;

S(2): Transition from single to cohabiting;

C(1): Transition from cohabiting to single;

C(2): Transition from cohabiting to married;

M: Transition from married to single.

E: Education transitions.

3.4.2 Estimation

These estimations are carried out using Markov Chain Monte Carlo (MCMC) methods in MLwiN through STATA 13 with runmlwin (Leckie & Charlton, 2011). For each model, the starting values are taken from the estimation of the models using IGLS (Iterative Generalized Least Squares) algorithm. The MCMC (Monte Carlo Markov Chain) estimation settings include a burn-in period of 10,000 iterations followed by a monitoring period of 100,000 iterations. Additionally, I apply parameter expansion to improve convergence (Browne, Steele, Golalizadeh & Green, 2009).

3.4.3 Limitations of the Empirical Approach

Although the multilevel multi-state competing-risks approach has several advantages, it also has certain limitations that should be taken into account when interpreting the results. First, the model does not allow for selection on time-varying

unobservable characteristics. One must assume that the bias from educational transitions and previous partnership experience is due to selection on unmeasured factors at the woman level that are fixed across the six potential different transitions. Second, estimating the different partnership transitions jointly allows to relax the assumption that the covariates that capture education and previous partnership experience are exogenous with respect to subsequent transitions. Nevertheless, for the other independent variables, the exogeneity assumption still holds, the other coefficients should therefore be read as associations rather than causal effects. Finally, the simultaneous modeling approach requires very large computing capacity, which poses an important practical limitation by making the estimation time extremely high[3]. As a consequence, the models have been kept as parsimonious as possible.

3.5 Data

The empirical analysis is conducted using the Panel Study of Income Dynamics, a survey that started in 1968 with a nationally representative sample of over 18,000 individuals residing in 5,000 family units. The survey includes information on employment, earnings, and demographic behavior. Interviews were collected annually from 1968 until 1997 and biennially thereafter until the most recent wave in 2013 (The last wave, 2013, is not included in the analysis of this chapter).

The sample is restricted to women that enter the PSID before or at age sixteen[4]. Combining retrospective histories on marriage with interview information on both marital status (both marriage and cohabitation), I reconstruct monthly partnership histories[5] The final sample consists of 6,080 women born between 1950 and 1989,

---

[3]The results presented in this article take about 3 weeks to be estimated on the UPF server.

[4]In the final sample, 474 women enter the dataset after age 16, for these individuals, one has to assume that they do not experience any cohabitation events between age 16 and 18.

[5]The PSID provides two sources of information to measure the union status of household members. The first one is the legal marital status, which provides information on whether the respondents are officially married. This variable is only available for the years 1978 onwards (in the previous years the marital status 'married' is applied to both married and long-term cohabiting couples). The second source of information for respondents' union status can be taken from the relationship of each household member to the household head. This variable is available for all years of the PSID but the categories are not consistent over time. For the years 1968-1982, the variable does not provide a distinction between wives and cohabiting partners. From thereafter, the relationship to head variable includes distinctive categories for wives and cohabiters: wife (legal wife), "wife" (long-term cohabiters, which means more than a survey year) and first-year cohabiters (for

after excluding respondents with missing information on the key covariates. One main limitation of the PSID is that respondents are not asked to reconstruct their cohabitation histories. Cohabitation is derived from the respondents' partnership status. As a consequence, cohabitation spells that fall in between two interviews are unobservable.

In each of the partnership formation and outcomes equations, the key variables of interest are education attainment and birth cohort. In addition, several control variables on individual background, geographical context, fertility status and previous partnership experience are included in the models. Table 3.1 summarizes the explanatory variables in all partnership models. In the empirical section, I focus on the partnership models that help answer the hypotheses on the changing female educational gradient of partnership dynamics. Further details about the education transitions equations can be found in the Supplementary materials (see Table 3.S6 and 3.S7).

Duration of partnership. Each transition includes the duration of the partnership[6] For the first episode, the duration is calculated from age 16 up to the first partnership event. I apply right-censoring either at age fifty or, if it occurs before, at the last available interview or the death of the respondent. In each transition, the form of the base-line hazard is specified according to the hazard plot of each transition. The partnership formation model incorporates, for both marriage and cohabitation, duration and the duration squared terms as explanatory variables. In the cohabitation outcomes model, for both cohabitation dissolution and marriage via premarital cohabitation, the hazard is defined as the logarithmic of the duration. Finally, in the marital separation model, I also include the logarithmic of the marital

---

which almost know information is collected until they become "wife"). I combine both measures to determine the union status variable distinguishing cohabitation from legal marriage (Laufer & Gemici, 2011; Özcan, 2008). In the years 1968-1982, a couple is cohabiting when the legal marital status is single but there is a wife in the household. From 1983 onwards, I confirm the union status by combining both measures and discard the few units where both measures contradict each other. In addition, I do further checks of the marital status with the marital history file.

[6]In order to reduce the size of the sample, I group the time intervals into 6-month intervals and the risk of experiencing a transition is weighted by the number of months of the interval in which the event occurs (Steele, Goldstein & Browne, 2004). For example, if a respondent stays unpartnered for thirteen months before experiencing a first marriage, there will be three time intervals: two time intervals of six months, and a last interval of 1 month. The first two intervals have a weight of one while the last one has a weight of 1/6.

duration as an explanatory variable.

Educational attainment. Education is categorized into four groups: no high-school diploma, high-school diploma, some college, and, college degree [7]. The variables are constructed according to the type of degree obtained by the respondent and when they received each qualification. In each of the models, education is included as a time-varying variable. Table 3.1 shows that women in the single sample are on average less educated with respect to the cohabiting and married sample. These differences stem from the fact that educational attainment is included as a time-varying variable. Single women are more likely to be younger and still in education.

Educational enrollment. All the partnership models include a categorical variable about the respondent's education enrollment. Unfortunately, the PSID only started to collect exact yearly information for wives in the year 1976 and from 1979 onwards. Also, this information is not asked for household members that are neither household heads nor wives. As a consequence, this variable has a large proportion of missing values (25.83% in the single sample, 10.69% in the cohabiting sample, and 18.69% in the married sample). I include the available information on education enrollment and supplement it with an indicator variable when educational enrollment information is missing. Echoing the educational attainment variable, about 22% of single women are still enrolled in education.

Birth cohort. Respondents are divided into four birth cohorts: 1950-1959, 1960-1969, 1970-1979, and 1980-1989. When interpreting the final results, one needs to keep in mind that the most recent birth cohort, 1980-1989, is still fairly young. Thus, the effects found for this specific cohort should be considered with some caution as individuals may still not have completed their education and are only at the beginning of their partnership history.

Education and birth cohort interaction. I include interactions between education categories and birth cohorts to test for the changing effects of education

---

[7]This information is asked for respondents from 1985 onwards. For those respondents that have exited the sample before 1985, I impute the education dates according to the variables years of education. The category 'high-school diploma' also includes GED recipients. The category 'some college' includes one-year or two-year college degrees. The category 'college degree' includes either a minimum of sixteen years of education or a bachelor diploma and above.

across birth cohorts. Thus, in each model, there is a 4x4 interaction between the four categories of education and the four birth cohorts. The reference category is the lowest level of education and the oldest cohort.

Race[8]. Each transition includes the race of the respondent, which is classified as 'white', 'black' or 'other' ('other' regroups American Indian and Alaska natives, Asian and Pacific Islanders, Latin descents, and 'other'). Only in 1990 did the PSID add a Latino supplemental sample to the original 1968 sample. Nevertheless, due to funding constraints, the PSID dropped the Latino sample in 1995. Then, in 1997, the PSID included a sample refresher of immigrants in order to keep the study representative. However, I had to exclude both refresher samples from the analysis as they are observed for much fewer years. As a consequence, the PSID is not representative of the American Hispanic population. Furthermore, the same can be said for all the post-1968 immigrants and in particular for Asians.

Age and age squared at partnership formation. Age at partnership formation and its squared are included in the partnership outcome models only. The age and age squared variables are centered at the grand mean of the sample.

Previous partnership experience. Previously cohabiting and previously married: In the partnership outcome models, an indicator variable is added to capture whether the respondent has ever cohabited and/or been married. In the risk of marital separation model, I distinguish whether the respondent has cohabited with their current partner only, with previous partners only, or both.

Fertility status. I measure the current fertility status using the PSID retrospective file on fertility. The models include the following states as time-varying variables: currently pregnant, any children under the age of five, any children between the age of five and below eighteen, and any children aged eighteen and above.

Region of residence. I control for the current region of residence: Northeast, North Central, South, West, Alaska/Hawai/Foreign country/Missing [9].

---

[8]Questions about race were asked only to the head of the household until 1985, then, from 1985 onwards, the question was extended the spouse's head but not to other members of the household. For spouses that have never been head and that exit the PSID sample prior to 1985, I make the assumption that they have the same race as their partners. Also, for respondents that have never been head, the race of their parents' is imputed whenever possible.

[9]I merge the missing values for region to the category "Alaska/Hawai/Foreign country" because few observations are missing for the region of residence.

3.6 Results

3.6.1 Descriptive Analysis of Partnership and Education Transitions

In this section, I start by presenting some descriptive results on the changing relationship between female education and partnership dynamics. Table 3.2 summarizes the distribution of the duration for each partnership transition. On average, the transition to either cohabitation or marriage follows a similar pattern. The median duration of singlehood is 5 years for the transition to marriage and 4.8 years for cohabitation formation. Also, cohabitation spells are short-lived in the sample: the median duration is 1.1 year in the case of premarital cohabitation and 1.3 for cohabitation dissolution. By comparison, the median marriage duration is 4.1 years. Thus, in line with the literature, I find that marriage remains a more stable form of union with respect to cohabitation (Kennedy & Bumpass, 2008; Perelli-Harris, 2014).

3.6.2 Residual Correlations across Partnership and Education Transitions

The first step in the analysis is to check whether the decision to jointly estimate entry and exit from partnerships together with education transitions was justified. Table 3.3 shows the random effects variance and covariance across the six possible transitions. The multi-process specification is preferred to the single-process if the variance and covariance terms are found to be statistically significant (Steele et al., 2004).

The random effects variance captures woman-specific unobservable characteristics for each specific transition. Table 3.3 provides strong evidence of the presence of women-specific unobservable traits affecting the hazards of partnership formation and outcomes as well as education. A positive covariance term, σ^2_{xy}, can be interpreted in the following way: women's unmeasured characteristics place them at an above(below)-average risk of experiencing a transition x and also to have an above(below)-average propensity to transition to y. Another way to think of the cross-process residual correlations is to interpret them in terms of timing, i.e. faster

81

or longer transitions. Table 3.3 shows that several of the cross-correlations are statistically significant, which suggests that net of observed characteristics education and partnership decisions are closely related. More precisely, 9 out of the 15 covariance terms are statistically different from zero (at least at p<0.1).

First, I look at the covariance terms between the partnership formation and outcomes equations. The random effect for marital separation σ_M is positively correlated with three other partnership transitions: cohabitation dissolution σ_{C1} (p<0.05), marriage formation via cohabitation σ_{C2} (p<0.1) and marriage formation σ_{S1} (p<0.001). Thus, women who marry quickly, either directly or via premarital cohabitation, tend to have shorter marriages. These positive correlations suggest as well that women with a high risk of marital separation tend to have also a high risk of cohabitation dissolution. Also, the random effects of marriage formation σ_{S1} are positively correlated with the other two partnership formation hazards: cohabitation formation σ_{S2} (p<0.01) and marriage via cohabitation σ_{C2} (p<0.05). Thus, women who cohabit quickly also have fast transitions to marriage either directly or via cohabitation. Finally, there is a positive correlation between the outcomes of cohabitation: cohabitation dissolution σ_{C1} and marriage via cohabitation σ_{C2} (p<0.1). This suggests that an above-average propensity to exit cohabitation is also linked to an above average propensity to form a marriage via cohabitation.

Of most interest are the covariance terms between the residuals of partnership dynamics and education hazards. I find that education transitions are only significantly linked to entry into partnership hazards. More precisely, the random effect for education σ_E is positively correlated with marriage via cohabitation σ_{C2} (p<0.1), but negatively with marriage formation σ_{S1} (p<0.001) and cohabitation formation σ_{S2} (p<0.001). These results suggest that, net of observed characteristics, women who marry or cohabit quickly are less likely to make education transitions. However, women who are more likely to enter marriage via cohabitation also have a higher propensity to carry on with their studies.

Overall, the findings are fairly consistent with previous results. Brien, Lillard & Waite (1999) using the National Longitudinal Study of the High School Class of 1972 also find a positive cross-correlation between marriage formation and cohabitation

formation. For the case of Britain, using very similar methods, Aassve, Burgess, Propper & Dickson (2006) and Steele et al. (2005) find a positive correlation between the random effects of partnership formation and partnership dissolution. The most noteworthy difference is that, as opposed to Steele et al. (2006), the models do not suggest any statistically significant cross-state correlation between marital separation and entry into cohabitation. This difference could be due to many factors such as the context, i.e. Britain vs. the United States, but also the birth cohorts of the respondents, i.e. only 1970 in Steele et al. (2006) vs. 1950-1989 in this paper.

3.6.3 Changing Effects of Education on Partnership Transitions over Time

I now turn to the key question of this study: taking into account selection into education and partnership, to what extent has the effect of female education on partnership dynamics changed over time? I first compare the single-process and multi-process coefficients presented in Table 3.4-3.6. Also, in order to simplify the interpretation of the models, using both the single-process and multi-process estimations, the average predicted risks of all partnership hazards are computed for each cell of the interaction between birth cohorts and education (4x4) using the MCMC chains of the models. The predicted probabilities are illustrated in Figures 3.2-3.6 for each of the partnership transitions: marriage formation, cohabitation formation, cohabitation dissolution, marriage via premarital cohabitation and marital separation (the predicted probabilities used in the Figures 3.2-3.6 are summarized in the supplementary materials in Table 3.S8).

Partnership Formation Results

First, Table 3.4 compares the education and birth cohort coefficients for the partnership formation model. The estimated coefficients for education and birth cohort covariates are fairly consistent between the single- and multi-process models for both marriage (S(1)) and cohabitation formation (S(2)). The most noteworthy differences are in the education coefficients for the birth cohort 1950-1959, which are captured by the education baseline of the interaction between education and birth cohorts.

83

For marriage formation, the education variables in the first birth cohort are slightly understated in the single-process models. A similar result can be observed in the cohabitation formation results. For cohabitation, the differences between the single- and multi-process models are quite large. The positive effects of all educational attainments with respect to 'not having a high school diploma' are only slightly significant (High-School <0.05, Some college < 0.05, College degree N.S.) in the single-process estimation but then become strongly significant in the multi-process specification (High-School <0.001, Some college < 0.001, College degree 0.01). The change in the magnitude of the coefficients and the statistical significance can be explained by the strong negative cross-process residual correlation between the hazard of partnership formation and of making education transitions. On average, women with a low risk of entering either cohabitation or marriage have a higher hazard of upgrading their education. As a consequence, women with a low risk of entering a partnership are overly represented among the higher educated women.

To facilitate interpretation, the predicted probabilities of marrying and cohabiting are illustrated, respectively, in Figure 3.2 and 3.3. As expected, Figure 3.2 shows that overall the probability of entering marriage has decreased for every educational attainment in more recent birth cohorts. I observe that college-educated women are more likely to marry than their less-educated contemporaries across all birth cohorts. These differences are statistically significant except with respect to women with some college education in the birth cohorts 1950-1959 and 1960-1969. Interestingly, the education gap in terms of marriage risk narrows in the youngest birth cohort but the precision of the estimated differences is improved, as the decreasing confidence intervals show. When comparing the average predicted probabilities between the single- and multi-process models (empty black square vs. full red square), it is clear that the education gradient would be underestimated for the 1950s and 1960s birth cohorts, both in terms of its magnitude and the significance level.

Overall, I find strong evidence for a positive educational gradient of marriage. However, there is no conclusive reversal in the relationship, as it is already found to be positive in the first birth cohorts in this study. In fact, failing to take into account unobserved factors would lead to the conclusion that there are no statisti-

cal difference in the propensity to marry between college-educated and high-school educated women in the fifties cohort. Furthermore, these differences suggest that college-educated women are distancing themselves from their less-educated contemporaries in terms of marriage behavior. These results are consistent with previous studies based on longitudinal data (Sweeney, 2002) but not with findings from cross-sectional studies that tend to find a reversal in the education gradient of marriage (Goldstein & Kenney, 2001; Torr, 2011). The issue, of course, with cross-sectional data is that they do not take account the fact that highly-educated women tend to postpone marriage to later ages.

Turning to cohabitation, Figure 3.3 suggests that the predicted probability of entering cohabitation increases within younger birth cohorts. There is also a positive educational gradient: college-educated women are more likely to cohabit compared to women in all other education categories. However, distinct from marriage, these differences are widening in the younger birth cohorts. For the first birth cohort (1950-1959), only women with no high-school diploma are significantly less likely to cohabit with respect to college-educated women. In the subsequent birth cohorts, these differences are wider and also significant with respect to women with a high school diploma. However, I do not find any significant differences between college-educated and 'some college' women throughout the four birth cohorts. Comparing the average predicted probabilities from the single- and multi-process models, the positive educational gradient of cohabitation would be underestimated if I were not to allow for the potential endogeneity of education and partnership decisions. Again, as for marriage, both the size and statistical significance of the educational gap would be understated with the single-process estimation method.

As noted earlier, less is known about the changing association between educational attainment and cohabitation formation. Nevertheless, my findings generally contradict existing studies, which find either no significant relationship between female education and cohabitation (Clarkberg, 1999) or a negative effect of education on entry into cohabitation (Thornton, Axinn & Teachman, 1995; Xie, Raymo, Goyette & Thornton, 2003). Selection on unobservable characteristics accounts for part of this difference in empirical findings. For instance, looking at the 1950s birth

cohort and to a certain extent also the 1960s and 1970s birth cohorts, I could not find a significant gradient of college education in the single process model. Another consideration is the quality of the PSID data for cohabitation. Because of the switch to biannual interviews, short-lived cohabitation spells, which could be concentrated among lower-educated women, may be dismissed from the sample.

Partnership Outcomes Results

Cohabitation As to the cohabitation outcomes, Table 3.5 shows that the hazard of cohabitation dissolution (C(1)), the education- and birth cohort-related coefficients are very similar when allowing or not for cross-state residual correlation. This is not surprising since there is no significant correlation between the random effects of cohabitation dissolution and education.

For the hazard of marriage via cohabitation (C(2)), the estimated coefficients for education in the single-process model are slightly overstated compared to the multi-process output. The magnitude of the education coefficients and their interactions with the birth cohort categories are smaller and less significant when taking into account selection in the multiprocess model. In particular, for the birth cohort 1950-1959, the positive effects of all educational attainments with respect to 'not having a high school diploma' are highly significant (High-School <0.01, Some college < 0.001, College degree < 0.001) in the single-process estimation but lose some statistical significance in the multiprocess specification (High-School <0.1, Some college <0.1, College degree 0.01) . The differences between the two models can be explained by the positive cross-process residual correlation between the hazard of entering a marriage via cohabitation and of making education transitions. On average, women with a high risk to marry their cohabiting partner have a higher hazard to upgrade their education. As a consequence, women with a high risk to marry (via cohabitation) are overly represented among the higher educated women.

As to cohabitation outcomes, the educational differences in the predicted probability of cohabitation dissolution and marriage via premarital cohabitation are illustrated, respectively, in Figure 3.4 and 3.5. Figure 3.4 shows no statistically significant education gradient for the risk of cohabitation dissolution when taking

as a benchmark college-educated women. This is not surprising given that none of the coefficients of the education and birth cohort variables are significant in the cohabitation dissolution model. Nevertheless, when looking at the risk of marriage via premarital cohabitation, as shown in Figure 3.5, I do find some significant educational differences. Overall, the educational gap for the marriage via cohabitation transitions is positive but seems to decrease over time. For the first birth cohort, 1950-1959, only women with no high-school diploma are significantly less likely to enter marriage via premarital cohabitation with respect to college-educated women. However, this difference loses statistical significance in the successive birth cohorts. In the two middle birth cohorts, 1960-1969 and 1970-1979, college-educated women are more likely to marry their cohabiting partner compared to those with a high-school diploma or with some college. For the youngest birth cohort, 1980-1989, the differences between college-educated women and all other educational categories are not statistically significant.

The existing literature usually finds a positive educational gradient of entering into marriage via cohabitation (Copen et al., 2013; Lichter et al., 2006). The empirical results support this but also show that, once taking into account selection bias from partnership dynamics and education decisions, the positive educational gradient partially loses statistical significance.

Marriage Finally, the estimated coefficients from the marriage outcome model (M) are presented in Table 3.6. I find some differences between the single- and multi-process estimated coefficients for the education- and birth cohort-related variables. In the single-process model, for the baseline of the interaction between education and birth cohorts, the negative effect of being college-educated relative to not having graduated from high-school is overstated and significant compared to the multi-process specification. However, the negative interactions between educational categories and birth cohorts are slightly smaller in the single-process model with respect to the multi-level models. There is no significant covariance between the residuals of marital separation and education transitions. As a consequence, the change in coefficient is more difficult to interpret. However, some selection could

87

derive from the cross-process correlations between the residuals of the different partnership hazards.

For ease of interpretation, I turn to the predicted probability of marital dissolution illustrated in Figure 3.6. In line with historical changes, the risk of divorce increases for the younger cohorts. Figure 3.6 also shows that there is a negative educational gradient for the risk of marital dissolution across all birth cohorts. The differences in predicted probabilities between college-educated and less-educated women have increased across the four birth cohorts. This gap is always statistically different with respect to the categories high-school graduates and some college. However, it is only statistically significant in the two middle birth cohorts with respect to women with no high-school diploma.

Overall, the results support previous findings (Castro Martin & Bumpass, 1989; Härkönen & Dronkers, 2006; Isen & Stevenson, 2010; Martin, 2006; Raley & Bumpass, 2003; Sweeney & Phillips, 2004), which show that college-educated women are increasingly less likely to divorce with respect to their less educated contemporaries. Furthermore, the differences in predicted probability between the single- and multi-process models demonstrate that the protective effect of college education is slightly overstated for the younger birth cohorts. This supports the idea that selection of highly educated into marriage in recent years partially explains the negative effect relationship between college education and divorce (Bernardi & Martínez-Pastor, 2011).

3.7 Discussion

In this study, I analyze whether the effects of women's education on partnership transitions have changed from the 1950s and up to the 1980s birth cohorts in the United States. My approach differs from previous studies in two significant ways. First, I consider all possible transitions between the states of: single, married, and cohabiting. The models include not only first-order partnerships but also higher-order events. In doing so, I am able to model the increasing complexity and heterogeneity of partnership behaviors in the United States.

Second, I apply a joint-modeling approach to control for unobservable factors at

the woman-level that may affect both partnership and education decisions. To the best of the author's knowledge, this is the first time such methodological approach is applied to study the changing effects of women's education on partnership dynamics. The single- and multi-process results illustrate how failing to take into account selection may lead to flawed conclusions about the role of education in predicting entry and exit from partnerships. In Table 3.7, I summarize the main findings and differences in educational gradients between the single-process and multi-process estimation. For future research, it is noteworthy to highlight that the education gradients would be wrongly estimated for three transitions in particular: marriage formation, cohabitation formation and marriage via cohabitation.

This study sheds light on how women's partnership behavior has changed over time and along educational lines in the United States. A key finding is that women with college education are increasingly more likely to marry and cohabit and have a lower propensity to divorce with respect to their less-educated counterparts. In particular, the educational gradients of both cohabitation and divorce appear to be widening in younger birth cohorts. In contrast for marriage via cohabitation, I find a narrowing and less significant education gap over time. However, there does not appear to be a significant or changing relationship between education and cohabitation dissolution.

Furthermore, this study provides a deeper insight into how partnership and education decisions are interrelated. The empirical results reveal important unmeasured characteristics of women that affect both their partnership and education decisions. More specifically, net of observed characteristics, some women have an above(below)-average propensity to form partnership but also an above(below)-average risk to exit those partnerships. In line with previous findings, women with an above(below)-average risk of making education transitions also have a below(above) average-risk to enter a partnership but a slightly above-average propensity to marry their cohabiting partners.

The analysis highlights the importance of time-invariant unmeasured factors of women that influence both education and partnership events. While such findings had been confirmed for childbearing and partnership events (e.g. Upchurch et al.,

2002), less was known about partnership and education decisions. Nevertheless, the findings in this paper do not allow for opening the black-box of such unobserved characteristics and get to the why question. The PSID does not ask survey respondents about their values and attitudes towards, for instance, family and career aspirations. Therefore, I can only provide a tentative interpretation to these unmeasured factors. Similarly to previous studies using multiprocess modeling (Brien et al., 1999; Kulu & Steele, 2013; Upchurch et al., 2002), I believe that they capture a common set of family preferences and career aspirations. The results show that those women who have a higher propensity to make education transitions also are more likely to delay partnership formation. Overall, the evidence confirms that education and partnership decisions are part of a larger process of family-building strategy.

This study does not come without caveats. First, the model does not allow for selection on time-varying unobservable characteristics. One possibility, for instance, is that women upgrade their preferences and values after having experienced along their life course. This, of course, is a limitation if unobservable traits change over time and such changes are not capture by observable characteristics. Second, the PSID does not collect retrospective data on cohabitation. Therefore, cohabitation spells that fall in between two interviews cannot be measured. This issue is particularly problematic after the switch from annual to biennial interviews in 1997. In other words, the data allow me to capture more stable non-marital unions. The cohabitation results should thus be interpreted in light of this limitation. Nevertheless, while this remains a clear limitation of the cohabitation data in the PSID, it is also the only available dataset that allows the study of long-term trends in partnership dynamics differentiating between spells of marriage and cohabitation.

References

Aassve, A., Burgess, S., Propper, C., & Dickson, M. (2006). Employment, family union and childbearing decisions in Great Britain. *Journal of the Royal Statistical Society: Series A (Statistics in Society), 169*(4), 781–804.

Becker, G. S. (1973). A theory of marriage: Part I. *The Journal of Political Economy, 81*(4), 813–846.

Becker, G. S. (1974). A theory of marriage: Part II. *The Journal of Political Economy, 82*(2), 11–26.

Becker, G. S. (1991). *A Treatise on the Family (enlarged ed.)*. Cambridge, USA; London, England: Harvard University Press.

Bernardi, F. & Martínez-Pastor, J.-I. (2011). Female education and marriage dissolution: Is it a selection effect? *European Sociological Review, 27*(6), 693–707.

Blossfeld, H.-P. & Huinink, J. (1991). Human capital investments or norms of role transition? how women's schooling and career affect the process of family formation. *American Journal of Sociology, 97*(1), 143–168.

Brien, M. J., Lillard, L. A., & Waite, L. J. (1999). Interrelated family-building behaviors: Cohabitation, marriage, and nonmarital conception. *Demography, 36*(4), 535–551.

Browne, W. J., Steele, F., Golalizadeh, M., & Green, M. J. (2009). The use of simple reparameterizations to improve the efficiency of markov chain monte carlo estimation for multilevel models with applications to discrete time survival models. *Journal of the Royal Statistical Society: Series A (Statistics in Society), 172*(3), 579–598.

Bumpass, L. & Sweet, J. A. (2001). Marriage, divorce, and intergenerational relationships. In A. Thornton (Ed.), *The Well-Being of Children and Families: Research and Data Needs* (pp. 295–313). Ann Arbor, MI: University of Michigan Press.

Castro Martin, T. & Bumpass, L. L. (1989). Recent trends in marital disruption. *Demography, 26*(1), 37–51.

Cherlin, A. J. (2004). The deinstitutionalization of American marriage. *Journal of Marriage and Family, 66*(4), 848–861.

Clarkberg, M. (1999). The price of partnering: The role of economic well-being in young adults' first union experiences. *Social Forces, 77*(3), 945–968.

Copen, C., Daniels, K., & Mosher, W. D. (2013). First premarital cohabitation in the United States: 2006–2010 National Survey of Family Growth. *National Health Statistics Report, 64*.

Edin, K. & Kefalas, M. (2005). *Promises I can Keep: Why Poor Women Put Motherhood Before Marriage.* University of California Press.

Edin, K., Kefalas, M. J., & Reed, J. M. (2004). A peek inside the black box: What marriage means for poor unmarried parents. *Journal of Marriage and Family, 66*(4), 1007–1014.

Goldin, C. (2006). The quiet revolution that transformed women's employment, education, and family. *The American Economic Review, 96*(2), 1–21.

Goldstein, H. & Healy, M. J. (1995). The graphical presentation of a collection of means. *Journal of the Royal Statistical Society. Series A (Statistics in Society), 158*(1), 175–177.

Goldstein, J. R. & Kenney, C. T. (2001). Marriage delayed or marriage forgone? New cohort forecasts of first marriage for US women. *American Sociological Review, 66*(4), 506–519.

Goode, W. (1951). Economic factors and marital stability. *American Sociological Review, 16*(6), 802–812.

Härkönen, J. & Dronkers, J. (2006). Stability and change in the educational gradient of divorce. a comparison of seventeen countries. *European Sociological Review, 22*(5), 501–517.

Isen, A. & Stevenson, B. (2010). Women's education and family behavior: Trends in marriage, divorce and fertility. In *Demography and the Economy*, NBER Chapters (pp. 107–140). National Bureau of Economic Research, Inc.

Kennedy, S. & Bumpass, L. (2008). Cohabitation and children's living arrangements: New estimates from the United States. *Demographic Research, 19*, 1663.

Kulu, H. & Steele, F. (2013). Interrelationships between childbearing and housing transitions in the family life course. *Demography, 50*(5), 1687–1714.

Laufer, S. & Gemici, A. (2011). Marriage and cohabitation. 2011 Meeting Papers 1152, Society for Economic Dynamics.

Leckie, G. & Charlton, C. (2011). runmlwin: Stata module for fitting multilevel models in the MLwiN software package. Technical report, Centre for Multilevel Modelling, University of Bristol.

Lichter, D. T., Qian, Z., & Mellott, L. M. (2006). Marriage or dissolution? Union transitions among poor cohabiting women. *Demography, 43*(2), 223–240.

Lillard, L. A., Brien, M. J., & Waite, L. J. (1995). Premarital cohabitation and subsequent marital dissolution: A matter of self-selection? *Demography, 32*(3), 437–457.

Lundberg, S. & Pollak, R. A. (2013). Cohabitation and the uneven retreat from marriage in the u.s., 1950-2010. Working Paper 19413, National Bureau of Economic Research.

Manning, W. D. (2013)). Trends in cohabitation: Over twenty years of change, 1987-2010. In *(FP-13-12)*. National Center for Family & Marriage Research.

Martin, S. P. (2006). Trends in marital dissolution by women's education in the United States. *Demographic Research*, *15*, 537–560.

Matysiak, A., Styrc, M., & Vignoli, D. (2014). The educational gradient in marital disruption: A meta-analysis of European research findings. *Population Studies*, *68*(2), 197–215.

McLanahan, S. (2004). Diverving destinies: How children are faring under the second demographic transition. *Demography*, *41*(4), 607–627.

Ní Bhrolcháin, M. & Beaujouan, É. (2013). Education and cohabitation in Britain: A return to traditional patterns? *Population and Development Review*, *39*(3), 441–458.

Oppenheimer, V. K. (1988). A theory of marriage timing. *American Journal of Sociology*, *94*(3), 563–591.

Oppenheimer, V. K. (1994). Women's rising employment and the future of the family in industrial societies. *Population and Development Review*, *20*(2), 293–342.

Oppenheimer, V. K. (1997). Women's employment and the gain to marriage: The specialization and trading model. *Annual Review of Sociology*, *23*(1997), 431–453.

Özcan, B. (2008). *The Effects of Marital Transitions and Spousal Characteristic on Economic Outcomes*. PhD thesis, Universitat Pompeu Fabra.

Perelli-Harris, B. (2014). How similar are cohabiting and married parents? Second conception risks by union type in the United States and across Europe. *European Journal of Population*, *30*(4), 437–464.

Perelli-Harris, B. & Gerber, T. P. (2011). Nonmarital childbearing in Russia: Second demographic transition or pattern of disadvantage? *Demography*, *48*(1), 317–342.

Raley, R. K. & Bumpass, L. (2003). The topography of the divorce plateau. *Demographic Research*, *8*, 245–260.

Schoen, R. & Cheng, Y.-H. A. (2006). Partner choice and the differential retreat from marriage. *Journal of Marriage and Family*, *68*(1), 1–10.

Smock, P. J. (2000). Cohabitation in the United States: An appraisal of research themes, findings, and implications. *Annual Review of Sociology*, *26*, 1–20.

South, S. (2001). Time-dependent effects of wives' employment on marital dissolution. *American Sociological Review*, *66*(2), 226–245.

Steele, F., Goldstein, H., & Browne, W. (2004). A general multilevel multistate competing risks model for event history data, with an application to a study of contraceptive use dynamics. *Statistical Modelling*, *4*(2), 145–159.

Steele, F., Kallis, C., Goldstein, H., & Joshi, H. (2005). The relationship between childbearing and transitions from marriage and cohabitation in Britain. *Demography*, *42*(4), 647–673.

Steele, F., Kallis, C., & Joshi, H. (2006). The formation and outcomes of cohabiting and marital partnerships in early adulthood: The role of previous partnership experience. *Journal of the Royal Statistical Society: Series A (Statistics in Society)*, *169*(4), 757–779.

Stevenson, B. & Wolfers, J. (2007). Marriage and divorce: Changes and their driving forces. *Journal of Economic Perspectives*, *21*(2), 27–52.

Sweeney, M. (2002). Two decades of family change: The shifting economic foundations of marriage. *American Sociological Review*, *67*(1), 132–147.

Sweeney, M. & Phillips, J. (2004). Understanding racial differences in marital disruption: Recent trends and explanations. *Journal of Marriage and Family*, *66*(3), 639–650.

Taylor, P., Funk, C., & Clark, A. (2007). As marriage and parenthood drift apart, public is concerned about social impact. Technical report, Pew Research Center, Washington, DC.

Teachman, J. D. (2002). Stability across cohorts in divorce risk factors. *Demography*, *39*(2), 331–351.

Thornton, A., Axinn, W. G., & Teachman, J. D. (1995). The influence of school enrollment and accumulation on cohabitation and marriage in early adulthood. *American Sociological Review*, *60*(5), 762–774.

Torr, B. M. (2011). The changing relationship between education and marriage in the United States, 1940-2000. *Journal of Family History*, *36*(4), 483–503.

Upchurch, D. M., Lillard, L. A., & Panis, C. W. (2002). Nonmarital childbearing: Influences of education, marriage, and fertility. *Demography*, *39*(2), 311–329.

Wolfers, J. (2006). Did unilateral divorce laws raise divorce rates? A reconciliation and new results. *American Economic Review*, *96*(5), 1802–1820.

Xie, Y., Raymo, J. M., Goyette, K., & Thornton, A. (2003). Economic potential and entry into marriage and cohabitation. *Demography*, *40*(2), 351–367.

Tables

Table 3.1 – Distribution of covariates in the three different partnership states: Single, cohabiting, and married

Variable	Single		Cohabiting		Married	
Continuous variables	Mean	Std. dev.	Mean	Std. dev.	Mean	Std. dev.
Age at start of partnership†	-	-	26.66	(6.71)	24.96	(6.69)
Categorical variables	%		%		%	
Race						
White	50.64		60.39		60.75	
Black	45.87		36.64		35.61	
Other	3.49		2.97		3.64	
Birth cohort						
1950-1959	29.47		26.62		38.85	
1960-1969	25.63		27.78		28.80	
1970-1979	21.35		25.08		20.70	
1980-1989	23.55		20.52		11.66	
Education‡						
Less than high school	23.83		13.01		8.64	
High school diploma	44.60		40.34		40.81	
Some college	21.39		33.29		29.07	
Completed college	10.18		13.36		21.48	
Education enrollment‡						
Not enrolled	52.22		86.35		79.52	
Enrolled	21.94		2.96		1.79	
Missing	25.83		10.69		18.69	
Current fertility status‡						
No children	54.62		34.48		15.78	
Currently pregnant	7.05		10.49		12.72	
Child(en): Age < 5	19.8		33.74		40.24	
Child(en): Age [5;18)	26.35		37.47		50.80	
Child(en): Age +18	8.92		9.51		15.34	
Previously married‡	19.25		33.43		15.71	
Previously cohabited‡	11.62		23.77		22.14	
With current partner only	-		-		13.64	
With previous partner(s) only	-		-		6.57	
With both previous and current partners	-		-		1.92	
Current region of residence‡						
Northeast	12.91		14.57		13.45	
North Central	22.28		25.10		21.66	
South	45.64		40.86		43.93	
West	11.86		17.92		13.93	
Alaska, Hawai, Foreign country, Missing	7.32		1.55		7.03	
Number of 6-month intervals	152,170		10,446		93,354	
Number of episodes	9,339		2,437		4,709	
Number of women	6,080		1,886		3,740	

† Episode-varying covariates; ‡ Time-varying covariates.

Table 3.2 – Duration in years by type of partnership transitions

Partnership Transitions	Lower quartile	Median	Upper quartile	Number of events
Partnership formation				
Marriage	2.7	5.0	8.2	3606
Cohabitation	2.1	4.8	8.4	2418
Cohabitation outcomes				
Marriage	0.8	1.1	1.9	841
Separation	0.6	1.3	2.4	1152
Marital separation	1.9	4.1	8.3	2043

Table 3.3 – Estimated random effects variance and covariance terms from the multiprocess model

	Estimates	S.E.
Variance		
Single to Married S(1)	0.580	(0.083)***
Single to Cohabiting S(2)	0.528	(0.113)***
Cohabiting to Single C(1)	0.217	(0.071)**
Cohabiting to Married C(2)	0.982	(0.250)***
Married to Single M	1.033	(0.191)***
Education E	1.097	(0.056)***
Covariance		
S(1) and S(2)	0.205	(0.068)**
S(1) and C(1)	0.029	(0.062)
S(1) and C(2)	0.245	(0.107)*
S(2) and C(1)	0.060	(0.074)
S(2) and C(2)	0.018	(0.105)
C(1) and C(2)	0.198	(0.090)*
M and C(1)	0.234	(0.099)*
M and C(2)	0.277	(0.145)+
M and S(1)	0.296	(0.075)***
M and S(2)	0.085	(0.101)
E and S(1)	-0.147	(0.040)***
E and S(2)	-0.205	(0.052)***
E and C(1)	-0.074	(0.077)
E and C(2)	0.216	(0.117)+
E and M	-0.054	(0.072)

Notes: The estimated coefficients and their standard errors are the means and standard deviations of parameter values across 100,000 Markov chain Monte Carlo samples, after a burn-in of 10,000. + $p<0.10$ * $p<0.05$ ** $p<0.01$ *** $p<0.001$.

Table 3.4 – Estimates coefficients from multilevel event-history model for the partnership formation models

	Marriage	
	Single-process	Multi-process
Education (ref. Less than high school)		
High school diploma	0.756 (0.083)***	0.889 (0.091)***
Some college	0.879 (0.106)***	1.094 (0.118)***
College degree	0.934 (0.128)***	1.205 (0.144)***
Birth Cohort (ref. 1950-1959)		
1960-1969	-0.300 (0.123)*	-0.317 (0.125)*
1970-1979	-0.712 (0.153)***	-0.719 (0.154)***
1980-1989	-1.905 (0.249)***	-1.919 (0.244)***
Education x Birth cohort		
High school diploma x 1960-1969	-0.084 (0.135)	-0.077 (0.137)
High school diploma x 1970-1979	-0.227 (0.168)	-0.235 (0.168)
High school diploma x 1980-1989	0.391 (0.265)	0.382 (0.260)
Some college x 1960-1969	0.110 (0.155)	0.121 (0.156)
Some college x 1970-1979	0.013 (0.188)	-0.013 (0.188)
Some college x 1980-1989	0.761 (0.278)**	0.733 (0.272)**
College degree x 1960-1969	0.145 (0.184)	0.133 (0.183)
College degree x 1970-1979	0.497 (0.201)*	0.453 (0.200)*
College degree x 1980-1989	1.134 (0.292)***	1.076 (0.286)***

	Cohabitation	
	Single-process	Multi-process
Education (ref. Less than high school)		
High school diploma	0.314 (0.128)*	0.568 (0.143)***
Some college	0.357 (0.145)*	0.718 (0.170)***
College degree	0.141 (0.181)	0.595 (0.211)**
Birth Cohort (ref. 1950-1959)		
1960-1969	0.349 (0.157)*	0.339 (0.160)*
1970-1979	0.195 (0.184)	0.187 (0.186)
1980-1989	0.022 (0.205)	0.027 (0.202)
Education x Birth cohort		
High school diploma x 1960-1969	-0.339 (0.180)+	-0.356 (0.181)*
High school diploma x 1970-1979	0.059 (0.203)	0.024 (0.205)
High school diploma x 1980-1989	0.081 (0.226)	0.022 (0.226)
Some college x 1960-1969	-0.081 (0.195)	-0.088 (0.197)
Some college x 1970-1979	0.263 (0.219)	0.206 (0.220)
Some college x 1980-1989	0.559 (0.240)*	0.475 (0.237)*
College degree x 1960-1969	0.216 (0.235)	0.189 (0.237)
College degree x 1970-1979	0.436 (0.252)+	0.354 (0.254)
College degree x 1980-1989	0.885 (0.270)**	0.763 (0.269)**

Notes: The estimated coefficients and their standard errors are the means and standard deviations of parameter values across 100,000 Markov chain Monte Carlo samples, after a burn-in of 10,000. + $p<0.10$ * $p<0.05$ ** $p<0.01$ *** $p<0.001$. The models also include all the variables described in Table 3.1. The full tables are presented in Table 3.S1 for marriage formation and Table 3.S2 for cohabitation formation.

Table 3.5 – Estimates coefficients from multilevel event-history model for the cohabitation outcomes models

	Separation	
	Single-process	Multi-process
Education (ref. Less than high school)		
High school diploma	0.201 (0.178)	0.269 (0.217)
Some college	0.117 (0.195)	0.251 (0.256)
College degree	-0.291 (0.285)	-0.141 (0.358)
Birth Cohort (ref. 1950-1959)		
1960-1969	0.071 (0.221)	0.068 (0.224)
1970-1979	0.435 (0.252)+	0.431 (0.256)+
1980-1989	0.094 (0.307)	0.082 (0.309)
Education x Birth Cohort		
High school diploma x 1960-1969	-0.087 (0.255)	-0.072 (0.257)
High school diploma x 1970-1979	-0.288 (0.282)	-0.270 (0.285)
High school diploma x 1980-1989	-0.172 (0.341)	-0.134 (0.344)
Some college x 1960-1969	-0.134 (0.271)	-0.123 (0.276)
Some college x 1970-1979	-0.279 (0.301)	-0.289 (0.302)
Some college x 1980-1989	-0.142 (0.354)	-0.141 (0.356)
College degree x 1960-1969	0.511 (0.364)	0.539 (0.369)
College degree x 1970-1979	0.171 (0.385)	0.170 (0.389)
College degree x 1980-1989	0.292 (0.445)	0.310 (0.453)
	Marriage	
	Single-process	Multi-process
Education (ref. Less than high school)		
High school diploma	0.947 (0.297)**	0.609 (0.346)+
Some college	1.120 (0.317)***	0.687 (0.392)+
College degree	1.753 (0.354)***	1.214 (0.459)**
Birth Cohort (ref. 1950-1959)		
1960-1969	0.610 (0.355)+	0.514 (0.360)
1970-1979	0.271 (0.423)	0.215 (0.426)
1980-1989	-0.112 (0.474)	-0.277 (0.475)
Education x Birth Cohort		
High school diploma x 1960-1969	-0.849 (0.393)*	-0.736 (0.398)+
High school diploma x 1970-1979	-0.831 (0.464)+	-0.783 (0.464)+
High school diploma x 1980-1989	-0.801 (0.523)	-0.659 (0.525)
Some college x 1960-1969	-0.950 (0.413)*	-0.845 (0.415)*
Some college x 1970-1979	-0.795 (0.478)+	-0.766 (0.477)
Some college x 1980-1989	-1.153 (0.544)*	-1.007 (0.539)+
College degree x 1960-1969	-0.867 (0.445)+	-0.760 (0.452)+
College degree x 1970-1979	-0.556 (0.500)	-0.488 (0.501)
College degree x 1980-1989	-1.024 (0.577)+	-0.866 (0.581)

Notes: The estimated coefficients and their standard errors are the means and standard deviations of parameter values across 100,000 Markov chain Monte Carlo samples, after a burn-in of 10,000. + $p<0.10$ * $p<0.05$ ** $p<0.01$ *** $p<0.001$. The models also include all the variables described in Table 3.1. The full tables are presented in Table 3.S3 for cohabitation separation and Table 3.S4 for marriage via cohabitation.

Table 3.6 – Estimates coefficients from multilevel event-history model for the marital separation model

	Divorce	
	Single-process	Multi-process
Education (ref. Less than high school)		
High school diploma	-0.043 (0.133)	0.048 (0.164)
Some college	0.054 (0.150)	0.170 (0.200)
College degree	-0.525 (0.184)**	-0.362 (0.243)
Birth Cohort (ref. 1950-1959)		
1960-1969	0.621 (0.191)**	0.596 (0.193)**
1970-1979	1.110 (0.245)***	1.056 (0.248)***
1980-1989	0.866 (0.420)*	0.724 (0.426)+
Education x Birth cohort		
High school diploma x 1960-1969	-0.222 (0.210)	-0.255 (0.212)
High school diploma x 1970-1979	-0.581 (0.269)*	-0.641 (0.271)*
High school diploma x 1980-1989	-0.036 (0.452)	-0.041 (0.458)
Some college x 1960-1969	-0.478 (0.226)*	-0.504 (0.227)*
Some college x 1970-1979	-0.994 (0.283)***	-1.044 (0.285)***
Some college x 1980-1989	-0.571 (0.463)	-0.578 (0.467)
College degree x 1960-1969	-0.494 (0.269)+	-0.524 (0.273)+
College degree x 1970-1979	-0.965 (0.316)**	-1.029 (0.318)**
College degree x 1980-1989	-1.382 (0.564)*	-1.443 (0.575)*

Notes: The estimated coefficients and their standard errors are the means and standard deviations of parameter values across 100,000 Markov chain Monte Carlo samples, after a burn-in of 10,000. + $p<0.10$ * $p<0.05$ ** $p<0.01$ *** $p<0.001$. The models also include all the variables described in Table 3.1. The full tables are presented in Table 3.S5.

Table 3.7 – Differences in the educational gradients of partnership transitions between the single- and multi-process approach

		Single-process			Multi-process		
Birth cohort	**Marriage formation**	No HS	HS Grad	Some College	No HS	HS Grad	Some College
1950	College Grad	+	N.S.	N.S.	+	+	N.S.
1960	College Grad	+	+	N.S.	+	+	N.S.
1970	College Grad	+	+	+	+	+	+
1980	College Grad	+	+	+	+	+	+
Birth cohort	**Cohabitation formation**	No HS	HS Grad	Some College	No HS	HS Grad	Some College
1950	College Grad	N.S.	N.S.	N.S.	+	N.S.	N.S.
1960	College Grad	+	+	N.S.	+	+	N.S.
1970	College Grad	+	N.S.	N.S.	+	+	N.S.
1980	College Grad	+	+	N.S.	+	+	N.S.
Birth cohort	**Cohabitation separation**	No HS	HS Grad	Some College	No HS	HS Grad	Some College
1950	College Grad	N.S.	-	N.S.	N.S.	N.S.	N.S.
1960	College Grad	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.
1970	College Grad	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.
1980	College Grad	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.
Birth cohort	**Marriage via cohabitation**	No HS	HS Grad	Some College	No HS	HS Grad	Some College
1950	College Grad	+	+	+	+	N.S.	N.S.
1960	College Grad	+	+	+	+	N.S.	N.S.
1970	College Grad	+	+	+	N.S.	+	+
1980	College Grad	N.S.	N.S.	+	N.S.	N.S.	N.S.
Birth cohort	**Divorce**	No HS	HS Grad	Some College	No HS	HS Grad	Some College
1950	College Grad	-	-	-	N.S.	-	-
1960	College Grad	-	-	-	-	-	-
1970	College Grad	-	-	-	-	-	-
1980	College Grad	-	-	-	-	-	-

The educational differences are based on on the predicted probabilities summarized in Table 3.S8. The educational gradients are considered to be statistically different if there is no overlap in the confidence intervals.

Figures

Figure 3.1 – Structure of the empirical model
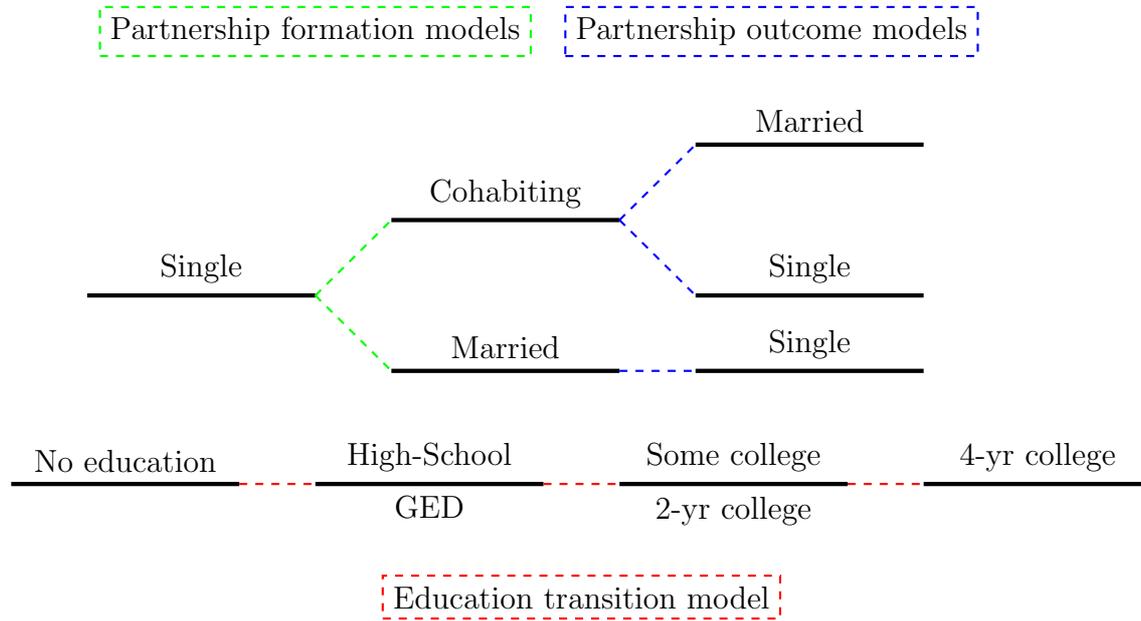
Figure 3.2 – Predicted probability of marriage by birth cohort and educational attainment
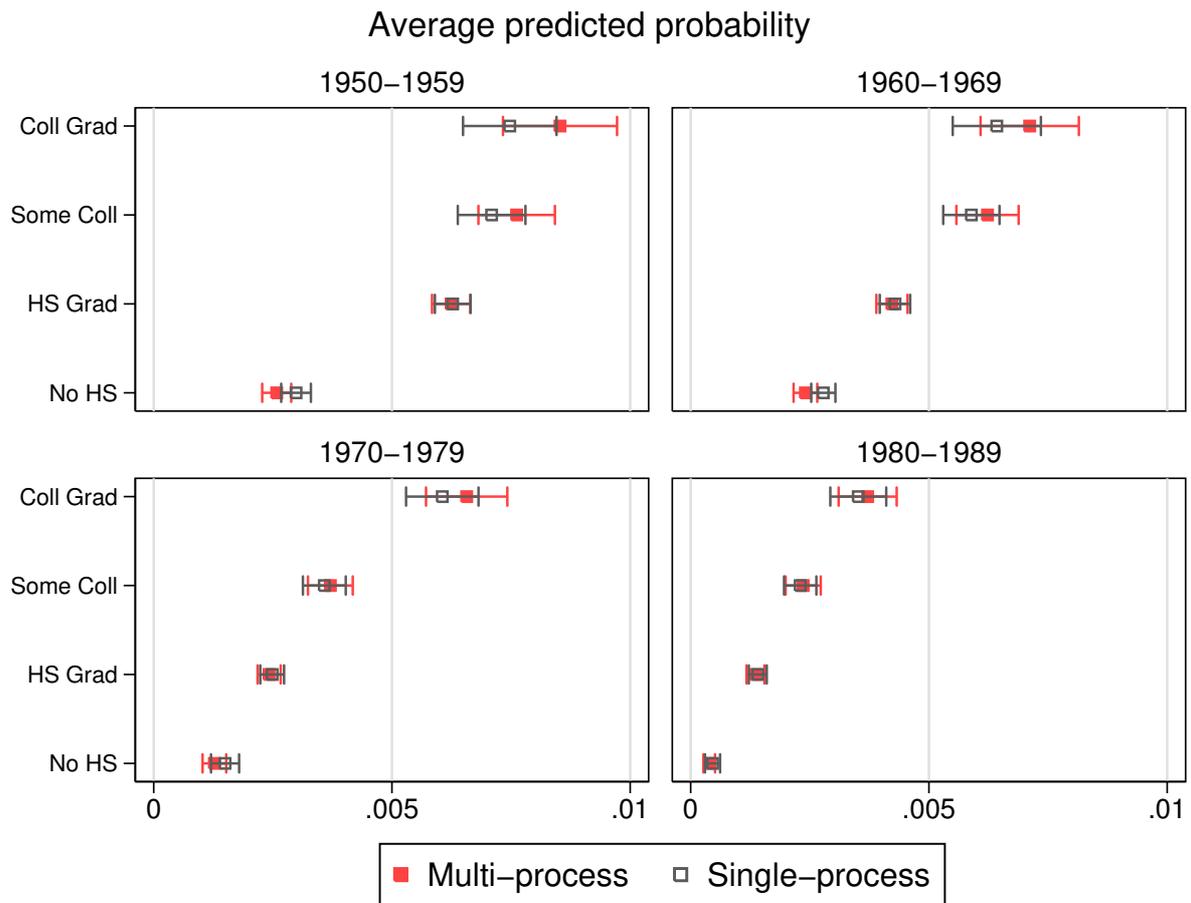

Notes: Predictions are obtained using estimates from the multi-process model for marriage formation (Table 3.4). Confidence intervals are centered on the predictions and have lengths equals to 2*1.39*standard errors to have an average level of 5% for the Type I error probability in the pair-wise comparisons of a group of means (Goldstein & Healy, 1995).

Figure 3.3 – Predicted probability of cohabitation by birth cohort and educational attainment
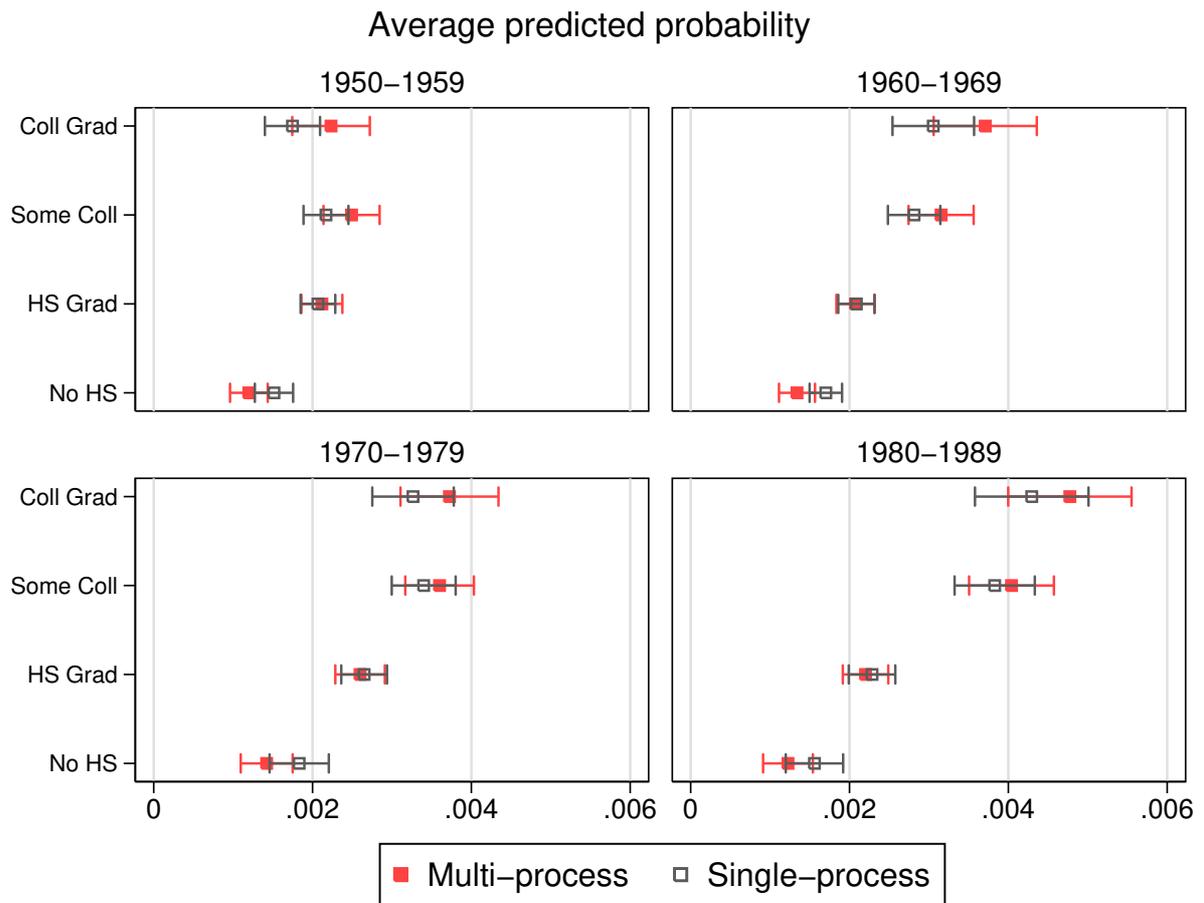
Average predicted probability

Notes: Predictions are obtained using estimates from the multi-process model for marriage formation (Table 3.4). Confidence intervals are centered on the predictions and have lengths equals to 2*1.39*standard errors to have an average level of 5% for the Type I error probability in the pair-wise comparisons of a group of means (Goldstein & Healy, 1995).

Figure 3.4 – Predicted probability of cohabitation dissolution by birth cohort and educational attainment
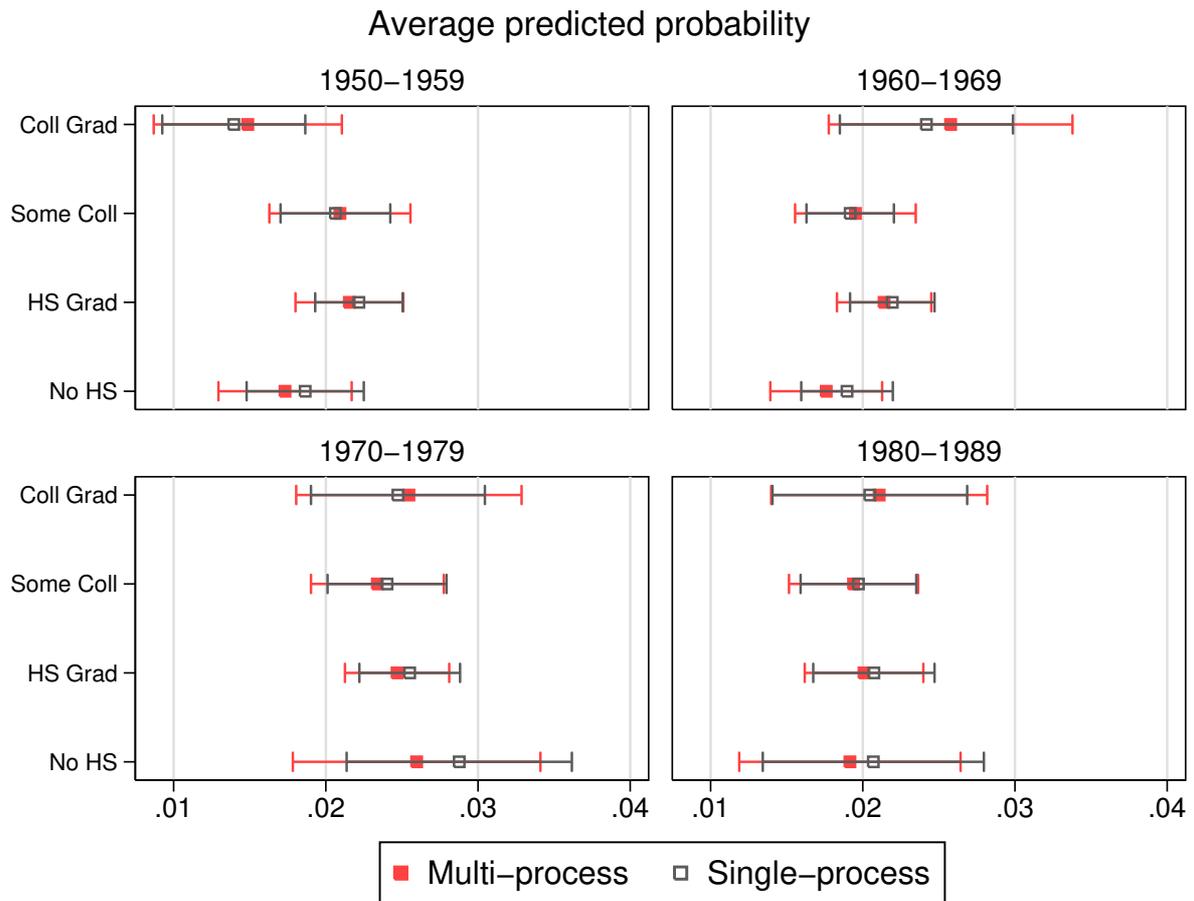
Notes: Predictions are obtained using estimates from the multi-process model for marriage formation (Table 3.5). Confidence intervals are centered on the predictions and have lengths equals to 2*1.39*standard errors to have an average level of 5% for the Type I error probability in the pair-wise comparisons of a group of means (Goldstein & Healy, 1995).

Figure 3.5 – Predicted probability of marriage via premarital cohabitation by birth cohort and educational attainment
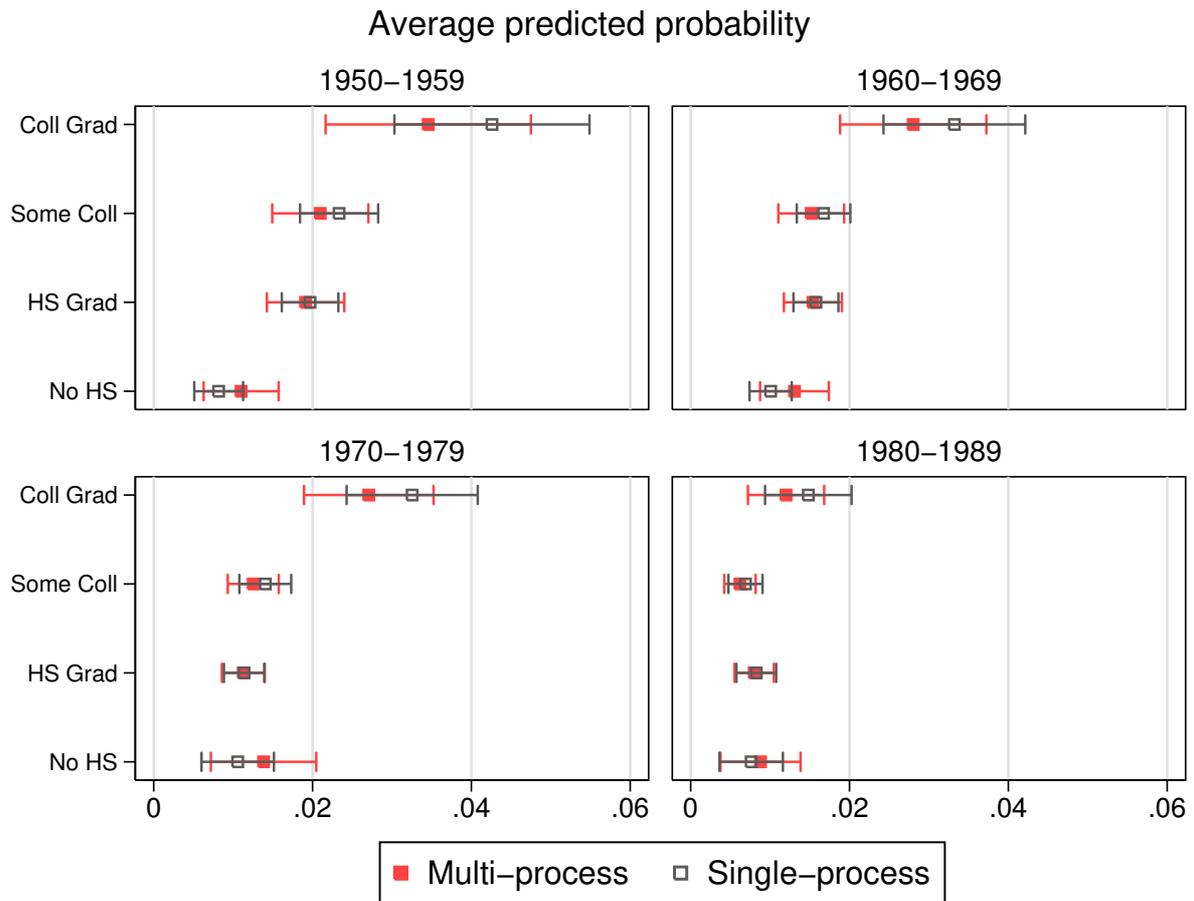
Average predicted probability

Notes: Predictions are obtained using estimates from the multi-process model for marriage formation (Table 3.5). Confidence intervals are centered on the predictions and have lengths equals to 2*1.39*standard errors to have an average level of 5% for the Type I error probability in the pair-wise comparisons of a group of means (Goldstein & Healy, 1995).

Figure 3.6 – Predicted probability of marital separation by birth cohort and educational attainment
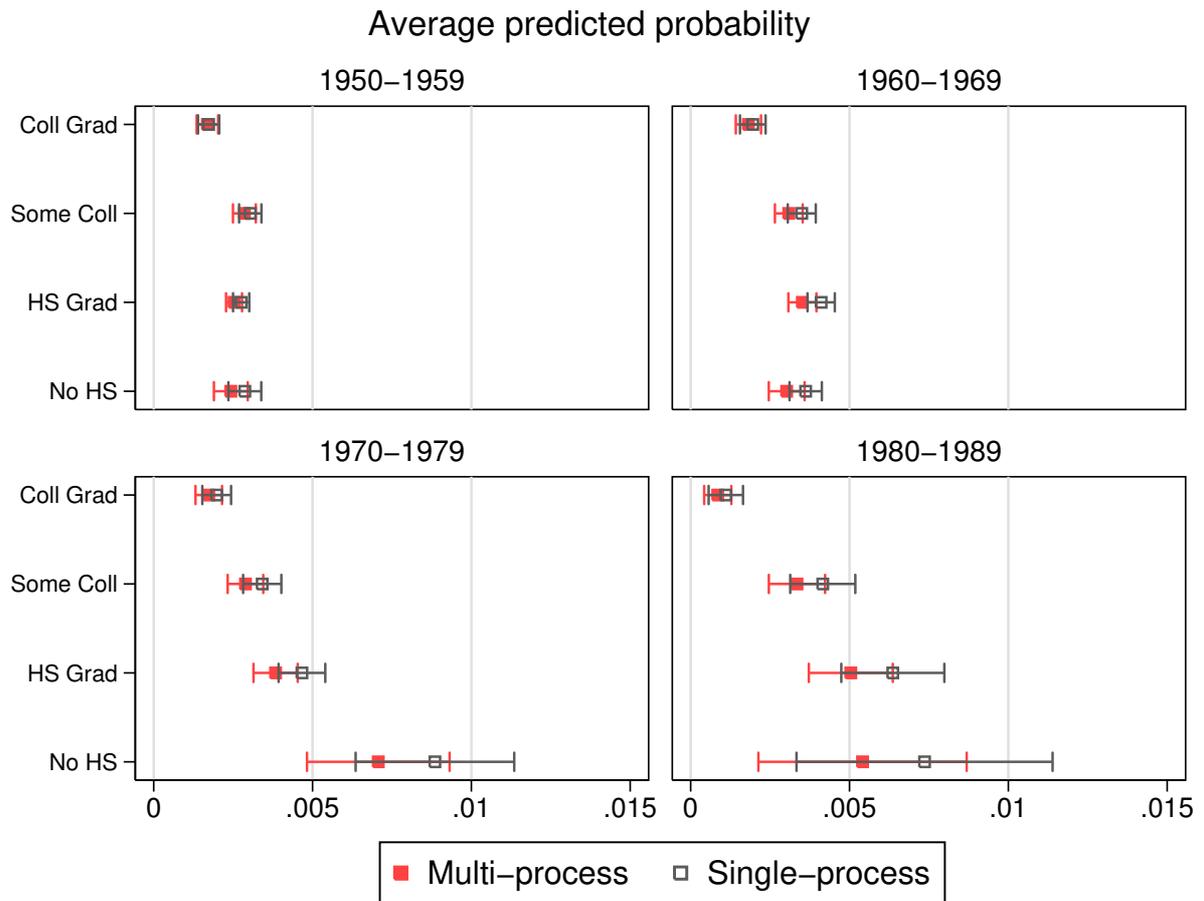
Average predicted probability

Notes: Predictions are obtained using estimates from the multi-process model for marriage formation (Table 3.6). Confidence intervals are centered on the predictions and have lengths equals to 2*1.39*standard errors to have an average level of 5% for the Type I error probability in the pair-wise comparisons of a group of means (Goldstein & Healy, 1995).

Supplementary materials

Appendix

Table 3.S1 – Estimates coefficients from multilevel event-history model for the marriage formation model

	Marriage	
	Single-process	Multi-process
Constant	-5.128 (0.098)***	-5.207 (0.100)***
Duration unpartnered	0.044 (0.007)***	0.039 (0.007)***
Duration unpartnered^2	-0.001 (0.000)***	-0.001 (0.000)***
Previously married	-0.682 (0.082)***	-0.873 (0.087)***
Previously cohabited	0.176 (0.086)*	0.128 (0.088)
Fertility status (ref. no children)		
Currently pregnant	1.321 (0.049)***	1.299 (0.049)***
Child(en): Age < 5	0.205 (0.050)***	0.192 (0.049)***
Child(en): Age [5;18]	-0.060 (0.057)	-0.025 (0.057)
Child(en): Age +18	-0.332 (0.098)***	-0.287 (0.097)**
Race (ref. white)		
Black	-1.324 (0.056)***	-1.307 (0.056)***
Other	-0.424 (0.111)***	-0.404 (0.112)***
Current region of residence (ref. South)		
Northeast	-0.710 (0.069)***	-0.718 (0.069)***
North Central	-0.361 (0.054)***	-0.355 (0.054)***
West	-0.334 (0.065)***	-0.328 (0.065)***
Alaska, Hawai, Foreign country, Missing	-0.567 (0.086)***	-0.578 (0.086)***
Education enrollment (ref. not enrolled)		
Enrolled	-0.951 (0.069)***	-0.920 (0.069)***
Missing	-0.014 (0.049)	0.001 (0.048)
Education (ref. Less than high school)		
High school diploma	0.756 (0.083)***	0.889 (0.091)***
Some college	0.879 (0.106)***	1.094 (0.118)***
College degree	0.934 (0.128)***	1.205 (0.144)***
Birth Cohort (ref. 1950-1959)		
1960-1969	-0.300 (0.123)*	-0.317 (0.125)*
1970-1979	-0.712 (0.153)***	-0.719 (0.154)***
1980-1989	-1.905 (0.249)***	-1.919 (0.244)***
Education x Birth cohort		
High school diploma x 1960-1969	-0.084 (0.135)	-0.077 (0.137)
High school diploma x 1970-1979	-0.227 (0.168)	-0.235 (0.168)
High school diploma x 1980-1989	0.391 (0.265)	0.382 (0.260)
Some college x 1960-1969	0.110 (0.155)	0.121 (0.156)
Some college x 1970-1979	0.013 (0.188)	-0.013 (0.188)
Some college x 1980-1989	0.761 (0.278)**	0.733 (0.272)**
College degree x 1960-1969	0.145 (0.184)	0.133 (0.183)
College degree x 1970-1979	0.497 (0.201)*	0.453 (0.200)*
College degree x 1980-1989	1.134 (0.292)***	1.076 (0.286)***

Notes: The estimated coefficients and their standard errors are the means and standard deviations of parameter values across 100,000 Markov chain Monte Carlo samples, after a burn-in of 10,000. + p<0.10 * p<0.05 ** p<0.01 *** p<0.001.

Table 3.S2 – Estimates coefficients from multilevel event-history model for the cohabitation formation model

	Cohabitation	
	Single-process	Multi-process
Constant	-5.793 (0.144)***	-5.989 (0.162)***
Duration unpartnered	0.009 (0.007)	0.004 (0.007)
Duration unpartnered2	-0.000 (0.000)**	-0.000 (0.000)*
Previously married	0.495 (0.086)***	0.388 (0.101)***
Previously cohabited	-0.103 (0.091)	-0.143 (0.110)
Fertility status (ref. no children)		
Currently pregnant	0.566 (0.071)***	0.569 (0.070)***
Child(en): Age < 5	0.529 (0.053)***	0.544 (0.053)***
Child(en): Age [5;18]	-0.161 (0.059)**	-0.123 (0.060)*
Child(en): Age +18	-0.399 (0.102)***	-0.352 (0.102)***
Race (ref. white)		
Black	-1.043 (0.064)***	-1.029 (0.063)***
Other	-0.611 (0.140)***	-0.600 (0.142)***
Current region of residence (ref. South)		
Northeast	-0.123 (0.077)	-0.143 (0.077)+
North Central	0.006 (0.061)	0.004 (0.061)
West	0.220 (0.070)**	0.217 (0.071)**
Alaska, Hawai, Foreign country, Missing	-1.140 (0.181)***	-1.154 (0.182)***
Education enrollment (ref. not enrolled)		
Enrolled	-1.878 (0.100)***	-1.792 (0.102)***
Missing	-0.996 (0.071)***	-0.957 (0.071)***
Education (ref. Less than high school)		
High school diploma	0.314 (0.128)*	0.568 (0.143)***
Some college	0.357 (0.145)*	0.718 (0.170)***
College degree	0.141 (0.181)	0.595 (0.211)**
Birth Cohort (ref. 1950-1959)		
1960-1969	0.349 (0.157)*	0.339 (0.160)*
1970-1979	0.195 (0.184)	0.187 (0.186)
1980-1989	0.022 (0.205)	0.027 (0.202)
Education x Birth cohort		
High school diploma x 1960-1969	-0.339 (0.180)+	-0.356 (0.181)*
High school diploma x 1970-1979	0.059 (0.203)	0.024 (0.205)
High school diploma x 1980-1989	0.081 (0.226)	0.022 (0.226)
Some college x 1960-1969	-0.081 (0.195)	-0.088 (0.197)
Some college x 1970-1979	0.263 (0.219)	0.206 (0.220)
Some college x 1980-1989	0.559 (0.240)*	0.475 (0.237)*
College degree x 1960-1969	0.216 (0.235)	0.189 (0.237)
College degree x 1970-1979	0.436 (0.252)+	0.354 (0.254)
College degree x 1980-1989	0.885 (0.270)**	0.763 (0.269)**

Notes: The estimated coefficients and their standard errors are the means and standard deviations of parameter values across 100,000 Markov chain Monte Carlo samples, after a burn-in of 10,000. + $p<0.10$ * $p<0.05$ ** $p<0.01$ *** $p<0.001$.

Table 3.S3 – Estimates coefficients from multilevel event-history model for the cohabitation separation model

| | Cohabitation separation | |
	Single-process	Multi-process
Constant	-4.213 (0.192)***	-4.361 (0.261)***
Log of partnership duration	0.018 (0.065)	0.019 (0.055)
Previously married	0.398 (0.088)***	0.262 (0.125)*
Previously cohabited	-0.010 (0.088)	-0.065 (0.106)
Fertility status (ref. no children)		
Currently pregnant	-0.520 (0.115)***	-0.529 (0.116)***
Child(en): Age < 5	0.043 (0.072)	0.040 (0.074)
Child(en): Age [5;18]	0.035 (0.080)	0.053 (0.084)
Child(en): Age +18	0.040 (0.160)	0.060 (0.163)
Race (ref. white)		
Black	0.246 (0.079)**	0.271 (0.085)**
Other	0.029 (0.197)	0.044 (0.199)
Current region of residence (ref. South)		
Northeast	-0.076 (0.110)	-0.091 (0.112)
North Central	-0.046 (0.086)	-0.042 (0.088)
West	0.099 (0.094)	0.114 (0.096)
Alaska, Hawai, Foreign country, Missing	-0.947 (0.413)*	-0.926 (0.418)*
Age at start of partnership	-0.134 (0.044)**	-0.136 (0.045)**
Age2 at start of partnership	0.002 (0.001)*	0.002 (0.001)*
Education enrollment (ref. not enrolled)		
Enrolled	-0.143 (0.185)	-0.129 (0.186)
Missing	-0.263 (0.109)*	-0.267 (0.109)*
Education (ref. Less than high school)		
High school diploma	0.201 (0.178)	0.269 (0.217)
Some college	0.117 (0.195)	0.251 (0.256)
College degree	-0.291 (0.285)	-0.141 (0.358)
Birth Cohort (ref. 1950-1959)		
1960-1969	0.071 (0.221)	0.068 (0.224)
1970-1979	0.435 (0.252)+	0.431 (0.256)+
1980-1989	0.094 (0.307)	0.082 (0.309)
Education x Birth Cohort		
High school diploma x 1960-1969	-0.087 (0.255)	-0.072 (0.257)
High school diploma x 1970-1979	-0.288 (0.282)	-0.270 (0.285)
High school diploma x 1980-1989	-0.172 (0.341)	-0.134 (0.344)
Some college x 1960-1969	-0.134 (0.271)	-0.123 (0.276)
Some college x 1970-1979	-0.279 (0.301)	-0.289 (0.302)
Some college x 1980-1989	-0.142 (0.354)	-0.141 (0.356)
College degree x 1960-1969	0.511 (0.364)	0.539 (0.369)
College degree x 1970-1979	0.171 (0.385)	0.170 (0.389)
College degree x 1980-1989	0.292 (0.445)	0.310 (0.453)

Notes: The estimated coefficients and their standard errors are the means and standard deviations of parameter values across 100,000 Markov chain Monte Carlo samples, after a burn-in of 10,000. + p<0.10 * p<0.05 ** p<0.01 *** p<0.001.

Table 3.S4 – Estimates coefficients from multilevel event-history model for the marriage via cohabitation model

	Marriage	
	Single-process	Multi-process
Constant	-4.880 (0.316)***	-4.327 (0.379)***
Log of partnership duration	0.364 (0.098)***	0.377 (0.100)***
Previously married	-0.022 (0.123)	-0.455 (0.189)*
Previously cohabited	-0.321 (0.124)**	-0.326 (0.145)*
Fertility status (ref. no children)		
Currently pregnant	0.682 (0.112)***	0.669 (0.113)***
Child(en): Age < 5	-0.158 (0.103)	-0.161 (0.103)
Child(en): Age [5;18]	-0.247 (0.117)*	-0.313 (0.120)**
Child(en): Age +18	-0.440 (0.240)+	-0.555 (0.243)*
Race (ref. white)		
Black	-0.768 (0.123)***	-0.860 (0.134)***
Other	-0.341 (0.282)	-0.382 (0.286)
Current region of residence (ref. South)		
Northeast	-0.431 (0.149)**	-0.467 (0.150)**
North Central	-0.053 (0.117)	-0.072 (0.117)
West	-0.267 (0.133)*	-0.276 (0.131)*
Alaska, Hawai, Foreign country, Missing	-1.309 (0.473)**	-1.362 (0.471)**
Age at start of partnership	-0.050 (0.059)	0.023 (0.063)
Age2 at start of partnership	0.000 (0.001)	-0.001 (0.001)
Education enrollment (ref. not enrolled)		
Enrolled	0.151 (0.210)	0.081 (0.211)
Missing	0.280 (0.122)*	0.270 (0.124)*
Education (ref. Less than high school)		
High school diploma	0.947 (0.297)**	0.609 (0.346)+
Some college	1.120 (0.317)***	0.687 (0.392)+
College degree	1.753 (0.354)***	1.214 (0.459)**
Birth Cohort (ref. 1950-1959)		
1960-1969	0.610 (0.355)+	0.514 (0.360)
1970-1979	0.271 (0.423)	0.215 (0.426)
1980-1989	-0.112 (0.474)	-0.277 (0.475)
Education x Birth Cohort		
High school diploma x 1960-1969	-0.849 (0.393)*	-0.736 (0.398)+
High school diploma x 1970-1979	-0.831 (0.464)+	-0.783 (0.464)+
High school diploma x 1980-1989	-0.801 (0.523)	-0.659 (0.525)
Some college x 1960-1969	-0.950 (0.413)*	-0.845 (0.415)*
Some college x 1970-1979	-0.795 (0.478)+	-0.766 (0.477)
Some college x 1980-1989	-1.153 (0.544)*	-1.007 (0.539)+
College degree x 1960-1969	-0.867 (0.445)+	-0.760 (0.452)+
College degree x 1970-1979	-0.556 (0.500)	-0.488 (0.501)
College degree x 1980-1989	-1.024 (0.577)+	-0.866 (0.581)

Notes: The estimated coefficients and their standard errors are the means and standard deviations of parameter values across 100,000 Markov chain Monte Carlo samples, after a burn-in of 10,000. + p<0.10 * p<0.05 ** p<0.01 *** p<0.001.

Table 3.S5 – Estimates coefficients from multilevel event-history model for the marital separation model

	Divorce	
	Single-process	Multi-process
Constant	-5.738 (0.174)***	-5.851 (0.221)***
Log of marriage duration	-0.086 (0.042)*	-0.086 (0.044)*
Previously married	-0.126 (0.112)	-0.368 (0.128)**
Previously cohabited (ref. no partner)		
Current partner only	0.021 (0.086)	0.105 (0.132)
Previous partner(s) only	0.135 (0.112)	0.078 (0.155)
Current and previous partner(s)	0.390 (0.171)*	0.431 (0.235)+
Fertility status (ref. no children)		
Currently pregnant	-0.898 (0.087)***	-0.888 (0.087)***
Child(en): Age < 5	-0.121 (0.053)*	-0.107 (0.053)*
Child(en): Age [5;18]	-0.001 (0.060)	0.016 (0.061)
Child(en): Age +18	-0.280 (0.096)**	-0.290 (0.098)**
Race (ref. white)		
Black	0.616 (0.072)***	0.535 (0.079)***
Other	0.269 (0.159)+	0.254 (0.162)
Current region of residence (ref. South)		
Northeast	-0.284 (0.106)**	-0.343 (0.108)**
North Central	0.024 (0.078)	-0.012 (0.078)
West	0.101 (0.090)	0.076 (0.090)
Alaska, Hawai, Foreign country, Missing	-0.152 (0.111)	-0.154 (0.112)
Age at start of marriage	-0.142 (0.033)***	-0.117 (0.036)**
Age2 at start of marriage	0.002 (0.001)***	0.002 (0.001)**
Education enrollment (ref. not enrolled)		
Enrolled	0.229 (0.138)+	0.225 (0.137)
Missing	0.113 (0.068)+	0.108 (0.069)
Education (ref. Less than high school)		
High school diploma	-0.043 (0.133)	0.048 (0.164)
Some college	0.054 (0.150)	0.170 (0.200)
College degree	-0.525 (0.184)**	-0.362 (0.243)
Birth Cohort (ref. 1950-1959)		
1960-1969	0.621 (0.191)**	0.596 (0.193)**
1970-1979	1.110 (0.245)***	1.056 (0.248)***
1980-1989	0.866 (0.420)*	0.724 (0.426)+
Education x Birth cohort		
High school diploma x 1960-1969	-0.222 (0.210)	-0.255 (0.212)
High school diploma x 1970-1979	-0.581 (0.269)*	-0.641 (0.271)*
High school diploma x 1980-1989	-0.036 (0.452)	-0.041 (0.458)
Some college x 1960-1969	-0.478 (0.226)*	-0.504 (0.227)*
Some college x 1970-1979	-0.994 (0.283)***	-1.044 (0.285)***
Some college x 1980-1989	-0.571 (0.463)	-0.578 (0.467)
College degree x 1960-1969	-0.494 (0.269)+	-0.524 (0.273)+
College degree x 1970-1979	-0.965 (0.316)**	-1.029 (0.318)**
College degree x 1980-1989	-1.382 (0.564)*	-1.443 (0.575)*

Notes: The estimated coefficients and their standard errors are the means and standard deviations of parameter values across 100,000 Markov chain Monte Carlo samples, after a burn-in of 10,000. + $p<0.10$ * $p<0.05$ ** $p<0.01$ *** $p<0.001$.

Education Model As explained in the Method section of the article, the model for education decisions includes the sequential transitions from one level of education to another, i.e. No education to high-school diploma, from high-school diploma to some college, from some college to college graduation. We include as covariates in the education model: log duration, race, partnership status, and fertility status, region of residence and birth cohort (the distribution of the covariates in the education sample are summarized in Table 3.S6. In addition, the effects of the covariates are allowed to differ by education transitions. The estimated coefficients from the single-process and multi-process models are summarized in Table 3.S7.

Table 3.S6 – Distribution of covariates by education transition

Variable	N-E	H-S	S-C
Race			
White	50.86	52.21	56.74
Black	45.65	44.44	39.98
Other	3.49	3.34	3.28
Birth cohort			
1950-1959	29.51	28.69	25.05
1960-1969	25.69	25.37	24.40
1970-1979	21.28	21.69	24.45
1980-1989	23.52	24.25	26.09
Partnership status‡			
Single	80.89	60.58	50.53
Married	16.37	35.48	43.87
Cohabiting	2.74	3.95	5.61
Current fertility status‡			
No children	54.14	36.61	29.28
Currently pregnant	10.47	9.75	7.93
Child(en): Age < 5	22.22	31.04	28.47
Child(en): Age [5;18)	23.69	36.81	46.07
Child(en): Age +18	8.60	10.96	16.08
Current region of residence‡			
Northeast	10.21	12.97	11.85
North Central	22.68	21.92	22.54
South	46.80	46.44	43.36
West	10.85	11.40	16.27
Alaska, Hawai, Foreign country, Missing	9.46	7.27	5.98
Number of 6-month intervals	51,130	108,437	60,873
Number of women	6,072	5,472	3,664

‡ Time-varying covariates.

Table 3.S7 – Estimates coefficients from multilevel event-history model for the education transitions model

	Education			
	Single-process		Multi-process	
No Education (Constant)	-5.787	(0.084)***	-5.815	(0.087)***
Log of time since 16	1.821	(0.046)***	1.829	(0.049)***
Race (ref. white)				
Black	-0.195	(0.045)***	-0.192	(0.046)***
Other	-0.223	(0.115)+	-0.220	(0.116)+
Partnership status (ref. single)				
Cohabiting	-1.307	(0.178)***	-1.203	(0.180)***
Married	-0.701	(0.081)***	-0.653	(0.084)***
Fertility status (ref. no children)				
Currently pregnant	0.003	(0.053)	0.015	(0.053)
Child(en): Age < 5	-1.368	(0.062)***	-1.352	(0.063)***
Child(en): Age [5;18]	-6.326	(0.207)***	-6.326	(0.212)***
Child(en): Age +18	-7.731	(0.422)***	-7.727	(0.428)***
Current region of residence (ref. South)				
Northeast	0.274	(0.063)***	0.278	(0.063)***
North Central	0.022	(0.052)	0.027	(0.052)
West	0.070	(0.066)	0.072	(0.066)
Alaska, Hawai, Foreign country, Missing	-0.305	(0.074)***	-0.291	(0.075)***
Birth Cohort (ref. 1950-1959)				
1960-1969	0.079	(0.055)	0.082	(0.056)
1970-1979	0.218	(0.057)***	0.224	(0.058)***
1980-1989	0.216	(0.056)***	0.226	(0.056)***
High-School (Constant)	-5.964	(0.080)***	-5.995	(0.081)***
Log of time since H-S	0.366	(0.024)***	0.360	(0.024)***
Race (ref. white)				
Black	-0.256	(0.052)***	-0.247	(0.052)***
Other	-0.138	(0.128)	-0.142	(0.129)
Partnership status (ref. single)				
Cohabiting	-0.440	(0.107)***	-0.352	(0.109)**
Married	-0.419	(0.055)***	-0.373	(0.058)***
Fertility status (ref. no children)				
Currently pregnant	-0.119	(0.064)+	-0.113	(0.063)+
Child(en): Age < 5	-0.743	(0.049)***	-0.733	(0.050)***
Child(en): Age [5;18]	-1.065	(0.060)***	-1.048	(0.060)***
Child(en): Age +18	-1.571	(0.119)***	-1.548	(0.120)***
Current region of residence (ref. South)				
Northeast	0.134	(0.069)+	0.139	(0.070)*
North Central	0.132	(0.057)*	0.138	(0.057)*
West	0.194	(0.070)**	0.200	(0.069)**
Alaska, Hawai, Foreign country, Missing	-0.246	(0.089)**	-0.235	(0.089)**

Table 3.S7 – continued from previous page

	Education			
	Single-process		Multi-process	
Birth Cohort (ref. 1950-1959)				
1960-1969	0.372	(0.064)***	0.380	(0.064)***
1970-1979	0.828	(0.065)***	0.847	(0.066)***
1980-1989	1.120	(0.065)***	1.139	(0.067)***
Some college (Constant)	-2.729	(0.098)***	-2.780	(0.100)***
Log of time since S-C	-5.323	(0.283)***	-5.255	(0.236)***
Race (ref. white)				
Black	-0.818	(0.080)***	-0.807	(0.080)***
Other	-0.397	(0.193)*	-0.395	(0.195)*
Partnership status (ref. single)				
Cohabiting	-0.284	(0.182)	-0.216	(0.183)
Married	0.099	(0.089)	0.144	(0.092)
Fertility status (ref. no children)				
Currently pregnant	-1.022	(0.147)***	-1.019	(0.147)***
Child(en): Age < 5	-0.995	(0.110)***	-0.990	(0.112)***
Child(en): Age [5;18]	-0.433	(0.111)***	-0.404	(0.111)***
Child(en): Age +18	-0.482	(0.259)+	-0.461	(0.254)+
Current region of residence (ref. South)				
Northeast	0.217	(0.097)*	0.227	(0.098)*
North Central	-0.108	(0.086)	-0.100	(0.087)
West	-0.257	(0.106)*	-0.252	(0.107)*
Alaska, Hawai, Foreign country, Missing	-0.279	(0.172)	-0.266	(0.171)
Birth Cohort (ref. 1950-1959)				
1960-1969	-0.065	(0.098)	-0.051	(0.099)
1970-1979	0.467	(0.096)***	0.486	(0.097)***
1980-1989	0.410	(0.095)***	0.436	(0.097)***

Notes: The estimated coefficients and their standard errors are the means and standard deviations of parameter values across 100,000 Markov chain Monte Carlo samples, after a burn-in of 10,000. + p<0.10 * p<0.05 ** p<0.01 *** p<0.001.

Table 3.S8 – Predicted probabilities for each partnership transition using the single-process and multi-process approach

Process	Birth cohort	Educ	Single-process			Multi-process		
			P	CI		P	CI	
Is1	1950-1959	No HS	0.0030	0.0027	0.0033	0.0026	0.0023	0.0029
Is1	1950-1959	HS Grad	0.0063	0.0059	0.0066	0.0062	0.0058	0.0066
Is1	1950-1959	Some Coll	0.0071	0.0064	0.0078	0.0076	0.0068	0.0084
Is1	1950-1959	Coll Grad	0.0075	0.0065	0.0085	0.0085	0.0073	0.0097
Is1	1960-1969	No HS	0.0028	0.0025	0.0030	0.0024	0.0022	0.0027
Is1	1960-1969	HS Grad	0.0043	0.0040	0.0046	0.0042	0.0039	0.0046
Is1	1960-1969	Some Coll	0.0059	0.0053	0.0065	0.0062	0.0056	0.0069
Is1	1960-1969	Coll Grad	0.0064	0.0055	0.0073	0.0071	0.0061	0.0081
Is1	1970-1979	No HS	0.0015	0.0012	0.0018	0.0013	0.0010	0.0015
Is1	1970-1979	HS Grad	0.0025	0.0022	0.0027	0.0024	0.0022	0.0027
Is1	1970-1979	Some Coll	0.0036	0.0031	0.0040	0.0037	0.0032	0.0042
Is1	1970-1979	Coll Grad	0.0061	0.0053	0.0068	0.0066	0.0057	0.0074
Is1	1980-1989	No HS	0.0005	0.0003	0.0006	0.0004	0.0003	0.0005
Is1	1980-1989	HS Grad	0.0014	0.0012	0.0016	0.0014	0.0012	0.0015
Is1	1980-1989	Some Coll	0.0023	0.0020	0.0026	0.0024	0.0020	0.0027
Is1	1980-1989	Coll Grad	0.0035	0.0029	0.0041	0.0037	0.0031	0.0043
Is2	1950-1959	No HS	0.0015	0.0013	0.0018	0.0012	0.0010	0.0014
Is2	1950-1959	HS Grad	0.0021	0.0018	0.0023	0.0021	0.0019	0.0024
Is2	1950-1959	Some Coll	0.0022	0.0019	0.0025	0.0025	0.0021	0.0028
Is2	1950-1959	Coll Grad	0.0017	0.0014	0.0021	0.0022	0.0017	0.0027
Is2	1960-1969	No HS	0.0017	0.0015	0.0019	0.0013	0.0011	0.0016
Is2	1960-1969	HS Grad	0.0021	0.0019	0.0023	0.0021	0.0018	0.0023
Is2	1960-1969	Some Coll	0.0028	0.0025	0.0031	0.0032	0.0027	0.0036
Is2	1960-1969	Coll Grad	0.0031	0.0025	0.0036	0.0037	0.0031	0.0044
Is2	1970-1979	No HS	0.0018	0.0015	0.0022	0.0014	0.0011	0.0017
Is2	1970-1979	HS Grad	0.0027	0.0024	0.0029	0.0026	0.0023	0.0029
Is2	1970-1979	Some Coll	0.0034	0.0030	0.0038	0.0036	0.0032	0.0040
Is2	1970-1979	Coll Grad	0.0033	0.0028	0.0038	0.0037	0.0031	0.0043
Is2	1980-1989	No HS	0.0016	0.0012	0.0019	0.0012	0.0009	0.0015
Is2	1980-1989	HS Grad	0.0023	0.0020	0.0026	0.0022	0.0019	0.0025
Is2	1980-1989	Some Coll	0.0038	0.0033	0.0043	0.0040	0.0035	0.0046
Is2	1980-1989	Coll Grad	0.0043	0.0036	0.0050	0.0048	0.0040	0.0056
Ic1	1950-1959	No HS	0.0186	0.0148	0.0225	0.0173	0.0129	0.0217
Ic1	1950-1959	HS Grad	0.0222	0.0193	0.0250	0.0215	0.0180	0.0251
Ic1	1950-1959	Some Coll	0.0206	0.0170	0.0242	0.0209	0.0163	0.0256
Ic1	1950-1959	Coll Grad	0.0140	0.0093	0.0187	0.0149	0.0087	0.0211
Ic1	1960-1969	No HS	0.0190	0.0160	0.0220	0.0176	0.0139	0.0213
Ic1	1960-1969	HS Grad	0.0219	0.0192	0.0247	0.0214	0.0183	0.0245
Ic1	1960-1969	Some Coll	0.0192	0.0163	0.0220	0.0195	0.0155	0.0235
Ic1	1960-1969	Coll Grad	0.0242	0.0185	0.0299	0.0258	0.0178	0.0338
Ic1	1970-1979	No HS	0.0288	0.0214	0.0362	0.0260	0.0178	0.0341
Ic1	1970-1979	HS Grad	0.0255	0.0222	0.0288	0.0247	0.0213	0.0281
Ic1	1970-1979	Some Coll	0.0240	0.0201	0.0279	0.0234	0.0190	0.0277

Table 3.S8 – continued from previous page

Process	Birth cohort	Educ	Single-process P	Single-process CI		Multi-process P	Multi-process CI	
Ic1	1970-1979	Coll Grad	0.0247	0.0190	0.0305	0.0255	0.0181	0.0329
Ic1	1980-1989	No HS	0.0207	0.0134	0.0280	0.0192	0.0119	0.0264
Ic1	1980-1989	HS Grad	0.0207	0.0167	0.0247	0.0201	0.0162	0.0240
Ic1	1980-1989	Some Coll	0.0197	0.0159	0.0235	0.0194	0.0152	0.0236
Ic1	1980-1989	Coll Grad	0.0205	0.0141	0.0269	0.0211	0.0140	0.0282
Ic2	1950-1959	No HS	0.0082	0.0051	0.0113	0.0110	0.0063	0.0157
Ic2	1950-1959	HS Grad	0.0197	0.0161	0.0233	0.0191	0.0142	0.0240
Ic2	1950-1959	Some Coll	0.0233	0.0184	0.0283	0.0210	0.0149	0.0270
Ic2	1950-1959	Coll Grad	0.0426	0.0303	0.0549	0.0346	0.0216	0.0475
Ic2	1960-1969	No HS	0.0101	0.0074	0.0127	0.0131	0.0087	0.0174
Ic2	1960-1969	HS Grad	0.0158	0.0129	0.0186	0.0154	0.0117	0.0190
Ic2	1960-1969	Some Coll	0.0167	0.0134	0.0201	0.0152	0.0110	0.0193
Ic2	1960-1969	Coll Grad	0.0332	0.0243	0.0421	0.0280	0.0188	0.0372
Ic2	1970-1979	No HS	0.0106	0.0060	0.0151	0.0138	0.0072	0.0205
Ic2	1970-1979	HS Grad	0.0114	0.0088	0.0139	0.0113	0.0086	0.0140
Ic2	1970-1979	Some Coll	0.0141	0.0108	0.0173	0.0125	0.0093	0.0157
Ic2	1970-1979	Coll Grad	0.0325	0.0243	0.0408	0.0271	0.0189	0.0352
Ic2	1980-1989	No HS	0.0076	0.0036	0.0116	0.0088	0.0038	0.0138
Ic2	1980-1989	HS Grad	0.0083	0.0058	0.0108	0.0080	0.0055	0.0105
Ic2	1980-1989	Some Coll	0.0069	0.0048	0.0090	0.0062	0.0042	0.0082
Ic2	1980-1989	Coll Grad	0.0148	0.0094	0.0203	0.0120	0.0072	0.0168
Im	1950-1959	No HS	0.0029	0.0024	0.0034	0.0024	0.0019	0.0030
Im	1950-1959	HS Grad	0.0028	0.0025	0.0030	0.0025	0.0023	0.0028
Im	1950-1959	Some Coll	0.0030	0.0027	0.0034	0.0029	0.0025	0.0032
Im	1950-1959	Coll Grad	0.0017	0.0014	0.0021	0.0017	0.0014	0.0020
Im	1960-1969	No HS	0.0036	0.0031	0.0041	0.0030	0.0025	0.0036
Im	1960-1969	HS Grad	0.0041	0.0037	0.0045	0.0035	0.0031	0.0040
Im	1960-1969	Some Coll	0.0035	0.0031	0.0039	0.0031	0.0027	0.0035
Im	1960-1969	Coll Grad	0.0020	0.0016	0.0024	0.0018	0.0014	0.0022
Im	1970-1979	No HS	0.0089	0.0064	0.0113	0.0071	0.0048	0.0093
Im	1970-1979	HS Grad	0.0047	0.0039	0.0054	0.0038	0.0031	0.0045
Im	1970-1979	Some Coll	0.0034	0.0028	0.0040	0.0029	0.0023	0.0034
Im	1970-1979	Coll Grad	0.0020	0.0015	0.0024	0.0017	0.0013	0.0022
Im	1980-1989	No HS	0.0074	0.0033	0.0114	0.0054	0.0021	0.0087
Im	1980-1989	HS Grad	0.0064	0.0047	0.0080	0.0050	0.0037	0.0064
Im	1980-1989	Some Coll	0.0042	0.0031	0.0052	0.0033	0.0025	0.0042
Im	1980-1989	Coll Grad	0.0011	0.0006	0.0016	0.0009	0.0004	0.0013

P = Predicted probability, CI= Confidence interval. Confidence intervals are centered on the predictions and have lengths equals to 2*1.39*standard errors to have an average level of 5% for the Type I error probability in the pair-wise comparisons of a group of means (Goldstein & Healy, 1995).

CHAPTER 4

Gender Role Attitudes Towards Female Employment: The Role of Country-of-Origin Gender Ideology.

Evidence from first- and second-generation immigrants in 33 destination countries

Abstract[1]: This chapter studies the influence of culture on egalitarian gender role attitudes by using country-of-origin differences in gender norms among immigrants across 33 destination countries. We exploit two sources of variation from the migration experience to separate the effect of culture on gender role attitudes from contextual factors: (1) the country of origin provides immigrants with varying levels of gender norms; (2) the country of destination exposes immigrants to different institutional and social contexts. Using the European Social Survey, we apply cross-classified multilevel models to a sample of first- and second-generation immigrants. Results show that country-of-origin gender ideology is significantly associated with immigrants' gender roles attitudes. These findings are robust to controlling for several country-of-origin and destination characteristics and several model specifications.

---

[1]This article is co-authored with Bruno Arpino

4.1 Introduction

The overall trend towards more egalitarian gender attitudes is considered a clear marker of the on-going gender revolution (Davis & Greenstein, 2009). Indeed, men and women are increasingly adopting egalitarian gender role attitudes, favoring equal access to employment for both men and women and greater gender equality within the household (Cha & Thébaud, 2009; Fortin, 2005; Inglehart & Norris, 2003; Treas & Widmer, 2000). Across the world, wealthier and post-industrial societies have adopted egalitarian gender ideology at a faster pace than poorer, agrarian and industrial ones (Inglehart & Norris, 2003; Seguino, 2007). Nevertheless, even within European countries, which are fairly homogeneous in terms of economic outcomes and legal rights towards women, cross-national differences in gender ideology still persist (Guo & Gilbert, 2012; Pampel, 2011).

Gender role attitudes are of particular importance because they positively influence gender-equal outcomes and behaviors within families and across institutions (Brooks & Bolzendahl, 2004). For example, gender-egalitarian attitudes are expected to incentivize women's participation in the labor market and to encourage men's contribution to housework and child care activities. In line with these theoretical mechanisms, several studies show that objective indicators of gender equality, such as female labor force participation (Fortin, 2005) and the Gender-Empowerment Measure (GEM), positively correlate with couples' equal division of housework (Batalova & Cohen, 2002; Fuwa, 2004; Knudsen & Wærness, 2008) and men's participation in housework (Hook, 2006).

Recently, demographers have argued that the dominance of gender-egalitarian attitudes is expected to produce a return of the family by fostering a social and institutional environment in which women can reconcile their careers and families (Arpino, Esping-Andersen & Pessin, 2015; Esping-Andersen & Billari, 2015; Goldscheider, Bernhardt & Lappegård, 2015). Several studies show that, once the gender revolution has reached a mature stage, the diffusion of egalitarian gender role attitudes is indeed positively associated to fertility (Arpino et al., 2015; Baizán, Arpino & Delclós, 2016), partnership formation (Sevilla-Sanz, 2010) and marital stability

(Pessin, 2015).

While gender role attitudes are at the core of the debate on gender equality, our understanding of the mechanisms that foster or dampen the adoption of egalitarian gender role attitudes remains limited (Doepke, Tertilt & Voena, 2012). Contextual and cultural factors play an important role in determining variations in gender role attitudes across countries. Nevertheless, it is difficult to disentangle whether gender role attitudes are the result of culture rather than the context because cultural norms influence institutions and policies, which in turn foster the adoption of different attitudes (Alesina, Giuliano & Nunn, 2013). Empirically, egalitarian gender role attitudes are more likely to be observed in countries with institutions and policies that promote gender equality. Taking the example of Scandinavian countries, it is always hard to ascertain whether gender egalitarian attitudes are highly prevalent because of existing policies and institutions or, reversely, whether policies and institutions are a consequence of Scandinavian culture, which fosters gender equality within society and the family (Aassve, Billari & Pessin, 2012).

In order to disentangle the effect of culture heritage from contextual factors on gender role attitudes, we follow the "epidemiological approach" (Fernández, 2011). This approach consists of using the migration experience to identify the role played by culture in behaviors and attitudes. The country of origin transmits a set of norms and values, while the country of destination provides a shared economic and institutional environment (Fernández, 2011). Cultural values and beliefs among immigrants may be transmitted from parents to children (Myers & Booth, 2002; Thornton, Alwin & Camburn, 1983) but also through friends and other relatives through secondary socialization (Davis, 2007). In parallel, immigrants are also exposed to institutions and economic factors in their country of destination, which may also influence their attitudes (Brooks & Bolzendahl, 2004).

In this article, we exploit two sources of variation from the migration experience to separate the effect of culture on gender role attitudes from contextual factors: (1) the country of origin provides immigrants with varying levels of gender norms; (2) the country of destination exposes immigrants to different institutional and social contexts. Our analysis includes first and second-generation immigrants from the

120

second, fourth and fifth rounds of the European Social Survey. The final sample is composed of immigrants from 96 different countries of origin living in 33 countries of destination. We examine how gender norms in their country of origin influence immigrants' gender role attitudes across countries of destination. We focus on one dimension of gender role attitudes, namely whether individuals believe that men and women should have equal access to the labor market. Our results suggest that origin-country gender ideology plays an important role in explaining gender role attitudes among immigrants across different destination countries. This relationship is particularly strong among recently arrived migrants and weakens as immigrants remain longer in the country of destination. The empirical findings are confirmed even after controlling for individual-level characteristics and confounding variables at the origin- and destination-level. We carry out several robustness checks and further analyses, which are consistent with our main findings.

Our study makes several novel contributions to the literature on the impact of culture on gender role attitudes. Unlike previous studies, we measure culture in the country of origin using a subjective rather than an objective measure of gender equality. Furthermore, the existing literature on culture and gender roles using immigrants as an identifying strategy is mostly US-focused (See Frank & Hou (2015) for an exception on the case of Canada). We extend this literature to a greater diversity of countries, including European countries, Turkey and Russia. Finally, to our knowledge, this is the first study on this topic that exploits not only variation in immigrants' countries of origin but also across countries of destination (for a similar approach but studying different outcomes see Dinesen (2013) on generalized trust and Vitali & Arpino (2015) on living arrangements).

4.2 Literature Review

The existing literature on the development of gender role attitudes can be divided into two main strands: the socialization explanation and the life course approach. The first one emphasizes the stability of gender role attitudes while the latter argues that gender ideology is context dependent and, therefore, changes over the life course. By emphasizing the importance of primary childhood socialization, the socialization

121

explanation highlights the stability of gender role attitudes during adulthood (Myers & Booth, 2002). The intergenerational transmission of gender attitudes creates continuity from one generation to the next, regardless of contextual factors. Conversely, the life course approach argues that exposure to gender role attitudes and specific life events, such as tertiary education or employment, influence the adoption and adaptation of gender role attitudes at different stages in life (Brooks & Bolzendahl, 2004). Accordingly, living in an environment that promotes gender-equality fosters the adoption of egalitarian gender role attitudes and weakens the importance of primary socialization (Davis, 2007).

Previous research supports the importance of primary socialization in shaping gender role attitudes. Parents' gender ideologies are found to directly influence their children's gender role attitudes. Bliss (1988), for example, finds that mothers with nontraditional gender ideology have children that display more gender-neutral behaviors in kindergarten. This intergenerational transmission of gender ideology from mother-to-child is found to be also persistent during adulthood (Davis, 2007; Glass, Bengtson & Dunham, 1986; Moen, Erickson & Dempster-McClain, 1997; Thornton et al., 1983; Willits & Crider, 1989). Furthermore, while a majority of studies focus on maternal transmission of gender ideology (see Davis and Greenstein 2009 for a review), Myers & Booth (2002) show that sons are more likely to adopt gender-egalitarian attitudes if both their parents have egalitarian gender ideology. Davis & Wills (2010) also find that paternal ideology influences adolescent ideology formation as well.

The intergenerational transmission of gender ideology can also occur indirectly. Parents expose their children to behaviors or social environments that reflect different levels of gender ideology. Parents' education and employment can be important indicators of their own attitudes and, therefore, also contribute to the development of children's gender ideology. For example, mother's employment is positively associated to more egalitarian views of gender roles for both sons and daughters (Fernández, Fogli & Olivetti, 2004; Kawaguchi & Miyazaki, 2009). Mother's education and employment are linked to more gender-egalitarian attitudes for their daughters in adulthood (Glass et al., 1986; Thornton et al., 1983). Also, Sutfin,

122

Fulcher, Bowles & Patterson (2008) show that parental gender attitudes fosters stereotyping in the home environment and, in turn, influence their children's attitudes about gender.

According to the socialization theory, the development of gender attitudes occurs during early childhood and is mostly dependent on primary socialization through the intergenerational transmission of gender ideology. As a consequence, empirical evidence in support of the socialization theory has treated gender attitudes as fairly constant over the life course (Baxter, Buchler, Perales & Western, 2015; Kim & Cheung, 2015). Following this line of argument, first- and second-generation immigrants' gender ideology is expected to predominantly reflect the cultural beliefs of their country of origin because of the importance of primary childhood socialization. The context of the destination country with regard to gender ideology should have a weak influence on immigrants' gender attitudes with respect to the country-of-origin's gender norms. In support of this argument, Arends-Tóth & Van de Vijver (2009) find no generational differences among Turks, Moroccans, Surinamers and Antilleans immigrants in the Netherlands with regard to gender-role values. Ersanilli (2012) also finds no generation gap in gender role attitudes of Turkish immigrants across three different destination countries: Germany, France and the Netherlands. This line of research would suggest that cultural differences persist across a migrants' generation regardless of the context where secondary socialization occurs. On the basis of the literature discussed above we formulated our first hypothesis:

> *Hypothesis 1:* Net of contextual factors in the destination country, views towards gender roles in the country-of-origin will positively influence first- and second-generation immigrants' gender role attitudes. In other words, immigrants from countries with traditional (egalitarian) gender norms will be more likely to adopt more traditional (egalitarian) attitudes towards gender roles regardless of the context in which they live.

Findings based on the socialization theory are, however, challenged by the life course perspective on the development of gender ideology, which argues that gender role attitudes are context dependent (Baxter et al., 2015; Kim & Cheung, 2015).

123

Exposure-based explanations also support the idea that when exposed to gender-egalitarian behavioral norms and ideology, individuals tend to also develop more egalitarian gender role attitudes (Brooks & Bolzendahl, 2004; Davis & Greenstein, 2009). For example, Moore & Vanneman (2003) find that living in a state, where the proportion of religious fundamentalists is high, fosters the adoption of traditional gender attitudes. Baxter et al. (2015) and Guo & Gilbert (2012) find greater levels of gender egalitarianism in social democratic countries. According to Cha & Thébaud (2009), in countries with higher economic development, men's gender ideology is also more egalitarian. Furthermore, macro-level gender equality with respect to objective outcomes (e.g. educational attainment, female labor force participation, standard of living, and health) positively predicts egalitarian attitudes towards female employment (Röder & Mühlau, 2014; Yu & Lee, 2013).

The context of the destination country will also influence first- and second-generation immigrants' gender ideology. Living in a country where institutions and behavioral norms are either more traditional or more egalitarian with respect to their country-of-origin may incentivize immigrants to re-evaluate and change their gender role attitudes. For example, Huschek, de Valk & Liefbroer (2011) find that second-generation Turks have different gender-role behavior according to their country of destination. Therefore, cultural beliefs with respect to gender roles in the country-of-origin may only play a weaker role in explaining immigrants' gender role attitudes once considering contextual factors. On the basis of the literature discussed above we formulated our second hypothesis:

> *Hypothesis 2:* Once behavioral norms towards gender roles in the destination country are considered, country-of-origin gender ideology has
> a weaker influence on immigrants' gender role attitudes.

In line with the predictions of the life course perspective, Davis (2007) shows that social and background factors cannot fully account for gender ideology trajectories of young adults, rather experiences and exposure are linked to changes in gender role attitudes after adolescence. Therefore, the family-of-origin effects on gender ideology diminishes as young adults transition from adolescence to adulthood (Davis, 2007). Extending this argument to the migration experience, the length of exposure to the

destination country may moderate the relationship between immigrants' cultural heritage and their gender ideology. For example, Kalmijn (2010) finds that children of mixed marriages are better integrated in the Netherlands through more diverse socialization opportunities. Also, Dasgupta (1998) shows that the intergenerational transmission of attitudes towards women in the Asian Indian immigrant community in the United States weakens as children become older. Diehl, Koenig & Ruck-deschel (2009) find that secular second-generation Turks in Germany hold more egalitarian gender role attitudes with respect to first generation migrants. Merz, Özeke-Kocabas, Oort & Schuengel (2009) show that, in the Netherlands, second-generation immigrants have weaker family solidarity values with respect to the first immigrant generation. On the basis of the literature discussed above we formulated our third hypothesis:

> *Hypothesis 3:* The longer the length of stay in the destination country, the weaker the influence of gender norms in country-of-origin is on immigrants' gender role attitudes. The relationship between country-of-origin gender norms and immigrants' gender attitudes is expected to be weaker for second-generation immigrants and stronger for recently arrived immigrants.

4.3   Data

In our main analysis, we use data from the European Social Survey (ESS). The ESS consists of repeated cross-sectional individual-level surveys, which are conducted every two years. The first one was conducted in 2002 and the latest in 2014. Each round of surveys includes a core module as well as rotating sections on specific themes. The sample of countries has changed over the years and also includes guest countries from outside of Europe. We focus on the second, the fourth and fifth rounds of the ESS, excluding others for lack of information on the gender item under study[2]. The interviews have been carried out, respectively, between 2004-2006, 2008-2011

---

[2]We exclude Israel from our analysis because it is the only country in our sample whose population is predominantly composed of first- or second-generation immigrants making it an outlier when it comes to studying an immigrant sample. (In the ESS sample for Israel, 71% of respondents self-identify as either first- or second-generation immigrants).

and 2010-2012. We select first- and second-generation immigrants, and we obtain a final sample of 17,240 respondents in 33 destination countries and from 96 countries of origin. The sample size of immigrants in each country of destination and ESS round is described in Table 4.1.

In this study, we focus on one dimension of gender role attitudes, namely on the perceived adequate relative roles for women in the labor market. To measure this concept, we use the following survey question: "When jobs are scarce, men should have more right to a job than women." One advantage of this survey question is that it has been extensively used to measure gender attitudes towards working women (Arpino et al., 2015; Arpino & Patrício Tavares, 2013; Fortin, 2005; Seguino, 2007). Another advantage of this survey measure is that it is present in several surveys and waves of the World Values Surveys and European Value Studies, which can be used to measure country-of-origin culture in a wide sample. Finally, theoretically, it is one of the few available gender items that provides a clear juxtaposition between men and women in terms of the adequacy of their respective gender roles (See Arpino et al. (2015) for an extensive discussion on the theoretical and measurement quality of existing gender items in the WVS-EVS).

In the empirical analysis, we test whether the country-of-origin gender culture has a persistent effect on immigrants' gender attitudes in their country of destination. The dependent variable of interest measures individual-level gender attitudes towards working women and is based on the following survey question: "When jobs are scarce, men should have more right to a job than women." The respondents are asked how much they agree or disagree with the statement and choose their answer from a 5-point Likert scale going from 0 'strongly agree' to 5 is 'strongly disagree' [3]. Higher values are interpreted as gender egalitarian views while lower values are considered to be traditional views towards working women.

The immigration status of the respondents is determined by their country of birth as well as their parents' country of birth. Second generation immigrants are respondents that are born in the country of destination but that have at least one

---

[3]'Don't know' and 'refusal' are coded as missing. In the original ESS sample, 2.3% of responses on this question (mnrgtjb) are missing including 'Don't know' and 'refusal'.

parent born in a foreign country. For second-generation immigrants with both parents born abroad, the country of origin is defined as the mother's country of birth. For only 387 cases, the mother's country of birth is different from the father's. In the robustness check, we replicate the empirical analyses using the father's country of birth for these 387 cases and the results remain unchanged. For second-generation immigrants with only one parent born abroad, the country of origin is the country of birth of the one foreign parent. First generation immigrants are respondents that are not born in the country of destination, and thus their country of origin is defined as their country of birth. Further detailed information is provided in the supplementary materials explaining how the immigrant status is determined.

The first main independent variable, the country-of-origin gender ideology, is matched to each respondent on the basis of their country of origin and on the survey year. The level of gender norms in the country-of-origin is measured as the share of respondents in the country of origin who disagree with the statement "When jobs are scarce, men should have more right to a job than women." The data for the country of origin rely on two sources of data: the ESS and the harmonized World Values Surveys and the European Value Studies (WVS/EVS). In the WVS/EVS, the same survey question has been asked but the respondents are offered a slightly different scale: (i) 'agree', (ii) 'disagree', and (iii) 'neither'. As with the ESS, we use the share of people in country of origin who disagree with the statement. In order to assess, the consistency between both measures, we calculate the correlation between the ESS and the WVS/EVS indicators when both are available on the same country/year and we find a correlation of 0.84. Table 4.S1 reports the values of the gender norms indicator for each country and ESS round. Also, further information is provided in the supplementary materials to explain how the country-of-origin gender ideology is constructed.

The second main independent variable is the length of stay in the country of destination, which we use to distinguish between newly arrived immigrants and those that have lived in the country of destination for a long period of time. This variable takes the following 5 categories: 2nd generation, more than 20 years, 11-20 years, 6-10 years, and 1-5 years. In the second and fourth round of the ESS,

the length of stay variable is categorical, whereas in the fifth round of the ESS, the actual year of arrival was asked (further detailed information is provided in the supplementary materials explaining how this variable was harmonized across ESS rounds).

The length of stay variable is particularly important to our analyses as we include immigrants from both the first- and second-generation. The length of stay provides a more accurate measure of the exposure to the country of destination. We, therefore, interact the length of stay variable with the country-of-origin gender ideology. We expect that the different experiences of immigration provide an additional test of the relationship between the country-of-origin gender ideology and immigrants' gender attitudes in their country of destination. In particular, if the culture in the country-of-origin does have a persistent influence on immigrants' gender attitudes, we expect this effect to decrease with the length of stay in the country of destination.

At the destination-country level, two independent variables are also included to capture behavioral norms with regard to gender roles in the country of destination. First, the ratio of female/male labor force participation is considered to capture the relative difference between women and men in the labor market (Blau, Kahn & Papps, 2011). Second, we include the share of women in national parliaments to reflect the degree to which women and men equally participate in political life (Greenstein & Davis, 2006; Kabeer, 2005). Both relative indicators capture whether the context of residence provides more or less gender-egalitarian examples in economic and political life.

At the country-of-origin and -destination levels, two country-level characteristics are included as control variables. The first is the total fertility rate (TFR), the number of children that would be born to a woman if she were to live to the end of her childbearing years and bear children in accordance with age-specific fertility rates of the specified year. Fertility rates may be connected to gender ideology in the country of origin and gender attitudes in the country of destination through women's preparedness to work (Frank & Hou, 2015). The second is the Human-Development Indicator (HDI), which is a composite measure of three dimensions of human development, i.e. life expectancy, education and economic development. As

shown by Inglehart & Norris (2003), economic development is strongly correlated with egalitarian gender role attitudes.

At the individual-level, several control variables are included to take into account compositional differences in immigrants' characteristics coming from and living in different countries (for a complete review of the social and demographic background characteristics of gender-egalitarian attitudes see Davis & Greenstein (2009)). Women are found to have more egalitarian gender ideology (e.g. Brooks & Bolzendahl, 2004). Also, education has been shown to be a consistent predictor of gender-egalitarian attitudes (e.g. Cunningham, Beutel, Barber & Thornton, 2005). Married individuals tend to be more traditional with respect to individuals who are divorced (e.g. Moore & Vanneman, 2003). Age captures different life stages, which are important for gender-egalitarian attitudes. The data is cross-sectional, therefore, age also indirectly captures cohort differences. This is important because cohort-replacement is a critical factor to account for changes in gender ideology (e.g. Brewster & Rindfuss, 2000). Living in more urban areas leads to more gender-egalitarian attitudes (e.g. Johnson, 1999).

Accordingly, we include the following control variables: gender, level of education, marital status, age and urbanity. For the gender variable, women are the reference category. The level of education is coded as 4 categories: less than secondary, lower-secondary, upper secondary, and tertiary. Marital status takes 4 different values: never-married, partnered, separated, and widowed. The age variable is categorized into 4 intervals: 15-29, 30-44, 45-59, and 60+. The urbanity measure has three categories: urban, town or small city, rural. Finally, we also include an indicator variable for the three different survey rounds used for the analysis: the 2nd, the 4th and the 5th.

4.4 Method

Our data structure calls for the application of multilevel cross-classified models. In fact, we observe immigrants clustered in countries of origin and countries of destination. These two levels of classification are not nested as in a standard multilevel model. Instead, they are cross-classified, as immigrants from the same country of ori-

gin can be present in different destination countries. Multilevel modeling, in general, allows us to take into account the non-independence of units in the same cluster (for example, the country of origin) and to include in the same model variables defined at different levels (Snijders & Bosker, 2012). Multilevel cross-classified models allow one to partition the relative importance of the two sources of heterogeneity that we want to study (country-of-origin and destination), and testing the role of macro-level variables measured both in the countries of origin and destination. Cross-classified multilevel analyses allow one to estimate the variability in the outcome due to the effect of countries of destination after the heterogeneity of immigrants' origin has been controlled for and vice versa (see Kalmijn & Van Tubergen, 2010; Van Tubergen, Maas & Flap, 2004; Vitali & Arpino, 2015). A multilevel linear cross-classified model can be represented as:

$$Y_{i(o,d)} = X_{i(o,d)}\beta + Z_o\gamma + W_d\delta + u_o + v_d + e_{i(o,d)} \tag{4.1}$$

where the subscript i(o,d) indicates an immigrant belonging to a generic unit of the cross-classified structure, where $i = 1, 2, \ldots, n(o, d)$; $o = 1, 2, \ldots, 96$ indicates the country of origin and $d = 1, 2, \ldots, 33$ indicates the country of destination. Y indicates the outcome. Individual, country-of-origin and country-of-destination covariates are identified with X, Z, and W, respectively. The individual error term (e) and the origin (u) and the destination (v) error terms are assumed to be normally distributed with zero mean and variance to be estimated (Snijders & Bosker, 2012). These variances are of interest in this paper because they measure the importance of the two sources of heterogeneity under analysis. The country-of-origin and country-of-destination covariates are centered on their respective grand mean.

4.5 Results

4.5.1 Descriptive Results

Immigrants across Europe, Russia and Turkey come from 96 countries that differ significantly widely with regard to their views on women's gender roles in the labor market. To illustrate this variation, we present in Figure 4.1 a map of the world

representing the share of respondents who disagree that men should have more right to a job than women when jobs are scarce for each country of origin (the values correspond to the average across the three different survey years, see Table 4.S1 for further details). From Figure 4.1, we can observe that there is important variation across countries regarding gender role attitudes towards women's employment.

Table 4.2 summarizes the variables described in the Data section and used for the empirical analyses. First- and second-generation immigrants in our sample come from more than ninety countries. Therefore, we grouped respondents into larger geographical regions in order to present the descriptive statistics in a unique table. The definition of each region is explained in the supplementary materials in Table 4.S2.

As already illustrated in the descriptive map (Figure 4.1), country-of-origin gender ideology varies widely across the different regions in the sample. Countries in the Middle East and Northern Africa have the least egalitarian gender norms, whereas Northern Europe and North America have the most egalitarian indicators of gender norms. Descriptively, the ranking of the country-of-origin gender norms and the gender role attitudes of immigrants appear to follow a similar pattern. At the individual level, on average, Middle Eastern and North African immigrants have more traditional gender attitudes, and as expected, the opposite is true of Northern European and American immigrants. Country-of-destination characteristics are more homogeneous across regions of origin. This is to be expected because the countries of destination are predominantly concentrated in Europe, and thus, represent a less diverse sample with respect to the countries of origin. For example, The HDI ranges between 0.81 to 0.89, the FLFP/MLFP ratio from 80.97% to 88.48%.

At the individual-level, immigrants' characteristics represent an important source of variation across regions. Immigrants from European, Post-Soviet, and Middle Eastern countries are predominantly born in the country of destination and are, therefore, second-generation immigrants. Whereas Asia, Latin America, Northern Africa and Sub-Saharan Africa appear to reflect more recent waves of immigration. A similar pattern extends to the age distribution, where respondents from newer regions of origin are younger with respect to other immigrants in our sample. For

131

example, immigrants from Latin America, Northern Africa and Sub-Saharan Africa are much younger with respect to other regions of origin.

The regional differences are not only important in the experience of immigration, i.e. the length of stay in the country, but also in the level of education and marital status. For instance, around 40% of immigrants from Northern Africa, America and Europe are never-married, with respect to only 27% for Middle Eastern immigrants. In parallel, Asian and North American immigrants have the larger share of tertiary-educated respondents ranging around 40%, against only 16% of Middle Eastern immigrants. Furthermore, immigrants from Latin America and Post-Soviet countries are predominantly women.

As can be seen from the descriptive statistics, the variation in the composition of the sample can represent another potential source of explanation for finding different levels of gender attitudes among immigrant groups. Age, education and marital status are, for instance, characteristics that are closely related to adhering to more or less egalitarian gender attitudes. We now turn to the multivariate results to disentangle these different sources of variation.

4.5.2   Multivariate Results

Model Specifications

We first considered a null model, i.e. a model without any covariate, but with only the three random errors of Equation 4.1. The purpose of this model is to understand how the variation in the outcome (gender attitudes) can be decomposed among the different levels under study (individual, country-of-origin and destination). We then considered 6 different models. Model 1 includes country-of-origin gender ideology and the ESS round indicator. Model 2 distinguishes immigrants by length of stay and adds individual-level control variables. Model 3 further includes TFR and HDI in the country of origin. Model 4 adds the country-of-destination variables: TFR, HDI, FLFP/MLFP ratio and the share of women in national parliaments and excludes the country-of-origin control variables, i.e. TFR and HDI. Model 5 includes all the individual-level control variables as well as the country-of-origin and country-of-destination characteristics. Finally, Model 6 includes interactions between length

of stay and the country-of-origin gender ideology.

Random Effects Estimates

In Table 4.3, we summarize the random effects and their standard errors for the three levels of the model, i.e. country of origin, country of destination and the individual, and for each of the six model specifications described above. To better understand the changes in the random effects estimates with different sets of independent variables, we show the change in variance with respect to the null model (column "$\Delta\%$ variance") as well as the intraclass correlations. This indicates what proportion of total variance in gender attitudes can be attributed to which level.

Estimates of random errors variances in the null model of Table 4.3 indicate that there is a significant variation in immigrants' gender attitudes both according to their country of origin and destination. The percentage of variance attributable to the country of origin is small but not negligible (5%). We notice that the amount of variance attributable to the country of destination is considerably higher (about 20%). Including gender attitudes measured in the country of origin reduces the variance at the country-of-origin level by about a third (Model 1). These results provide initial evidence that the country-of-origin gender norms are maintained by immigrants in the country of destination. Including individual-level covariates (Model 2 and the following) reduces as expected the variance at the individual-level but also at the country-of-origin level, indicating that these individual characteristics are accounting for an important part of the differences observed across immigrants' countries of origin. This is also true about the country-of-destination variation, which is reduced by about 19% when individual-level control variables are included. Model 3 shows that country-of-origin control variables further reduce the variation observed at that level. Therefore, compositional effects account for differences observed across immigrants' country of origin but also country of destination.

In Model 4 including country-of-destination variables substantially reduces the country-of-destination variation as expected. These variables, together with the individual-level control variables, explain almost all the variation observed at that country-of-destination level indicating a strong association between contextual fac-

tors in the country-of-destination and immigrants gender attitudes. Model 5 includes contextual variables at both the country-of-origin and country-of-destination levels and confirm these associations. Finally, in Model 6, the inclusion of the interaction between the length of stay and the country-of-origin gender ideology further reduces the variation at the country-of-origin level.

Fixed Effects Estimates

Table 4.4 reports the fixed-effects estimates of the linear cross-classified models for the six different models described in the model specifications section. Model 1, which includes the ESS round indicator variable, shows a strong significant association between the country-of-origin gender ideology and immigrants' gender attitudes towards working women. As expected, immigrants that come from more gender-egalitarian countries tend to hold more gender egalitarian attitudes across different countries of destination. The relationship is significant at the 0.001 level but the size effect is rather modest. For example, coming from a country where about 80% of the population disagrees with the 'jobs are scarce' statement, which is the case of Canada for example, would increase the dependent variable by about 0.2 points with respect to a country with an average value of gender ideology (50.54%) holding all other covariates constant (0.007 x (80-50.54) = 0.2).

The relationship remains unchanged when including individual-level control variables as specified in Model 2. Therefore, while compositional effects contribute to explaining variation in gender-egalitarian attitudes between countries of origin, they do not reduce the relationship between country-of-origin gender ideology and immigrants' gender role attitudes. Of particular interest at the individual-level is the relationship between the length of stay in the destination country and the dependent variable. First generation immigrants are separated in 4 groups according to their length of stay in the country of destination and compared to second generation immigrants (the reference category). As expected, first generation immigrants have more "negative" gender attitudes, i.e., they hold more traditional attitudes, than second generation immigrants. The estimates also show evidence of assimilation: as length of stay increases, first generation immigrants' attitudes become more similar

134

to those of second generation immigrants.

In Table 4.4, Model 3, which includes contextual variables at the country-of-origin, confirms this association. Nevertheless, the size of the country-of-origin gender ideology coefficient is slightly reduced (from 0.007 to 0.006). Turning to the country-of-origin control variables, the HDI covariate is positively associated to individual-level gender egalitarian attitudes. This result is in line with the literature, which finds that higher levels of economic development are associated to a higher adoption of gender egalitarian attitudes (e.g Inglehart & Norris, 2003). The coefficient for TFR is positive but it is not statistically significant. The first three models support the first hypothesis that origin-country gender ideology is significantly associated to immigrants' gender role attitudes. The relationship changes little when individual-level characteristics are included (Model 2 in Table 4.4) and country-of-origin variables are controlled for (Model 3 in Table 4.4). These findings underline the importance of primary socialization and parent-to-children transmission of gender ideology in shaping gender role attitudes.

The life course perspective suggests, however, that gender ideology is context-dependent. Therefore, in Model 4 (Table 4.4) we include several destination variables to control for differences in countries of destination. While the relationship between origin-country gender ideology and immigrants' gender role attitudes remain unchanged, several destination-country variables are also significant. In particular, living in a country where human development (HDI) increases the adoption of gender-egalitarian attitudes towards female employment. Also, as expected, in a context where women participate in high numbers in the labor market with respect to men (FLFP/MLFP), immigrants have more egalitarian gender ideology. The coefficient for the share of women in national parliament is positive but not statistically significant. This is, in part, due to the high correlation with HDI ($\rho = 0.62$) because the relationship is significant when the share of women in parliament in included on its own in the model (Results are not shown but are available upon request). The coefficients of destination-country HDI and FLFP/MLFP remain unchanged after controlling for country-of-origin variables (Model 5). The coefficient of origin-country gender ideology decreases only slightly in size when both country-of-origin

135

and country-of-destination controls are included. Taking Model 5 as a benchmark, a 35 percentage-point increase in country-of-origin gender ideology, which closely corresponds to the difference between Morocco and Argentina (See Table 4.S1), is associated with a 0.2 increase in the dependent variable.

Taken together, these results provide empirical support for the first hypothesis and suggest that country-of-origin gender norms are persistently associated to immigrants' gender norms. This relationship holds even when controlling for several destination-country variables and behavioral norms that are directly related to female employment (Model 4 and Model 5 in Table 4.4). The findings only provide weak support for the second hypothesis. The results show that destination-country variables are relevant for immigrants' gender attitudes but they do not weaken the persistent association with gender norms in the country of origin. In other words, both origin and destination variables are independently relevant to understand immigrants' gender attitudes.

We turn to the third hypothesis to test whether the relationship between origin-country gender norms and immigrants' gender attitudes weakens as the length of stay in the destination-country increases. In Model 6, the length of stay is interacted with the country-of-origin gender ideology. Note that the contextual variables are centered on their grand mean so that the coefficients of the length of stay dummy variables can be referred to as a (hypothetical) country with average gender ideology (Mean = 50.54%, See Table 4.2). We can see that the pattern of association between the length of stay and immigrants' gender attitudes for the average country are as that commented above for Model 2. The coefficients of the interaction terms between a length of stay shorter than 20 years and the country-of-origin's gender attitudes are positive and significant, indicating that the effect of the cultural background is stronger for those who spent less time in the destination country.

To better interpret the interaction, we plot the predicted values of immigrants' attitudes for different levels of gender norms in the country-of-origin and by length of stay in Figure 4.2. Figure 4.2 shows that, for second generation immigrants, there is barely any relationship between their gender attitudes and those prevalent in their country-of-origin. The cultural background seems to be important only for

first generation immigrants and this is increasingly important (as demonstrated by the steeper lines) as the length of stay decreases. We also can read Figure 4.2 in a different way. If we consider countries of origin with the lowest scores on the gender attitude indicators (toward the left part of the graph), second generation immigrants and immigrants that spent more than 20 years in the country of destination show the highest values on the attitude indicators (i.e., more egalitarian). The gap between them and immigrants than spent less time in the country of destination diminishes as we consider countries of origin with more gender egalitarian attitudes. Attitudes of different immigrant groups tend to become indistinguishable when moving toward countries with the highest scores on the gender attitudes indicator. Taken together, Model 6 fully supports the third hypothesis in that country-of-origin gender norms matters increasingly less for immigrants' gender attitudes as they remain longer in their destination countries.

Finally, we discuss briefly the control variables in the models. For sake of space, the full tables for each of the models in Table 4.4 are presented in the supplementary materials in Table 4.S3. In line with previous findings (see Davis & Greenstein (2009) for a review), women and higher-educated immigrants have more egalitarian gender role attitudes. Older respondents and immigrants living in rural areas or smaller town are more traditional with respect to those in urban areas. Also, partnered and widowed immigrants hold more traditional gender ideology towards working women.

4.6   Further Analyses and Robustness Checks

In addition to the main analysis discussed previously, we carried out additional analyses and several robustness checks. We take as a reference Model 5 and 6 presented in Table 4.4, which both include all the control variables at the three different levels.

First, one potential concern could be that the country-of-origin and country-of-destination control variables are not sufficient to assess whether the relationship between origin-country gender norms and immigrants' gender role attitudes is spurious. To address this issue, we replicate the analysis using a two-level hierarchical linear model with the country-of-origin as the higher-level unit and including dummy

variables for the country of destination ('Country-of-destination fixed effects' column in Table 4.5). Then, we adopt the same strategy but we use the country-of-destination as the higher-level unit and include dummy variables for the country of origin ('Country-of-origin fixed effects' column in Table 4.5). Under both specifications, Model 5 and Model 6 are consistent with the main results summarized in Table 4.4.

Second, as described in the data section, about 387 second-generation immigrants have parents that are born in different countries. For the main analysis presented in Table 4.4, we used the mother's country-of-birth as the respondents' country of origin. We test whether this decision influences our results by replicating the analysis using father's country of birth for those 387 cases. The sample size decreases slightly because in a few cases the fathers are born in countries for which we do not have data for the gender ideology variable. The findings are summarized in Table 4.5 in column 'father's country of birth', which are consistent with our estimates presented in Table 4.4.

Third, within the epidemiological-approach literature, there is no clear consensus on which point in time should be chosen to measure the country-of-origin covariates (see Fernández, 2011). In the main analysis, we use the year of observation to assign the origin-country variables. It allows us to use the three waves of the ESS and also to have a better coverage for the country-of-origin gender ideology indicator, which would not be available for years prior to 1990 for a majority of countries. Nevertheless, to assess whether our results are sensitive to the choice of observation time, we perform a robustness check using immigrants' year of migration to assign the origin-country variables. This additional test can only be carried out for the fifth ESS wave because the exact year of arrival was not asked in the previous waves. The sample is further constrained by data availability for the gender norms indicator in the country of origin (N = 1,516). In fact, data availability tends to be biased towards more recent immigrants. The findings are summarized in Table 4.5 in column 'gender ideology at year of arrival'. The estimates' sign is consistent with the main results (Table 4.4) but the coefficients lose some statistical significance, which is to be expected given the reduced sample size.

Finally, we compare the findings we reported above using length of stay as one of the key explanatory variables with those using age at arrival. The socialization theory underlines the importance of the intergenerational transmission of values but also of a critical age at which attitudes are formed. Unfortunately, it is only possible to carry out the analysis with age at migration for the fifth wave of the ESS data. Another limitation to keep in mind is that the data at hand is cross-sectional and, consequently, we cannot disentangle the effects of age, age at arrival and length of stay. Using only the fifth wave of the ESS and age at arrival as a categorical variable (Second-generation, 0-18 years old, 19-30 years old, older than 30 years old), we replicate the main models selected from Table 4.4 and summarize the results in Table 4.6. We find that immigrants that have arrived before the age of 18 are not statistically different from second-generation immigrants in their gender attitudes. This finding is also consistent with the existing literature on the assimilation of fertility behaviors of immigrants, which shows that child migrants have similar behaviors to natives (e.g. Adserà & Ferrer, 2014). Also, the older immigrants are when they migrate, the less egalitarian is their gender ideology. In line with the findings with length of stay, the results show that for second-generation immigrants and child migrants, origin-country gender norms do not shape their own gender attitudes. In contrast, origin-country gender norms still matter for adult immigrants' gender attitudes.

4.7   Discussion

In this article, we study the influence of culture on gender role attitudes by using country-of-origin differences in gender norms among immigrants living in 33 destination countries. To carry out our analyses, we apply cross-classified multilevel models to a sample of first- and second-generation immigrants from the European Social Survey. Our results show that gender ideology in the country-of-origin is significantly associated with immigrants' gender attitudes. In line with our expectations, we find that cultural heritage plays an important role in explaining immigrants' attitudes in their countries of destination. However, as hypothesized, the importance of the origin-country factors diminishes as immigrants extend their stay in

the country of destination. Furthermore, contextual factors also play their part in predicting gender attitudes. More specifically, behavioral norms regarding gender roles in the public sphere and human development levels are positively associated to immigrants' gender ideology.

Our results show that the intergenerational transmission of gender ideology cannot solely explain attitude formation. Indeed, for second-generation and long-residing immigrants, origin-country gender norms do not shape their own gender attitudes, which suggests that secondary socialization and exposure to different behavioral norms and institutions also matter for attitude formation. In further analyses on sub-sample of the data, using age at migration, we also show that the origin-country effects become irrelevant for both second-generation immigrants and child-migrants. While this is beyond the scope of this article, we can speculate that child migrants have lower language barriers and are also exposed to cultural norms through school and neighborhood to form their gender attitudes. Conversely, our empirical findings show that migrants who arrived recently in the country of destination carry with them gender norms from their countries of origin. Our additional analyses also support the idea that this also true for adult migrants (immigrants that arrived in the country of destination at age 18 and above).

We conducted several checks to assess the robustness of our results to unobservable heterogeneity both at the origin-country and destination-country levels, alternative operationalization of the country-of-origin variable and the choice of observation time for the origin-country variables. We also carry out further analyses using age at migration instead of length of stay to differentiate different exposures to the destination country. Overall, our results remain robust throughout the different model specifications. We consistently find that the origin-country gender ideology positively influences immigrants' gender role attitudes towards working women and that this relationship weakens as immigrants' stay in the destination country increases.

Our analyses have some limitations. Given the cross-sectional nature of the data, we cannot differentiate length-of-stay effects from differences in gender attitudes between immigrants that migrate at different points in time. Our findings show that

recent immigrants have more traditional gender role attitudes with respect to long-residing immigrants. We interpret these differences as immigrants adopting more gender-egalitarian attitudes when they stay longer in their destination countries. If the length-of-stay differences were attributed to pre-migration differences within country, it would mean that immigrants' gender attitudes from earlier migration waves were more egalitarian with respect to those of recent migrants from the same country. Both explanations are plausible but the latter appears less intuitive. Nevertheless, only panel data would allow us to us to disentangle the adaption hypothesis from the selection one.

Another limitation of this study is that it is limited to only one dimension of gender-egalitarian attitudes, namely attitudes towards female employment. Therefore, our findings cannot be generalized to other dimensions of gender ideology, such as views towards housework or maternal employment. Nevertheless, to our knowledge, this is the only dimension that can be used to carry out the epidemiological approach using such a wide sample of countries of origin.

The analyses focused on the relationship between origin-country gender ideology and immigrants' gender attitudes across different countries. Therefore, the focal point of the discussion has been centered on the heterogeneity in origins in shaping gender ideology. Another relevant question, however, would be to explore the drivers of adaptation to the destination-country gender ideology. Future research should explore to what extent adaptation may hinge on the distance in gender ideology between the destination and origin country but also whether it is conditional on immigrants' characteristics and environment. For example, recent research has stressed the importance of education (Adserà & Ferrer, 2016) and linguistic proximity (Adserà & Pytlikova, 2015) for immigrants' assimilation in the labor market.

References

Aassve, A., Billari, F. C., & Pessin, L. (2012). Trust and fertility dynamics. Dondena Working Papers n°55.

Adserà, A. & Ferrer, A. (2014). Fertility adaptation of child migrants to Canada. *Population Studies*, *68*(1), 65.

Adserà, A. & Ferrer, A. (2016). Occupational skills and labour market progression of married immigrant women in Canada. *Labour Economics*, *39*, 88–98.

Adserà, A. & Pytlikova, M. (2015). The role of language in shaping international migration. *The Economic Journal*, *125*(586), 49–81.

Alesina, A. F., Giuliano, P., & Nunn, N. (2013). On the origins of gender roles: Women and the plough. *Quarterly Journal of Economics*, *128*(2), 469–530.

Arends-Tóth, J. & Van de Vijver, F. J. (2009). Cultural differences in family, marital, and gender-role values among immigrants and majority members in the Netherlands. *International Journal of Psychology*, *44*(3), 161–169.

Arpino, B., Esping-Andersen, G. s., & Pessin, L. (2015). How do changes in gender role attitudes towards female employment influence fertility? A macro-level analysis. *European Sociological Review*, *31*(3), 370–382.

Arpino, B. & Patrício Tavares, L. (2013). Fertility and values in Italy and Spain: A look at regional differences within the European context. *Population Review*, *52*(1).

Baizán, P., Arpino, B., & Delclós, C. (2016). The effect of gender policies on fertility: The moderating role of education and normative context. *European Journal of Population*, *32*(1), 1–30.

Batalova, J. A. & Cohen, P. N. (2002). Premarital cohabitation and housework: Couples in cross-national perspective. *Journal of Marriage and Family*, *64*(3), 743–755.

Baxter, J., Buchler, S., Perales, F., & Western, M. (2015). A life-changing event: First births and men's and women's attitudes to mothering and gender divisions of labor. *Social Forces*, *93*(3), 989–1014.

Blau, F. D., Kahn, L. M., & Papps, K. L. (2011). Gender, source country characteristics, and labor market assimilation among immigrants. *The Review of Economics and Statistics*, *93*(1), 43–58.

Bliss, S. B. (1988). The effect of feminist attitudes in parents on their kindergarten children. *Smith College Studies in Social Work*, *58*(3), 182–192.

Brewster, K. L. & Rindfuss, R. R. (2000). Fertility and women's employment in industrialized nations. *Annual Review of Sociology*, *26*, 271–296.

Brooks, C. & Bolzendahl, C. (2004). The transformation of us gender role attitudes: Cohort replacement, social-structural change, and ideological learning. *Social Science Research*, *33*(1), 106–133.

Cha, Y. & Thébaud, S. (2009). Labor markets, breadwinning, and beliefs how economic context shapes men's gender ideology. *Gender & Society*, *23*(2), 215–243.

Cunningham, M., Beutel, A. M., Barber, J. S., & Thornton, A. (2005). Reciprocal relationships between attitudes about gender and social contexts during young adulthood. *Social Science Research*, *34*(4), 862–892.

Dasgupta, S. D. (1998). Gender roles and cultural continuity in the asian indian immigrant community in the US. *Sex Roles*, *38*(11-12), 953–974.

Davis, S. N. (2007). Gender ideology construction from adolescence to young adulthood. *Social Science Research*, *36*(3), 1021–1041.

Davis, S. N. & Greenstein, T. N. (2009). Gender ideology: Components, predictors, and consequences. *Annual Review of Sociology*, *35*, 87–105.

Davis, S. N. & Wills, J. B. (2010). Adolescent gender ideology socialization: Direct and moderating effects of fathers'beliefs. *Sociological Spectrum*, *30*(5), 580–604.

Diehl, C., Koenig, M., & Ruckdeschel, K. (2009). Religiosity and gender equality: Comparing natives and Muslim migrants in Germany. *Ethnic and Racial Studies*, *32*(2), 278–301.

Dinesen, P. T. (2013). Where you come from or where you live? Examining the cultural and institutional explanation of generalized trust using migration as a natural experiment. *European Sociological Review*, *29*(1), 114–128.

Doepke, M., Tertilt, M., & Voena, A. (2012). The economics and politics of women's rights. *Annual Review of Economics*, *4*, 339–372.

Ersanilli, E. (2012). Model (ling) citizens? Integration policies and value integration of turkish immigrants and their descendants in Germany, France, and the Netherlands. *Journal of Immigrant & Refugee Studies*, *10*(3), 338–358.

Esping-Andersen, G. & Billari, F. C. (2015). Re-theorizing family demographics. *Population and Development Review*, *41*(1), 1–31.

Fernández, R. (2011). Does culture matter? In J. Benhabib, M. O. Jackson, & A. Bisin (Eds.), *Handbook of Social Economics*, volume 1A chapter 11, (pp. 481–510). New York: North Holland.

Fernández, R., Fogli, A., & Olivetti, C. (2004). Mothers and sons: Preference formation and female labor force dynamics. *The Quarterly Journal of Economics*, *119*(4), 1249–1299.

Fortin, N. M. (2005). Gender role attitudes and the labour-market outcomes of women across OECD countries. *Oxford Review of Economic Policy*, *21*(3), 416–438.

Frank, K. & Hou, F. (2015). Source-country gender roles and the division of labor within immigrant families. *Journal of Marriage and Family*, *77*(2), 557–574.

Fuwa, M. (2004). Macro-level gender inequality and the division of household labor in 22 countries. *American Sociological Review*, *69*(6), 751–767.

Glass, J., Bengtson, V. L., & Dunham, C. C. (1986). Attitude similarity in three-generation families: Socialization, status inheritance, or reciprocal influence? *American Sociological Review*, *51*(5), 685–698.

Goldscheider, F., Bernhardt, E., & Lappegård, T. (2015). The gender revolution: A framework for understanding changing family and demographic behavior. *Population and Development Review*, *41*(2), 207–239.

Greenstein, T. N. & Davis, S. N. (2006). Cross-national variations in divorce: Effects of women's power, prestige and dependence. *Journal of Comparative Family Studies*, *37*(2), 253–273.

Guo, J. & Gilbert, N. (2012). Public attitudes and gender policy regimes: Coherence and stability in hard times. *Journal of Sociology & Social Welfare*, *39*(2), 163.

Hook, J. L. (2006). Care in context: Men's unpaid work in 20 countries, 1965–2003. *American Sociological Review*, *71*(4), 639–660.

Huschek, D., de Valk, H. A., & Liefbroer, A. C. (2011). Gender-role behavior of second-generation Turks: The role of partner choice, gender ideology and societal context. *Advances in Life Course Research*, *16*(4), 164–177.

Inglehart, R. & Norris, P. (2003). *Rising tide: Gender equality and cultural change around the world*. New York: Cambridge University Press.

Johnson, N. E. (1999). Nonmetropolitan sex-role ideologies: A longitudinal study. *Rural Sociology*, *64*(1), 44–65.

Kabeer, N. (2005). Gender equality and women's empowerment: A critical analysis of the third millennium development goal. *Gender & Development*, *13*(1), 13–24.

Kalmijn, M. (2010). Consequences of racial intermarriage for children's social integration. *Sociological Perspectives*, *53*(2), 271–286.

Kalmijn, M. & Van Tubergen, F. (2010). A comparative perspective on intermarriage: Explaining differences among national-origin groups in the United States. *Demography*, *47*(2), 459–479.

Kawaguchi, D. & Miyazaki, J. (2009). Working mothers and sons' preferences regarding female labor supply: direct evidence from stated preferences. *Journal of Population Economics*, *22*(1), 115–130.

Kim, E. H.-W. & Cheung, A. K. L. (2015). Women's attitudes toward family formation and life stage transitions: A longitudinal study in Korea. *Journal of Marriage and Family*, *77*(5), 1074–1090.

Knudsen, K. & Wærness, K. (2008). National context and spouses' housework in 34 countries. *European Sociological Review*, *24*(1), 97–113.

Merz, E.-M., Özeke-Kocabas, E., Oort, F. J., & Schuengel, C. (2009). Intergenerational family solidarity: value differences between immigrant groups and generations. *Journal of Family Psychology*, *23*(3), 291.

Moen, P., Erickson, M. A., & Dempster-McClain, D. (1997). Their mother's daughters? the intergenerational transmission of gender attitudes in a world of changing roles. *Journal of Marriage and Family*, *59*(2), 281–293.

Moore, L. M. & Vanneman, R. (2003). Context matters: Effects of the proportion of fundamentalists on gender attitudes. *Social Forces*, *82*(1), 115–139.

Myers, S. M. & Booth, A. (2002). Forerunners of change in nontraditional gender ideology. *Social Psychology Quarterly*, *65*(1), 18–37.

Pampel, F. (2011). Cohort change, diffusion, and support for gender egalitarianism in cross-national perspective. *Demographic Research*, *25*(21), 667.

Pessin, L. (2015). Divorce trends and the changing context of gender norms in the united states: A micro-macro approach. Paper presented in San Diego at the Annual Meeting of the Population Association of America.

Röder, A. & Mühlau, P. (2014). Are they acculturating? Europe's immigrants and gender egalitarianism. *Social Forces*, *92*(3), 899–928.

Seguino, S. (2007). Plusça change? Evidence on global trends in gender norms and stereotypes. *Feminist Economics*, *13*(2), 1–28.

Sevilla-Sanz, A. (2010). Household division of labor and cross-country differences in household formation rates. *Journal of Population Economics*, *23*(1), 225–249.

Snijders, T. A. & Bosker, R. J. (2012). *Multilevel Analysis: An Introduction to Basic and Advanced Multilevel Modeling* (2 ed.). Thousand Oaks, CA: Sage Publications Ltd.

Sutfin, E. L., Fulcher, M., Bowles, R. P., & Patterson, C. J. (2008). How lesbian and heterosexual parents convey attitudes about gender to their children: The role of gendered environments. *Sex Roles*, *58*(7-8), 501–513.

Thornton, A., Alwin, D. F., & Camburn, D. (1983). Causes and consequences of sex-role attitudes and attitude change. *American Sociological Review*, *48*(2), 211–227.

Treas, J. & Widmer, E. D. (2000). Married women's employment over the life course: Attitudes in cross-national perspective. *Social Forces*, *78*(4), 1409–1436.

Van Tubergen, F., Maas, I., & Flap, H. (2004). The economic incorporation of immigrants in 18 Western societies: Origin, destination, and community effects. *American Sociological Review, 69*(5), 704–727.

Vitali, A. & Arpino, B. (2015). Living arrangements of second-generation immigrants in Spain: A cross-classified multilevel analysis. *Regional Studies, 49*(2), 189–203.

Willits, F. K. & Crider, D. M. (1989). Church attendance and traditional religious beliefs in adolescence and young adulthood: A panel study. *Review of Religious Research, 31*(1), 68–81.

Yu, W.-H. & Lee, P.-L. (2013). Decomposing gender beliefs: Cross-national differences in attitudes toward maternal employment and gender equality at home. *Sociological Inquiry, 83*(4), 591–621.

Tables

Table 4.1 – Sample Size

Destination country	ESS Round 2	ESS Round 4	ESS Round 5	Total
Austria	288	364	0	**652**
Belgium	246	290	283	**819**
Bulgaria	0	63	68	**131**
Croatia	0	220	44	**264**
Cyprus	0	97	70	**167**
Czech Republic	202	154	130	**486**
Denmark	111	141	165	**417**
Estonia	588	530	509	**1,627**
Finland	34	80	93	**207**
France	216	234	235	**685**
Germany	322	354	473	**1,149**
Greece	281	179	246	**706**
Hungary	77	49	69	**195**
Iceland	19	0	0	**19**
Ireland	196	300	427	**923**
Italy	28	0	0	**28**
Latvia	0	548	0	**548**
Lithuania	0	175	154	**329**
Luxembourg	680	0	0	**680**
Netherlands	208	188	146	**542**
Norway	138	147	174	**459**
Poland	50	63	52	**165**
Portugal	61	49	33	**143**
Romania	0	28	0	**28**
Russian Federation	0	217	273	**490**
Slovakia	118	120	129	**367**
Slovenia	51	215	161	**427**
Spain	83	179	178	**440**
Sweden	265	310	236	**811**
Switzerland	535	556	448	**1,539**
Turkey	45	50	0	**95**
Ukraine	432	187	361	**980**
United Kingdom	175	273	274	**722**
Total	**5,449**	**6,360**	**5,431**	**17,240**

Source = European Social Survey.

Table 4.2 – Descriptive statistics by region of origin

	Asia	Oceania	Eastern Europe	Latin America	Middle East	Northern Africa	North America	Northern Europe	Post Soviet	Southern Europe	Sub-Sah Africa	Western Europe	Total
Dependent variable													
Gender roles attitudes	3.66	3.82	3.37	3.93	3.07	3.31	3.99	4.06	3.17	3.54	3.83	3.75	3.50
Country-of-origin variables													
Gender ideology	29.11	70.20	44.31	63.48	19.92	30.12	69.73	73.60	41.74	55.23	38.78	63.37	50.54
Total fertility rate	2.35	1.90	1.38	2.21	2.38	2.52	1.96	1.88	1.53	1.41	4.47	1.57	1.67
Human-development indicator	0.66	0.92	0.81	0.74	0.71	0.62	0.90	0.89	0.76	0.82	0.53	0.89	0.80
Country-of-destination variables													
Total fertility rate	1.76	1.70	1.51	1.54	1.54	1.77	1.70	1.85	1.51	1.63	1.88	1.61	1.60
Human-development indicator	0.89	0.88	0.86	0.87	0.88	0.88	0.89	0.89	0.81	0.87	0.89	0.88	0.86
FLFP/MLFP	85.02	80.97	81.90	83.90	81.83	84.54	84.80	86.78	88.48	83.80	83.77	83.59	85.01
% women in national parliament	28.54	21.81	23.26	32.19	27.903	29.83	26.18	29.23	18.24	24.35	22.62	28.47	24.37
Individual-level variables													
Length of stay (Ref. 2nd gener.)													
More than 20 years ago	28.49	36.73	19.91	24.75	21.03	31.07	23.73	30.84	38.08	28.86	18.37	26.16	29.14
11-20 years ago	12.98	14.29	8.86	18.48	14.38	8.76	6.93	9.48	8.43	13.47	17.69	8.65	10.14
6-10 years ago	10.47	8.16	7.73	15.84	7.40	11.86	4.53	5.58	3.76	3.86	30.61	5.33	5.84
1-5 years ago	13.37	14.29	11.49	20.13	5.26	9.60	9.07	5.41	3.33	4.27	19.73	7.88	6.77
Gender (Ref. Female)													
Male	48.64	44.90	43.50	38.28	51.18	56.50	43.73	45.57	39.32	49.39	46.26	46.01	44.74
Marital status (Ref. Never married)													
Partnered	47.29	42.86	51.48	43.89	56.65	47.18	50.13	44.28	44.16	50.20	41.50	50.30	48.17
Separated	8.33	12.24	12.91	11.88	7.73	9.04	10.67	11.49	12.43	9.75	14.29	12.14	11.45
Widowed	3.29	2.04	9.59	3.30	8.58	2.26	3.20	5.41	13.76	6.48	4.76	7.61	8.73
Education (Ref. Less than sec.)													
Lower-secondary	19.38	16.33	16.79	23.43	23.07	23.73	12.53	15.95	13.78	21.13	18.37	15.29	16.92
Upper-secondary	29.26	40.82	53.18	36.30	31.97	34.46	36.00	36.20	42.25	42.84	23.81	41.72	41.68
Tertiary	40.50	38.78	24.00	29.37	15.67	20.06	42.40	39.38	37.90	18.88	48.30	35.14	31.14
Age categories (Ref. 15-29)													
30-44	32.75	51.02	28.77	34.32	29.08	38.42	24.53	31.57	21.84	31.43	46.26	30.35	28.46
45-59	21.71	14.29	27.11	24.09	17.27	19.77	26.13	25.10	29.12	25.76	17.69	23.11	25.50
60+	13.57	6.12	24.56	9.90	26.82	9.60	25.07	21.81	31.84	19.29	6.80	29.54	25.28
Urbanity (Ref. Urban)													
Town or small city	31.40	24.49	36.14	29.70	30.69	29.66	29.33	30.79	34.60	34.01	40.82	28.47	32.69
Rural	19.38	26.53	26.79	24.42	19.74	23.16	32.27	31.68	18.69	32.09	12.24	40.71	27.66
ESS round (Ref. 2nd round)													
4th	34.50	10.20	34.08	27.72	29.08	41.24	37.60	33.46	40.90	43.72	36.05	32.53	36.89
5th	31.40	44.90	34.36	33.00	36.27	44.35	26.40	33.35	34.08	27.16	49.66	24.38	31.50
N	516	49	2,471	303	932	354	375	1,793	4,601	2,717	147	2,982	17,240

Sources = ESS, WVS/EVS, UN data and National Statistics of the Republic of China (Taiwan)

Table 4.3 – Cross-classified random effects

	Country-of-destination random effect			
Models	Variance	SE	Δ% variance	ICC (%)
Null Model	0.201	(0.052)		12.4%
Model 1	0.196	(0.051)	-2.5%	12.4%
Model 2	0.163	(0.042)	-18.9%	11.5%
Model 3	0.162	(0.042)	-19.4%	11.5%
Model 4	0.030	(0.009)	-85.1%	2.3%
Model 5	0.030	(0.010)	-85.1%	2.3%
Model 6	0.032	(0.010)	-84.1%	2.5%

	Country-of-origin random effect			
Models	Variance	SE	Δ% variance	ICC (%)
Null Model	0.051	(0.012)		3.1%
Model 1	0.034	(0.009)	-33.3%	2.2%
Model 2	0.019	(0.006)	-62.7%	1.3%
Model 3	0.014	(0.005)	-72.5%	1.0%
Model 4	0.020	(0.006)	-60.8%	1.6%
Model 5	0.015	(0.005)	-70.6%	1.2%
Model 6	0.014	(0.005)	-72.5%	1.1%

	Individual random effects			
Models	Variance	SE	Δ% variance	ICC (%)
Null Model	1.373	(0.015)		84.5%
Model 1	1.351	(0.015)	-1.6%	85.5%
Model 2	1.235	(0.013)	-10.1%	87.2%
Model 3	1.235	(0.013)	-10.1%	87.5%
Model 4	1.234	(0.013)	-10.1%	96.1%
Model 5	1.235	(0.013)	-10.1%	96.5%
Model 6	1.232	(0.013)	-10.3%	96.4%

Note: The models described in Table 4.3 correspond to the models presented in Table 4.4.

Table 4.4 – Fixed-effects estimates from cross-classified linear models

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Country-of-origin variables						
Gender ideology	0.007 ***	0.007 ***	0.006 ***	0.007 ***	0.005 ***	0.003 *
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Total fertility rate			0.016		0.013	0.026
			(0.033)		(0.034)	(0.033)
Human-development indicator			0.673 *		0.638 *	0.635 *
			(0.269)		(0.274)	(0.267)
Country-of-destination variables						
Total fertility rate				0.195	0.194	0.193
				(0.125)	(0.126)	(0.128)
Human-development indicator				4.418 ***	4.352 ***	4.371 ***
				(0.753)	(0.761)	(0.770)
FLFP/MLFP				0.015 ***	0.016 ***	0.016 ***
				(0.004)	(0.004)	(0.004)
% women in national parliament				0.005	0.005	0.006
				(0.003)	(0.003)	(0.003)
Individual-level variables						
Length of stay in destination country (ref. 2nd gener.)						
More than 20 years ago		-0.055 *	-0.054 *	-0.057 **	-0.055 *	-0.057 **
		(0.021)	(0.021)	(0.021)	(0.021)	(0.021)
11-20 years ago		-0.175 ***	-0.170 ***	-0.177 ***	-0.172 ***	-0.174 ***
		(0.031)	(0.031)	(0.031)	(0.031)	(0.031)
6-10 years ago		-0.198 ***	-0.191 ***	-0.197 ***	-0.190 ***	-0.193 ***
		(0.040)	(0.040)	(0.040)	(0.040)	(0.040)
1-5 years ago		-0.287 ***	-0.282 ***	-0.282 ***	-0.277 ***	-0.297 ***
		(0.038)	(0.038)	(0.038)	(0.038)	(0.038)
Length of stay x country-of-origin gender ideology						
More than 20 years ago						0.002
						(0.001)
11-20 years ago						0.007 ***
						(0.002)
6-10 years ago						0.007 ***
						(0.002)
1-5 years ago						0.011 ***
						(0.002)
N	17,240	17,240	17,240	17,240	17,240	17,240
Log lik.	-27,168	-26,384	-26,380	-26,354	-26,351	-26,329

Notes: + p<0.10 * p<0.05 ** p<0.01 *** p<0.001. Standard errors in parenthesis. Models 2 to 6 also include all the individual-level independent variables described in Table 4.2 (Gender, marital status, education, age, urbanity, ESS round). Full models results are presented in Table 4.S3.

Table 4.5 – Robustness checks

	Preferred models		CD fixed effects		CO fixed effects		Fathers' CB		GI Yr of arrival	
	Model 5	Model 6	Model 5	Model 6	Model 5	Model 6	Model 5	Model 6	Model 5	Model 6
Gender ideology	0.005 ***	0.003 *	0.005 ***	0.003 *	0.005 **	0.003 +	0.005 ***	0.003 *	0.009 ***	-0.005
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)	(0.005)
Length of stay (ref. 2nd gener.)										
More than 20 years ago	-0.055 *	-0.057 **	-0.055 **	-0.057 **	-0.057 **	-0.059 **	-0.054 *	-0.056 **	-0.064	-0.116
	(0.021)	(0.021)	(0.021)	(0.021)	(0.022)	(0.022)	(0.021)	(0.021)	(0.138)	(0.142)
11-20 years ago	-0.172 ***	-0.174 ***	-0.172 ***	-0.175 ***	-0.165 ***	-0.169 ***	-0.171 ***	-0.174 ***	-0.144	-0.204 *
	(0.031)	(0.031)	(0.031)	(0.031)	(0.031)	(0.031)	(0.031)	(0.031)	(0.102)	(0.104)
6-10 years ago	-0.190 ***	-0.193 ***	-0.197 ***	-0.200 ***	-0.183 ***	-0.190 ***	-0.190 ***	-0.193 ***	-0.027	-0.074
	(0.040)	(0.040)	(0.040)	(0.040)	(0.040)	(0.040)	(0.040)	(0.040)	(0.110)	(0.112)
1-5 years ago	-0.277 ***	-0.297 ***	-0.288 ***	-0.308 ***	-0.274 ***	-0.297 ***	-0.277 ***	-0.298 ***	-0.210 *	-0.270 *
	(0.038)	(0.038)	(0.038)	(0.038)	(0.038)	(0.039)	(0.038)	(0.038)	(0.103)	(0.105)
Length of stay x gender ideology									0.000	0.000
More than 20 years ago		0.002		0.002		0.002		0.002 +		0.015 +
		(0.001)		(0.001)		(0.001)		(0.001)		(0.009)
11-20 years ago		0.007 ***		0.007 ***		0.007 ***		0.007 ***		0.014 **
		(0.002)		(0.002)		(0.002)		(0.002)		(0.006)
6-10 years ago		0.007 ***		0.007 ***		0.006 **		0.007 ***		0.018 **
		(0.002)		(0.002)		(0.002)		(0.002)		(0.006)
1-5 years ago		0.011 ***		0.012 ***		0.011 ***		0.011 ***		0.018 **
		(0.002)		(0.002)		(0.002)		(0.002)		(0.006)
N	17,240	17,240	17,240	17,240	17,240	17,240	17,187	17,187	1,516	1,516
Log lik.	-26,351	-26,329	-26,303	-26,281	-26,303	-26,281	-26,267	-26,245	-2,283.83	-2,278.37

Notes: + p<0.10 * p<0.05 ** p<0.01 *** p<0.001. Standard errors in parenthesis.. All the models include the individual-level independent variables described in Table 4.2 (Gender, marital status, education, age, urbanity, ESS round). Full models results are presented in Table 4.S4 (Country-of-destination fixed effects), Table 4.S5 (Country-of-origin fixed effects), Table 4.S6 (Country-of-origin fathers) and Table 4.S7 (Gender Ideology at Year of Arrival) in the supplementary materials.

Table 4.6 – Robustness check with age at arrival

	Model 5	Model 6
Country-of-origin variables		
Gender ideology	0.005 **	0.003
	(0.002)	(0.002)
Total fertility rate	0.059	0.073
	(0.050)	(0.050)
Human-development indicator	1.131 *	1.207 *
	(0.487)	(0.481)
Country-of-destination variables		
Total fertility rate	0.402 +	0.403 +
	(0.241)	(0.245)
Human-development indicator	3.046 *	3.088 *
	(1.365)	(1.383)
FLFP/MLFP	-0.003	-0.003
	(0.011)	(0.011)
% women in national parliament	0.018 **	0.018 **
	(0.006)	(0.006)
Individual-level variables		
Age at arrival in destination country (ref. 2nd generation)		
0-18 years old	-0.046	-0.053
	(0.040)	(0.040)
19-30 years old	-0.220 ***	-0.223 ***
	(0.043)	(0.043)
> 30 years old	-0.166 **	-0.172 **
	(0.057)	(0.057)
Age at arrival x country-of-origin gender ideology		
0-18 years old		-0.000
		(0.002)
19-30 years old		0.007 **
		(0.002)
> 30 years old		0.009 **
		(0.003)
N	5,431	5,431
Log lik.	-8,330	-8,320

Notes: + p<0.10 * p<0.05 ** p<0.01 *** p<0.001. Standard errors in parenthesis. All models include the individual-level independent variables described in Table 4.2 (Gender, marital status, education, age, urbanity, ESS round). Full models' results are presented in Table 4.S8.

1.

Figure 4.1 – The share of respondents who disagree that men should have more right to a job than women when jobs are scarce within each country of origin
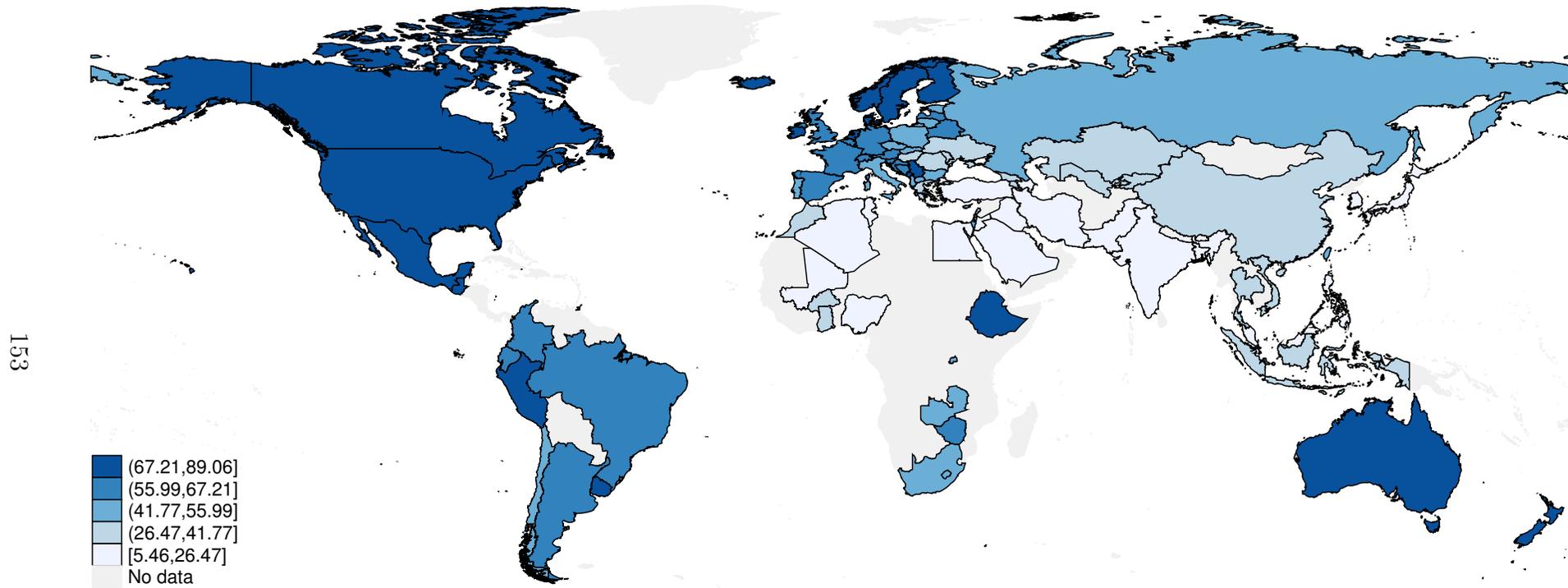
Note: The values represent the average across waves. Sources: ESS and WVS-EVS. The legend is divided into quintiles. The values used for this figure are summarized in Table 4.S1 in the supplementary materials.

Figure 4.2 – Predicted gender attitudes by country-of-origin gender ideology for different lengths of stay in the country of destination
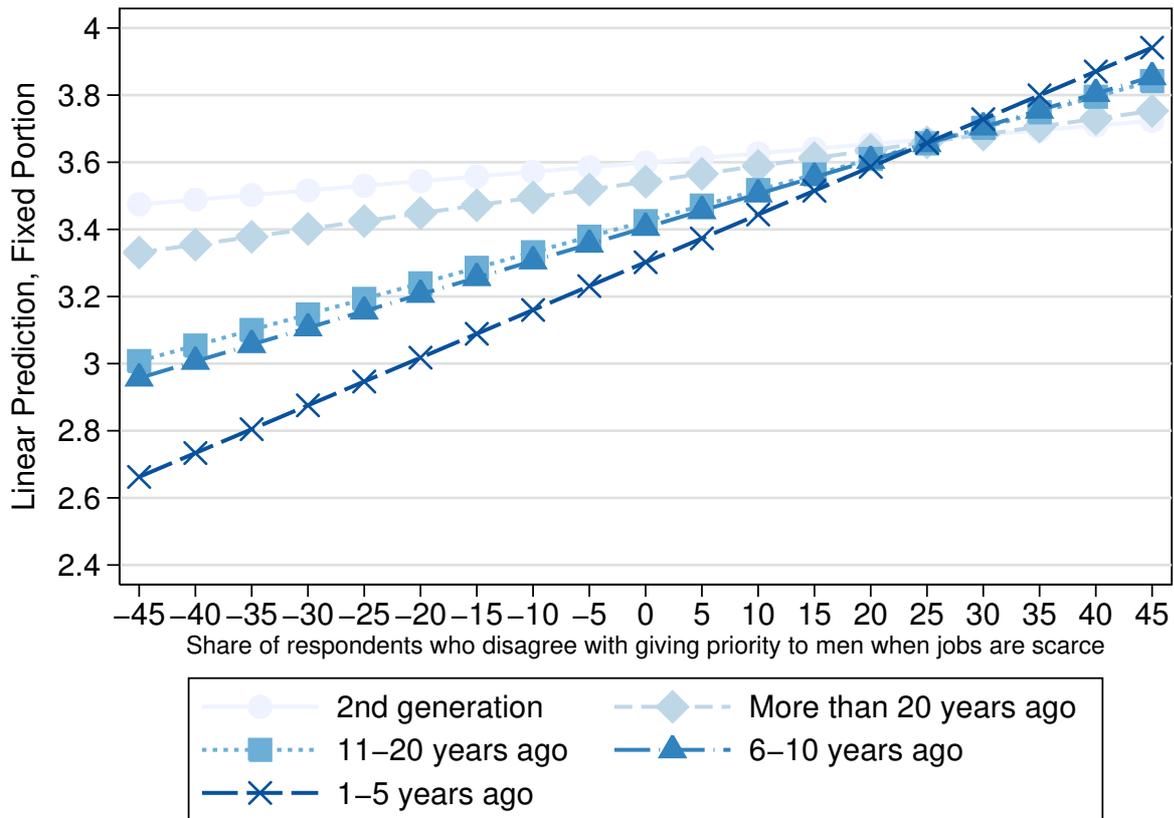
Notes: The predictions are based on Model 6 of Table 4.4. The average predictions are calculated by fixing the gender ideology at specific values while holding the length of stay at each different category, the other control variables are set to their original values. The random effects are set to zero. The gender ideology variable is centered on its grand mean = 50.54%.

Supplementary materials

We document the construction and validity of our main variables of interest. In particular, we explain how the following variables were constructed:

1. Immigrant generation and country of origin
2. Length of stay in country
3. Measure of attitudes towards working women in the country of origin
4. Total Fertility Rate
5. Human Development Indicator
6. FLFP/MLFP ratio
7. Share of women in national parliaments

1) Immigrant generation and country of origin

3rd generation: The respondent is born in the country (brncntr = 1) and the father (facntr = 1) and mother (mocntr = 1) of the respondents are also born in the country. In case the information about one of the parent is missing, the respondent is considered to be of third generation if the parent with a non-missing response is born in the country (N = 580). 2nd generation: The respondent is born in the country (brncntr = 1) and at least one of his his/her parents are not born in the country (facntr = 1 AND mocntr = 1).

- For the 2nd generation respondents, the country of origin corresponds to the mother's country of birth (mbrncnt in the 2nd round the ESS and mbrncnta in the 4th and 5th round of the ESS). If the mother's country of birth is missing (N= 15), we use the father's country of birth (fbrncnt in the 2nd round the ESS and fbrncnta in the 4th and 5th round of the ESS). As a robustness check (See Table 4.S5), we use the father's country of birth when both parents are born abroad and in different countries (N = 387).
- In case the information about one of the parent is missing, the respondent is considered to be of the 2nd generation if the parent with a non-missing response is not born in the country (N = 59). 1st generation: The respondent is not born in the country (brncntr = 0).

155

- For the 1st generation respondents, the country of origin corresponds to the respondent's country of birth (cntbrtha in the 2nd round the ESS and cntbrthb in the 4th and 5th round of the ESS).

2) Length of stay in country

The variable length of stay (livecntr) in the country has changed between the three waves of the European Social Survey under study. In the 2nd and 4th round of the ESS, the variable is categorical, whereas in the 5th round of the ESS, the actual year of arrival (livecnta) was asked. Using the interview year (inwyys) and the year of arrival (livecnta), the length of stay variable is harmonized across the ESS rounds to match the original categorical variable (livecntr): Within last year, 1-5 years ago, 6-10 years, 11-20 years, More than 20 years. For sample size reasons, the within last year and 1-5 years ago categories are merged together.

3) Measure of gender attitudes towards working women in the country of origin

The country-level measure of egalitarian attitudes towards working women is measured using both the European Social Survey and the World Values Survey and European Values Study data.

In the ESS, we use the variable mnrgtjb, which is categorical and follows a 5-point Likert scale. The country variable corresponds to the percentage of respondents that either disagree or strongly disagree with the statement "Men should have more right to job than women when jobs are scarce."

In the harmonized WVS-EVS, we use the variable c001, which takes the following three categories: Neither, Disagree and Agree. The country variable corresponds to the percentage of respondents that either disagree or strongly disagree with the statement "Men should have more right to job than women when jobs are scarce."

In order to match respondents to the measure of gender attitudes in their country of origin and in the corresponding survey year, we take the following steps:

- If available, we use the ESS measure in the same ESS round (about 52% of cases).

- If the ESS variable is not available, we use the WVS-EVS measure in the corresponding survey year (25% of cases).

156

- If the WVS- EVS measure is not available in the same survey year, we allow for a two year lag (5%) and then for two years forward (0.2%).

To assess the validity of using two different sources of data for the gender attitudes measure, we calculate the correlation between the ESS and WVS-EVS indicators when both are available (N = 61). We find a 0.84 correlation between them.

4) Total Fertility Rate

The total fertility rate data are taken from the World Development Indicators.

5) Human-Development Indicators

The HDI data come from the United Nations Statistics with the exception of Taiwan, where the data is taken from the Taiwanese national statistics website (`http://eng.stat.gov.tw/ct.asp?xItem=25280&ctNode=6032&mp=5`).

6) FLFP/MLFP ratio

The female and labor force participation rates are retrieved from the World Development Indicators.

7) Share of women in national parliaments

The share of women in national parliaments is taken from the World Development Indicators.

Table 4.S1 – Gender norms in the countries of origin for each ESS round

Country of origin	ESS Round 2	ESS Round 4	ESS Round 5	Total
Albania	0.32	0.61	0.61	0.57
Algeria	0.20		0.20	0.20
Argentina	0.63	0.63	0.70	0.65
Armenia		0.42	0.36	0.39
Australia	0.66	0.72	0.72	0.69
Austria	0.50	0.68	0.67	0.60
Azerbaijan	0.17	0.17	0.10	0.14
Bangladesh	0.17			0.17
Belarus		0.67	0.50	0.60
Belgium	0.54	0.71	0.71	0.60
Bosnia And Herzegowina	0.63	0.63	0.63	0.63
Brazil	0.65	0.65		0.65
Bulgaria	0.54	0.45	0.46	0.48
Burkina Faso		0.35		0.35
Canada	0.80	0.80		0.80
Chile	0.50	0.52	0.58	0.53
China	0.33	0.33	0.41	0.36
Colombia			0.65	0.65
Croatia		0.58	0.53	0.56
Cyprus	0.48	0.46	0.32	0.41
Czech Republic	0.37	0.49	0.44	0.43
Denmark	0.83	0.93	0.90	0.89
Ecuador			0.56	0.56
Egypt	0.05	0.05	0.07	0.06
Estonia	0.42	0.62	0.60	0.59
Ethiopia	0.86	0.86		0.86
Finland	0.71	0.85	0.79	0.78
France	0.56	0.76	0.65	0.64
Georgia		0.33	0.29	0.31
Germany	0.56	0.66	0.69	0.63
Ghana	0.37	0.37	0.46	0.43
Greece	0.31	0.31	0.33	0.32
Guatemala	0.72			0.72
Hong Kong	0.44		0.41	0.43
Hungary	0.26	0.38	0.27	0.31
Iceland	0.71	0.97	0.97	0.93
India	0.20	0.20		0.20
Indonesia	0.36	0.36		0.36
Iran (Islamic Republic)	0.17	0.17		0.17
Iraq	0.22	0.16	0.17	0.19
Ireland	0.54	0.78	0.77	0.70
Israel		0.52	0.55	0.54
Italy	0.33	0.68	0.68	0.53

Continued on next page

Table 4.S1 – continued from previous page

Country of origin	ESS Round 2	ESS Round 4	ESS Round 5	Total
Japan	0.18	0.15	0.15	0.16
Jordan		0.07		0.07
Kazakhstan		0.28	0.28	0.28
Korea, Republic of	0.27	0.26	0.26	0.27
Kyrgyzstan	0.39	0.25	0.25	0.28
Latvia		0.58	0.71	0.60
Lebanon			0.37	0.37
Lithuania		0.44	0.45	0.44
Luxembourg	0.54	0.77	0.77	0.69
Macedonia		0.52	0.52	0.52
Malaysia	0.15	0.15	0.18	0.17
Mali	0.23			0.23
Malta		0.58		0.58
Mexico	0.68		0.71	0.70
Moldova, Republic Of	0.39	0.36	0.36	0.37
Montenegro		0.74		0.74
Morocco	0.33	0.33	0.32	0.33
Netherlands	0.64	0.79	0.79	0.73
New Zealand	0.73	0.78	0.78	0.76
Nigeria		0.23	0.23	0.23
Norway	0.80	0.90	0.84	0.85
Pakistan		0.20	0.20	0.20
Palestine			0.22	0.22
Peru	0.73	0.72	0.65	0.70
Philippines		0.21	0.21	0.21
Poland	0.40	0.55	0.54	0.50
Portugal	0.42	0.60	0.53	0.47
Qatar		0.23		0.23
Romania	0.41	0.39	0.45	0.42
Russian Federation	0.45	0.46	0.36	0.42
Rwanda		0.64	0.35	0.40
Saudi Arabia	0.09			0.09
Serbia		0.69	0.69	0.69
Singapore	0.46		0.37	0.40
Slovakia	0.48	0.41	0.40	0.44
Slovenia	0.58	0.72	0.72	0.69
South Africa	0.49	0.49	0.48	0.49
Spain	0.56	0.71	0.73	0.66
Sweden	0.78	0.92	0.86	0.86
Switzerland	0.52	0.65	0.61	0.59
Taiwan, Province of China	0.39	0.47	0.47	0.45
Thailand	0.41	0.41	0.40	0.40
Trinidad	0.66	0.66	0.62	0.65
Tunisia		0.18	0.18	0.18

Table 4.S1 – continued from previous page

Country of origin	ESS Round 2	ESS Round 4	ESS Round 5	Total
Turkey	0.17	0.16	0.28	0.20
Ukraine	0.33	0.35	0.28	0.32
United Kingdom	0.51	0.73	0.67	0.64
United States	0.67	0.68	0.70	0.69
Uruguay	0.69	0.69	0.68	0.69
Uzbekistan		0.27	0.27	0.27
Viet Nam	0.38	0.38		0.38
Zambia		0.51		0.51
Zimbabwe		0.57	0.57	0.57
Total	0.46	0.55	0.50	0.51

Sources = ESS, WVS/EVS

Note = The gender norms indicator is defined as the share of respondents who disagree with the statement "when jobs are scarce, men should have more right to a job than women.".

Table 4.S2 – Definition of the regions

Asia	Middle East	Post Soviet
Bangladesh	Palestine	Russian Federation
China	Iran	Ukraine
Taiwan, Province Of China	Iraq	Uzbekistan
Cyprus	Israel	**Southern Europe**
Hong Kong	Jordan	Albania
India	Lebanon	Bosnia And Herzegowina
Indonesia	Qatar	Croatia
Japan	Saudi Arabia	Greece
Korea, Republic Of	Turkey	Italy
Malaysia	Egypt	Malta
Pakistan	**Northern Africa**	Montenegro
Philippines	Algeria	Portugal
Singapore	Morocco	Serbia
Viet Nam	Tunisia	Slovenia
Thailand	**North America**	Spain
Oceania	Canada	Macedonia
Australia	United States	**Sub-Saharan Africa**
New Zealand	**Northern Europe**	Ethiopia
Eastern Europe	Denmark	Ghana
Bulgaria	Finland	Mali
Czech Republic	Iceland	Nigeria
Hungary	Ireland	Rwanda
Poland	Norway	South Africa
Romania	Sweden	Zimbabwe
Slovakia	United Kingdom	Burkina Faso
Latin America	**Post Soviet**	Zambia
Argentina	Azerbaijan	**Western Europe**
Brazil	Armenia	Austria
Chile	Belarus	Belgium
Colombia	Estonia	France
Ecuador	Georgia	Germany
Guatemala	Kazakhstan	Luxembourg
Mexico	Kyrgyzstan	Netherlands
Peru	Latvia	Switzerland
Trinidad And Tobago	Lithuania	
Uruguay	Moldova	

Table 4.S3 – Fixed and random estimates from cross-classified linear models

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
Fixed part estimates												
Country-of-origin variables												
Gender ideology	0.007	***	0.007	***	0.006	***	0.007	***	0.005	***	0.003	*
	(0.001)		(0.001)		(0.001)		(0.001)		(0.001)		(0.001)	
Total fertility rate					0.016				0.013		0.026	
					(0.033)				(0.034)		(0.033)	
Human-development indicator					0.673	*			0.638	*	0.635	*
					(0.269)				(0.274)		(0.267)	
Country-of-destination variables												
Total fertility rate							0.195		0.194		0.193	
							(0.125)		(0.126)		(0.128)	
Human-development indicator							4.418	***	4.352	***	4.371	***
							(0.753)		(0.761)		(0.770)	
FLFP/MLFP							0.015	***	0.016	***	0.016	***
							(0.004)		(0.004)		(0.004)	
% women in national parliament							0.005		0.005		0.006	
							(0.003)		(0.003)		(0.003)	
Individual-level variables												
Length of stay (ref. 2nd gener.)												
More than 20 years ago			-0.055	*	-0.054	*	-0.057	**	-0.055	*	-0.057	**
			(0.021)		(0.021)		(0.021)		(0.021)		(0.021)	
11-20 years ago			-0.175	***	-0.170	***	-0.177	***	-0.172	***	-0.174	***
			(0.031)		(0.031)		(0.031)		(0.031)		(0.031)	

Table 4.S3 – continued from previous page

	Model 1	Model 2		Model 3		Model 4		Model 5		Model 6	
6-10 years ago		-0.198	***	-0.191	***	-0.197	***	-0.190	***	-0.193	***
		(0.040)		(0.040)		(0.040)		(0.040)		(0.040)	
1-5 years ago		-0.287	***	-0.282	***	-0.282	***	-0.277	***	-0.297	***
		(0.038)		(0.038)		(0.038)		(0.038)		(0.038)	
Length of stay x country-of-origin gender ideology											
More than 20 years ago										0.002	
										(0.001)	
11-20 years ago										0.007	***
										(0.002)	
6-10 years ago										0.007	***
										(0.002)	
1-5 years ago										0.011	***
										(0.002)	
Gender (ref. female)											
Male		-0.288	***	-0.287	***	-0.288	***	-0.287	***	-0.288	***
		(0.017)		(0.017)		(0.017)		(0.017)		(0.017)	
Marital status (ref. Never-married)											
Partnered		-0.168	***	-0.166	***	-0.167	***	-0.165	***	-0.158	***
		(0.024)		(0.024)		(0.024)		(0.024)		(0.024)	
Separated		-0.027		-0.024		-0.027		-0.025		-0.018	
		(0.033)		(0.033)		(0.033)		(0.033)		(0.033)	
Widowed		-0.220	***	-0.219	***	-0.220	***	-0.219	***	-0.212	***
		(0.040)		(0.040)		(0.040)		(0.040)		(0.040)	
Age categories (ref. 15-29)											
30-44		-0.022		-0.024		-0.021		-0.023		-0.025	
		(0.028)		(0.028)		(0.028)		(0.028)		(0.028)	

163

Table 4.S3 – continued from previous page

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
45-59			-0.135	***	-0.138	***	-0.133	***	-0.136	***	-0.140	***
			(0.031)		(0.031)		(0.031)		(0.031)		(0.031)	
60+			-0.339	***	-0.343	***	-0.336	***	-0.340	***	-0.343	***
			(0.034)		(0.034)		(0.034)		(0.034)		(0.034)	
Education (ref. Less than secondary)												
Lower-secondary			0.282	***	0.281	***	0.274	***	0.273	***	0.272	***
			(0.036)		(0.036)		(0.035)		(0.035)		(0.035)	
Upper-secondary			0.489	***	0.487	***	0.482	***	0.479	***	0.476	***
			(0.033)		(0.033)		(0.033)		(0.033)		(0.033)	
Tertiary			0.793	***	0.791	***	0.784	***	0.782	***	0.776	***
			(0.034)		(0.034)		(0.034)		(0.034)		(0.034)	
Urbanity (ref. Urban)												
Town or small city			-0.064	**	-0.064	**	-0.063	**	-0.064	**	-0.063	**
			(0.020)		(0.020)		(0.020)		(0.020)		(0.020)	
Rural			-0.077	***	-0.079	***	-0.076	***	-0.078	***	-0.079	***
			(0.022)		(0.022)		(0.022)		(0.022)		(0.022)	
Constant	3.253	***	3.235	***	3.247	***	3.405	***	3.417	***	3.422	***
	(0.084)		(0.085)		(0.084)		(0.057)		(0.057)		(0.057)	
ESS round (ref. 2nd round)												
4th round	0.322	***	0.306	***	0.306	***	0.199	***	0.200	***	0.204	***
	(0.026)		(0.024)		(0.025)		(0.029)		(0.029)		(0.029)	
5th round	0.198	***	0.184	***	0.176	***	0.049	+	0.042		0.042	
	(0.025)		(0.024)		(0.025)		(0.029)		(0.030)		(0.030)	
Random part estimates												
Country-of-origin	0.034	***	0.019	***	0.014	***	0.020	***	0.015	***	0.014	***
	(0.009)		(0.006)		(0.005)		(0.006)		(0.005)		(0.005)	

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
Country-of-destination	0.196	***	0.163	***	0.162	***	0.030	***	0.030	***	0.032	***
	(0.051)		(0.042)		(0.042)		(0.009)		(0.010)		(0.010)	
Individual	1.351	***	1.235	***	1.235	***	1.234	***	1.235	***	1.232	***
	(0.015)		(0.013)		(0.013)		(0.013)		(0.013)		(0.013)	
N	17,240		17,240		17,240		17,240		17,240		17,240	
Log lik.	-27,168		-26,384		-26,380		-26,354		-26,351		-26,329	

Notes: + $p<0.10$ * $p<0.05$ ** $p<0.01$ *** $p<0.001$. Standard errors in parenthesis.

Table 4.S4 – Robustness check 'country-of-destination fixed effects'

	Model 5		Model 6	
Fixed part estimates				
Country-of-origin variables				
Gender ideology	0.005	***	0.003	*
	(0.001)		(0.001)	
Total fertility rate	0.010		0.024	
	(0.032)		(0.032)	
Human-development indicator	0.665	*	0.662	*
	(0.263)		(0.258)	
Individual-level variables				
Length of stay (ref. 2nd gener.)				
More than 20 years ago	-0.055	**	-0.057	**
	(0.021)		(0.021)	
11-20 years ago	-0.172	***	-0.175	***
	(0.031)		(0.031)	
6-10 years ago	-0.197	***	-0.200	***
	(0.040)		(0.040)	
1-5 years ago	-0.288	***	-0.308	***
	(0.038)		(0.038)	
Length of stay x country-of-origin gender ideology				
More than 20 years ago			0.002	
			(0.001)	
11-20 years ago			0.007	***
			(0.002)	
6-10 years ago			0.007	***
			(0.002)	
1-5 years ago			0.012	***
			(0.002)	
Gender (ref. female)				
Male	-0.287	***	-0.287	***
	(0.017)		(0.017)	
Marital status (ref. Never-married)				
Partnered	-0.164	***	-0.157	***
	(0.024)		(0.024)	
Separated	-0.023		-0.017	
	(0.033)		(0.033)	
Widowed	-0.215	***	-0.208	***
	(0.040)		(0.040)	
Age categories (ref. 15-29)				
30-44	-0.024		-0.027	
	(0.028)		(0.028)	
45-59	-0.138	***	-0.142	***

Continued on next page

Table 4.S4 – continued from previous page

	Model 5		Model 6	
	(0.031)		(0.031)	
60+	-0.342	***	-0.345	***
	(0.034)		(0.034)	
Education (ref. Less than secondary)				
Lower-secondary	0.280	***	0.279	***
	(0.036)		(0.035)	
Upper-secondary	0.486	***	0.482	***
	(0.033)		(0.033)	
Tertiary	0.790	***	0.784	***
	(0.034)		(0.034)	
Urbanity (ref. Urban)				
Town or small city	-0.065	**	-0.064	**
	(0.020)		(0.020)	
Rural	-0.079	***	-0.080	***
	(0.022)		(0.022)	
Constant	3.623	***	3.629	***
	(0.063)		(0.063)	
ESS round (ref. 2nd round)				
4th round	0.310	***	0.315	***
	(0.025)		(0.025)	
5th round	0.177	***	0.179	***
	(0.025)		(0.024)	
Destination country fixed effects	x		x	
Random part estimates				
Country-of-origin	0.013		0.012	
	(0.005)		(0.004)	
Individual	1.233		1.230	
	(0.013)		(0.013)	
N	17,240		17,240	
Log lik.	-26,303		-26,281	

Notes: + p<0.10 * p<0.05 ** p<0.01 *** p<0.001. Standard errors in parenthesis.

Table 4.S5 – Robustness check 'country-of-origin fixed effects'

	Model 5		Model 6	
Fixed part estimates				
Country-of-origin variables				
Gender ideology	0.005	**	0.003	+
	(0.002)		(0.002)	
Country-of-destination variables				
Total fertility rate	0.219	+	0.217	+
	(0.123)		(0.125)	
Human-development indicator	4.168	***	4.271	***
	(0.741)		(0.756)	
FLFP/MLFP	0.016	***	0.017	***
	(0.004)		(0.004)	
% women in national parliament	0.005		0.006	+
	(0.003)		(0.003)	
Individual-level variables				
Length of stay (ref. 2nd gener.)				
More than 20 years ago	-0.057	**	-0.059	**
	(0.022)		(0.022)	
11-20 years ago	-0.165	***	-0.169	***
	(0.031)		(0.031)	
6-10 years ago	-0.183	***	-0.190	***
	(0.040)		(0.040)	
1-5 years ago	-0.274	***	-0.297	***
	(0.038)		(0.039)	
Length of stay x country-of-origin gender ideology				
More than 20 years ago			0.002	
			(0.001)	
11-20 years ago			0.007	***
			(0.002)	
6-10 years ago			0.006	**
			(0.002)	
1-5 years ago			0.011	***
			(0.002)	
Gender (ref. female)				
Male	-0.284	***	-0.285	***
	(0.017)		(0.017)	
Marital status (ref. Never-married)				
Partnered	-0.160	***	-0.153	***
	(0.024)		(0.024)	
Separated	-0.023		-0.017	
	(0.033)		(0.033)	
Widowed	-0.213	***	-0.206	***

Table 4.S5 – continued from previous page

	Model 5		Model 6	
	(0.040)		(0.040)	
Age categories (ref. 15-29)				
30-44	-0.023		-0.024	
	(0.028)		(0.028)	
45-59	-0.138	***	-0.142	***
	(0.031)		(0.031)	
60+	-0.343	***	-0.346	***
	(0.034)		(0.034)	
Education (ref. Less than secondary)				
Lower-secondary	0.273	***	0.272	***
	(0.036)		(0.035)	
Upper-secondary	0.475	***	0.472	***
	(0.033)		(0.033)	
Tertiary	0.775	***	0.769	***
	(0.034)		(0.034)	
Urbanity (ref. Urban)				
Town or small city	-0.063	**	-0.063	**
	(0.020)		(0.020)	
Rural	-0.079	***	-0.080	***
	(0.022)		(0.022)	
Constant	2.580	***	2.579	***
	(0.141)		(0.141)	
ESS round (ref. 2nd round)				
4th round	0.227	***	0.226	***
	(0.032)		(0.032)	
5th round	0.069	*	0.064	*
	(0.030)		(0.030)	
Country-of-origin fixed effects	x		x	
Random part estimates				
Country-of-destination	0.027	***	0.029	***
	(0.009)		(0.009)	
Individual	1.227	***	1.224	***
	(0.013)		(0.013)	
N	17,240		17,240	
Log lik.	-26,264		-26,245	

Notes: + p<0.10 * p<0.05 ** p<0.01 *** p<0.001. Standard errors in parenthesis.

Table 4.S6 – Robustness check 'father's country of birth'

	Model 5		Model 6	
Fixed part estimates				
Country-of-origin variables				
Gender ideology	0.005	***	0.003	*
	(0.001)		(0.001)	
Total fertility rate	0.011		0.024	
	(0.034)		(0.033)	
Human-development indicator	0.679	*	0.658	*
	(0.270)		(0.265)	
Country-of-destination variables				
Total fertility rate	0.200		0.199	
	(0.127)		(0.128)	
Human-development indicator	4.329	***	4.354	***
	(0.764)		(0.773)	
FLFP/MLFP	0.016	***	0.016	***
	(0.004)		(0.004)	
% women in national parliament	0.005		0.006	+
	(0.003)		(0.003)	
Individual-level variables				
Length of stay (ref. 2nd gener.)				
More than 20 years ago	-0.054	*	-0.056	**
	(0.021)		(0.021)	
11-20 years ago	-0.171	***	-0.174	***
	(0.031)		(0.031)	
6-10 years ago	-0.190	***	-0.193	***
	(0.040)		(0.040)	
1-5 years ago	-0.277	***	-0.298	***
	(0.038)		(0.038)	
Length of stay x country-of-origin gender ideology				
More than 20 years ago			0.002	+
			(0.001)	
11-20 years ago			0.007	***
			(0.002)	
6-10 years ago			0.007	***
			(0.002)	
1-5 years ago			0.011	***
			(0.002)	
Gender (ref. female)				
Male	-0.287	***	-0.288	***
	(0.017)		(0.017)	
Marital status (ref. Never-married)				
Partnered	-0.165	***	-0.157	***

Table 4.S6 – continued from previous page

	Model 5		Model 6	
	(0.024)		(0.024)	
Separated	-0.023		-0.017	
	(0.033)		(0.033)	
Widowed	-0.219	***	-0.212	***
	(0.040)		(0.040)	
Age categories (ref. 15-29)				
30-44	-0.025		-0.028	
	(0.028)		(0.028)	
45-59	-0.141	***	-0.145	***
	(0.031)		(0.031)	
60+	-0.344	***	-0.347	***
	(0.034)		(0.034)	
Education (ref. Less than secondary)				
Lower-secondary	0.272	***	0.272	***
	(0.036)		(0.035)	
Upper-secondary	0.479	***	0.476	***
	(0.033)		(0.033)	
Tertiary	0.781	***	0.776	***
	(0.034)		(0.034)	
Urbanity (ref. Urban)				
Town or small city	-0.063	**	-0.062	**
	(0.020)		(0.020)	
Rural	-0.076	***	-0.077	***
	(0.022)		(0.022)	
Constant	3.417	***	3.422	***
	(0.057)		(0.057)	
ESS round (ref. 2nd round)				
4th round	0.202	***	0.205	***
	(0.029)		(0.029)	
5th round	0.044		0.043	
	(0.030)		(0.030)	
Random part estimates				
Country-of-origin	0.015		0.014	
	(0.005)		(0.005)	
Country-of-destination	0.031		0.032	
	(0.010)		(0.010)	
Individual	1.234		1.231	
	(0.013)		(0.013)	
N	17,187		17,187	
Log lik.	-26,267		-26,245	

Notes: + p<0.10 * p<0.05 ** p<0.01 *** p<0.001. Standard errors in parenthesis.

Table 4.S7 – Robustness check 'gender ideology at year of arrival'

	Model 5		Model 6	
Fixed part estimates				
Country-of-origin variables				
Gender ideology	0.009	***	-0.005	
	(0.002)		(0.005)	
Total fertility rate	0.033		0.053	
	(0.065)		(0.068)	
Human-development indicator	1.506	*	1.554	*
	(0.627)		(0.648)	
Country-of-destination variables				
Total fertility rate	0.170		0.227	
	(0.281)		(0.279)	
Human-development indicator	5.325	**	5.062	**
	(1.769)		(1.759)	
FLFP/MLFP	-0.001		-0.001	
	(0.014)		(0.014)	
% women in national parliament	0.013	+	0.015	*
	(0.007)		(0.007)	
Individual-level variables				
Length of stay (ref. 2nd gener.)				
More than 20 years ago	-0.064		-0.116	
	(0.138)		(0.142)	
11-20 years ago	-0.144		-0.204	*
	(0.102)		(0.104)	
6-10 years ago	-0.027		-0.074	
	(0.110)		(0.112)	
1-5 years ago	-0.210	*	-0.270	*
	(0.103)		(0.105)	
Length of stay x country-of-origin gender ideology				
More than 20 years ago			0.015	+
			(0.009)	
11-20 years ago			0.014	**
			(0.006)	
6-10 years ago			0.018	**
			(0.006)	
1-5 years ago			0.018	**
			(0.006)	
Gender (ref. female)				
Male	-0.395	***	-0.390	***
	(0.057)		(0.057)	

Table 4.S7 – continued from previous page

	Model 5		Model 6	
Marital status (ref. Never-married)				
Partnered	-0.186	*	-0.162	*
	(0.077)		(0.077)	
Separated	-0.210	+	-0.190	
	(0.121)		(0.121)	
Widowed	-0.670	**	-0.641	**
	(0.239)		(0.239)	
Age categories (ref. 15-29)				
30-44	0.015		-0.004	
	(0.083)		(0.083)	
45-59	-0.059		-0.091	
	(0.105)		(0.105)	
60+	-0.121		-0.152	
	(0.157)		(0.157)	
Education (ref. Less than secondary)				
Lower-secondary	0.282	*	0.282	*
	(0.114)		(0.114)	
Upper-secondary	0.464	***	0.476	***
	(0.109)		(0.109)	
Tertiary	0.737	***	0.731	***
	(0.113)		(0.113)	
Urbanity (ref. Urban)				
Town or small city	-0.076		-0.077	
	(0.067)		(0.067)	
Rural	-0.030		-0.038	
	(0.073)		(0.072)	
Constant	3.419	***	3.480	***
	(0.134)		(0.136)	
Random part estimates				
Country-of-origin	0.008		0.013	
	(0.011)		(0.013)	
Country-of-destination	0.046		0.045	
	(0.023)		(0.022)	
Individual	1.165		1.154	
	(0.043)		(0.043)	
N	1,516		1,516	
Log lik.	-2,283.83		-2,278.37	

Notes: + p<0.10 * p<0.05 ** p<0.01 *** p<0.001. Standard errors in parenthesis.

Table 4.S8 – Robustness check 'age at arrival'

	Model 5		Model 6	
Fixed part estimates				
Country-of-origin variables				
Gender ideology	0.005	**	0.003	
	(0.002)		(0.002)	
Total fertility rate	0.059		0.073	
	(0.050)		(0.050)	
Human-development indicator	1.131	*	1.207	*
	(0.487)		(0.481)	
Country-of-destination variables				
Total fertility rate	0.402	+	0.403	+
	(0.241)		(0.245)	
Human-development indicator	3.046	*	3.088	*
	(1.365)		(1.383)	
FLFP/MLFP	-0.003		-0.003	
	(0.011)		(0.011)	
% women in national parliament	0.018	**	0.018	**
	(0.006)		(0.006)	
Individual-level variables				
Age at arrival in destination country (ref. 2nd generation)				
0-18 years old	-0.046		-0.053	
	(0.040)		(0.040)	
19-30 years old	-0.220	***	-0.223	***
	(0.043)		(0.043)	
> 30 years old	-0.166	**	-0.172	**
	(0.057)		(0.057)	
Age at arrival x country-of-origin gender ideology				
0-18 years old			-0.000	
			(0.002)	
19-30 years old			0.007	**
			(0.002)	
> 30 years old			0.009	**
			(0.003)	
Gender (ref. female)				
Male	-0.307	***	-0.307	***
	(0.031)		(0.031)	
Marital status (ref. Never-married)				
Partnered	-0.135	**	-0.130	**
	(0.045)		(0.044)	
Separated	-0.021		-0.018	
	(0.058)		(0.058)	
Widowed	-0.224	**	-0.215	**

Table 4.S8 – continued from previous page

	Model 5		Model 6	
	(0.073)		(0.073)	
Age categories (ref. 15-29)				
30-44	0.025		0.026	
	(0.051)		(0.051)	
45-59	-0.020		-0.020	
	(0.056)		(0.056)	
60+	-0.214	***	-0.215	***
	(0.060)		(0.060)	
Education (ref. Less than secondary)				
Lower-secondary	0.334	***	0.326	***
	(0.065)		(0.065)	
Upper-secondary	0.615	***	0.606	***
	(0.060)		(0.060)	
Tertiary	0.860	***	0.845	***
	(0.061)		(0.061)	
Urbanity (ref. Urban)				
Town or small city	-0.039		-0.042	
	(0.036)		(0.036)	
Rural	-0.086	*	-0.092	*
	(0.039)		(0.039)	
Constant	3.261	***	3.276	***
	(0.087)		(0.087)	
Random part estimates				
Country-of-origin	0.022	***	0.021	***
	(0.009)		(0.009)	
Country-of-destination	0.045	***	0.047	***
	(0.017)		(0.017)	
Individual	1.237	***	1.232	***
	(0.024)		(0.024)	
N	5,431		5,431	
Log lik.	-8,330		-8,320	

Notes: + p<0.10 * p<0.05 ** p<0.01 *** p<0.001. Standard errors in parenthesis.

CHAPTER 5

Conclusion

In this chapter, I summarize the main conclusions and implications of chapters 2-4 and discuss some potential avenues for future research. Chapters 2 and 3 of this dissertation focus on the United States to capture variation in demographic behaviors over time, from the late sixties to the present day. Chapter 4 explores cross-national variation in gender role attitudes across European countries as well as Russia and Turkey. Each of the three empirical articles uses a different combination of datasets and quantitative methods to explore different dimensions of gender role attitudes and partnership dynamics.

Chapter 2 contextualizes the relationship between gender norms and marital instability among married and opposite-sex couples in the United States over time. Marital histories from the Panel Study of Income Dynamics are combined with attitudinal measures of gender norms from the General Social Survey and structural indicators from the March Current Population Surveys. The empirical results highlight that, as cultural norms shift from traditional to egalitarian, divorce risk rises and then decreases when egalitarian gender norms are dominant. Overall, the findings show that discrepancies between contextual indicators of gender norms and levels of female labor force participation are destabilizing for marriages. When gender norms and opportunities for women in the labor market align, divorce risk decreases.

Chapter 3 analyzes whether the effects of women's education on partnership transitions have changed from the 1950s to the 1980s birth cohorts in the United States. Education is used as a marker for opportunities in the labor market but also of more egalitarian gender roles attitudes. In contrast to previous studies, the empirical approach takes into account the increasing complexity and heterogeneity of partnership behaviors in the United States. This study sheds light on how women's partnership behaviors have changed over time along educational lines in the United States. Women with college education are increasingly more likely to marry and cohabit and have a lower propensity to divorce with respect to their less-educated counterparts. In particular, the educational gradients of both cohabitation and divorce appear to be widening in younger birth cohorts. In contrast, for marriage via cohabitation, the education gap has narrowed over time. However, no significant or changing relationship between education and cohabitation dissolution exists.

Chapter 4 studies the influence of cultural heritage on gender role attitudes by using country of origin differences in gender norms among immigrants across 33 destination countries. To carry out the analysis, cross-classified multilevel models are applied to a sample of first- and second-generation immigrants from the European Social Survey. Results show that gender norms in the country of origin are significantly associated with immigrants' gender attitudes. In line with our expectations, the findings illustrate how cultural heritage plays an important role in explaining immigrants' attitudes in their countries of destination. As expected, however, the importance of the cultural heritage diminishes as immigrants stay longer in their country of destination. While culture in the country of origin is a relevant factor, we also find that contextual factors also play their part in predicting gender attitudes. Taken together, the empirical findings suggest that both cultural heritage and acculturation to the country of destination gender norms are relevant factors in the formation of gender attitudes among first- and second-generation immigrants.

The dissertation derives several conclusions that motivate my future research.

First, each of the studies emphasizes the importance of considering gender attitudes and norms to improve our understanding of changing demographic behaviors. Even when structural factors are accounted for, gender norms (in Chapter 2 and 4), gender role attitudes (in Chapter 4) and unmeasured factors (in Chapter 3) are found to be highly significant in understanding the different processes under study.

These findings are relevant for future research but also for prospective data collection and methodological advancement. Very few longitudinal surveys collect attitudinal measures regularly with the exception of the German Socio-Economic Panel (GSOEP) and the Household, Income and Labour Dynamics in Australia (HILDA). This constraint on the data limits our ability to study gender attitudes from a longitudinal perspective considerably, as most of the attitudinal data sources are cross-sectional, e.g. European Social Survey (ESS), European Values Study (EVS), World Values Survey (WVS), International Social Survey Programme (ISSP).

Furthermore, as highlighted in Chapter 4, recent studies show that life-course events appear to have an important impact on gender role attitudes even at later ages (Baxter, Buchler, Perales & Western, 2015; Kim & Cheung, 2015), which weakens the assumption that gender ideology is static across life. From a methodological perspective, an alternative is to treat gender attitudes and preferences as residual, as in Chapter 3. Nevertheless, if gender role attitudes vary over the life course, the multi-process approach cannot fully take into account time-variant unobservable factors. Further methodological advancements should be made in that direction to model time-varying unmeasured factors.

Finally, another potential methodological concern, which is partially addressed in Chapter 2 and 4, is that it remains difficult to disentangle the role played by gender norms from the context in which they take place. Chapter 2 takes a more traditional approach by including several control variables and marriage cohort trends to capture unobservable time-trends. Chapter 4 follows the culture economics literature and uses the epidemiological strategy, which is, nevertheless, not entirely satisfy-

ing as it treats culture as a static component. Future methodological advancement should provide further guidance on how to model, from a dynamic perspective, the diffusion of norms and values net of contextual factors.

The dissertation also derives two competing conclusions about the effects of changes in gender norms on future demographic trends. The second chapter provides strong evidence that as societies move towards equality, we should expect a "return of the family", that is, to more stable demographic behaviors and a closer match between outcome and preferences (Esping-Andersen & Billari, 2015). This main finding of Chapter 2 is, however, hindered by the increasing marriage selectivity highlighted in Chapter 3, which suggests that society as a whole is not moving towards a new equilibrium –only a selected group is. Therefore, while the overall findings predict a decline of marital instability when gender norms become egalitarian, they also reflect the "diverging destiny" thesis (McLanahan, 2004) by showing that stable partnerships appear to have become a privilege of the highly educated. Taken jointly, the conclusions of Chapter 2 and 3 question whether the gender revolution has produced a new egalitarian ideal, which can only be reached by college-educated and dual-earner couples. Future work should address further this issue.

For example, in the case of the United States, future research on this topic should take into account important changes in racial and educational differences with regard to both gender roles attitudes and structural opportunities (Davis & Greenstein, 2009; Goldin & Katz, 2009). In exceptional ethnographic work, Damaske (2011) takes an intersectional approach to study women's early expectations about employment. Her findings show that working-class Black women expect to continuously work as adults with respect to only half for white and Latina women. In parallel, lower-educated and minority men and women face worse opportunities in the labor market and, when employed, lower wages (Edin, Kefalas & Reed, 2004). Future studies should address how the interplay between these structural barriers

179

and realities moderate the relationship between gender norms and demographic behaviors in the United States.

From a methodological stand point, Chapter 2 and Chapter 3 underline the importance of a longitudinal approach to the study of changes over time in demographic behaviors. In particular, in Chapter 2, I combine over fifty years of longitudinal data on American marriages with gender norms and macro-level structural factors to understand divorce trends in the United States. This approach provides a unique perspective on the changing relationship between norms and behaviors. Differently from previous studies (e.g. Aassve, Billari & Pessin, 2012; Arpino, Esping-Andersen & Pessin, 2015; Esping-Andersen & Billari, 2015), Chapter 2 describes the entire diffusion of gender-egalitarian attitudes starting in the late sixties instead of using cross-national variation to point to different stages of the gender revolution. Also, Chapter 3 makes use of advanced event-history analysis modeling to relax the assumption that education and partnership decisions are independent processes. The results show that, failing to take into account unmeasured characteristics that drive jointly education transitions and partnership choices, may lead to understating the role played the higher educational attainment in family formation and dissolution.

Nevertheless, the findings of the second and third chapter on the United States cannot be fully generalized to other industrialized countries. As highlighted in the second and third chapters, the value of marriage as an institution stands out as a clear case of US exceptionalism (Cherlin, 2004; Lesthaeghe & Neidert, 2006). In parallel, divorce rates remain relatively high with respect to other countries, making meaningful comparison difficult. In particular, the findings of the second chapter have relatively low external validity, as they might be highly dependent of the context in which the marriages under study take place. Therefore, future research on changing gender norms and demographic trends should explore whether the selectivity of the "egalitarian equilibrium" is unique to the United States. There are many reasons to think that this may be case. One reason that stands out among

others is the lack of universal social policy and public family benefits in the United States (Brady & Burroway, 2012). Nevertheless, recent findings show that even in Scandinavian countries, which are known for their high levels of redistribution and comprehensive family policies, demographic behaviors are highly stratified by education (Jalovaara & Fasang, 2015). Future research should take a cross-national, and whenever possible, longitudinal perspective to address this puzzle.

References

Aassve, A., Billari, F. C., & Pessin, L. (2012). Trust and fertility dynamics. Dondena Working Papers n°55.

Arpino, B., Esping-Andersen, G. s., & Pessin, L. (2015). How do changes in gender role attitudes towards female employment influence fertility? A macro-level analysis. *European Sociological Review*, *31*(3), 370–382.

Baxter, J., Buchler, S., Perales, F., & Western, M. (2015). A life-changing event: First births and men's and women's attitudes to mothering and gender divisions of labor. *Social Forces*, *93*(3), 989–1014.

Brady, D. & Burroway, R. (2012). Targeting, universalism, and single-mother poverty: A multilevel analysis across 18 affluent democracies. *Demography*, *49*(2), 719–746.

Cherlin, A. J. (2004). The deinstitutionalization of American marriage. *Journal of Marriage and Family*, *66*(4), 848–861.

Damaske, S. (2011). A "major career woman"? How women develop early expectations about work. *Gender & Society*, *25*(4), 409–430.

Davis, S. N. & Greenstein, T. N. (2009). Gender ideology: Components, predictors, and consequences. *Annual Review of Sociology*, *35*, 87–105.

Edin, K., Kefalas, M. J., & Reed, J. M. (2004). A peek inside the black box: What marriage means for poor unmarried parents. *Journal of Marriage and Family*, *66*(4), 1007–1014.

Esping-Andersen, G. & Billari, F. C. (2015). Re-theorizing family demographics. *Population and Development Review*, *41*(1), 1–31.

Goldin, C. D. & Katz, L. F. (2009). *The race between education and technology*. Cambridge, MA: Harvard University Press.

Jalovaara, M. & Fasang, A. E. (2015). Are there gender differences in family trajectories by education in Finland? *Demographic Research*, *33*(44), 1241–1256.

Kim, E. H.-W. & Cheung, A. K. L. (2015). Women's attitudes toward family formation and life stage transitions: A longitudinal study in Korea. *Journal of Marriage and Family*, *77*(5), 1074–1090.

Lesthaeghe, R. J. & Neidert, L. (2006). The second demographic transition in the United States: Exception or textbook example? *Population and Development Review*, *32*(4), 669–698.

McLanahan, S. (2004). Diverving destinies: How children are faring under the second demographic transition. *Demography*, *41*(4), 607–627.