

# The intergenerational transmission of gender: Paternal influences on children's gender attitudes

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## Abstract

**Objective:** This study provides the first systematic longitudinal analysis of the influence of paternal involvement in family life—across childhood and adolescence—on the gender-role attitudes of children by the age of 14 or 15.

**Background:** Recent research suggests that, in post-industrial societies, paternal involvement in family life is increasing. Although previous studies of paternal involvement have considered paternal influences on children's cognitive or socio-emotional development, such studies have not yet addressed paternal influences on children's attitudes toward gender. Relatedly, previous studies on the intergenerational transmission of gender attitudes have analyzed maternal influences, but have neglected the significance of paternal influences. This study engages both strands of the research by analyzing the effects of paternal behaviors on children's attitudes toward gender roles.

**Method:** Multivariate linear regressions models were estimated on data from the *Longitudinal Study of Australian Children* (LSAC); a survey with biannual observations over 10 years for 2796 children born between 1999 and 2000.

**Results:** Fathers' time spent on childcare during childhood was associated with gender-egalitarian attitudes in children by the age of 14 or 15. The most powerful predictor of children's gender-role attitudes, however, was the amount of time fathers spent on housework during children's adolescence, both absolute and relative to the amount of time mothers spent on housework. Fathers' unpaid labor at home was as relevant for children's gender-role attitudes as mothers' paid labor in the workforce. These results held after controlling for maternal domestic behaviors and for the gender-role attitudes of both parents.

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**Conclusion:** Father involvement in childcare and housework during childhood and adolescence play an important role in shaping children's gender-egalitarian attitudes.

**KEYWORDS**

Australian/New Zealand families, father-child relations, housework/division of labor, intergenerational relations, longitudinal

## INTRODUCTION

Although post-industrial societies have seen increased gender equality over the last six decades, inequalities have persisted (Sayer, 2016; Scarborough et al., 2019). Where women have entered higher education and labor markets in increasing numbers (Buchmann et al., 2008), men's contributions to unpaid labor have lagged by comparison (Geist & Cohen, 2011). One key way to understand the dynamics of gender inequality in paid and unpaid labor is through the study of the intergenerational transmission of gender-role attitudes.

The question of how gender-role attitudes develop over the course of a lifetime is of critical relevance in gender stratification research (for a review, see Davis & Greenstein, 2009). Gender-role attitudes tend to stabilize after forming in childhood and adolescence (Farré & Vella, 2013), with early gender-role attitudes continuing to shape later behavior in the labor market, and thereby contribute to gender inequalities in well-being, earning opportunity, and potential to forge important working relationships (England, 2011). The development of gender-segregated attitudes toward gender roles during childhood and adolescence can therefore be seen to contribute to the disproportionate number of men in positions of power across societies.

A growing body of literature suggests that paternal attachment styles are changing (Barbeta-Viñas & Cano, 2017), and that fathers are making increasing contributions to housework (Chesters, 2012; Sullivan et al., 2014) and childcare (Cano, 2019; Hofmeister & Baur, 2015). If the children of these "new fathers" develop more gender-egalitarian beliefs, even partially as a result of their fathers' behavioral modeling, then paternal behaviors could potentially spark exponential growth in gender egalitarianism over generations. Despite this potential impact, studies analyzing the influence of paternal involvement in the intergenerational transmission of gender roles are surprisingly scarce.

Previous studies have primarily analyzed the effects of parental gender-role attitudes and behaviors on children's time devoted to housework, with the latter variable a proxy for children's adoption of gender roles (Cordero-Coma & Esping-Andersen, 2018; Cunningham, 2001a; Dotti-Sani, 2016; Evertsson, 2006; Gimenez-Nadal et al., 2017; Gupta, 2006; Hu, 2015). Several studies have analyzed the development of children's gender-role attitudes according to children's perspectives on the appropriate positions for women and men to occupy in society, and almost all prior studies have focused on either maternal influence (Cunningham, 2001b; Moen et al., 1997), or parental influence (Crouter et al., 2007; Dhar et al., 2019; Platt & Polavieja, 2016), in the intergenerational transmission of gender roles.

Another strand of research has studied the impact of paternal behavior on children's cognitive development (Cano et al., 2019), socio-emotional outcomes (Hughes & Gullone, 2010), school performance (McBride et al., 2009), occupational choice (van der Vleuten et al., 2018), and time spent on housework (Dotti-Sani, 2016). However, this research has largely overlooked the significance of paternal behavior in the development of children's gender-role attitudes. We found only three studies that specifically observe paternal influences on children's gender-role attitudes: Davis and Wills (2010), Dhar et al. (2019), and Halpern and Perry-Jenkins (2016). The three of these studies focus on either childhood, or adolescence. Our study therefore fills a

gap in the existing research through its analysis of the influence of fathers' behaviors, across childhood and adolescence, on children's gender-role attitudes.

This research contributes to the literature on fathering and the intergenerational transmission of gender roles in two key ways. First, this study identifies three distinct dimensions of paternal domestic involvement that potentially operate in different ways (and with differing strengths) in the social reproduction of gender: (i) paternal attachment (*warmth*), (ii) fathers' childcare time, and (iii) fathers' housework time (for which we include both fathers' absolute housework time and fathers' housework time relative to mothers' housework time). We are therefore able to identify which type of paternal domestic behavior is most significant in the development of gender-egalitarian attitudes in children. Second, this research analyzes the heterogeneous effects of paternal behaviors by children's developmental stages. Theories of child development (Bandura, 1977; Bem, 1975) attribute great relevance to early childhood for children's understanding and performance of gender. Other studies suggest that gender-role attitudes are predominantly shaped during adolescence (Cunningham, 2001a; Hill & Lynch, 1983). Our research takes both arguments into account and analyzes whether the influence of different types of paternal domestic behavior also differs depending on the stages of a child's development.

The aim of this study is to provide an encompassing empirical account of the associations between paternal domestic behaviors and children's gender-role attitudes, focusing on children in two-parent families with a mother and father. To accomplish this, we use high quality longitudinal data from the *Longitudinal Study of Australian Children* (LSAC) and multivariable linear regression modeling. We analyze children's gender-role attitudes at age 14 or 15 on the basis that, by that time, children will have formed beliefs about gender roles that may endure into adulthood. In addition, by using panel data we are able to track children's exposure to paternal influences across two different stages of child development (childhood and adolescence) for three types of domestic behavior, and thereby more accurately capture the complex dynamics of family interactions. As Moen et al. (1997) note in their study of mothers and daughters: "Studying only a single snapshot of a mother and daughter at one point in time fails to capture the reality of shifting opportunities" (p. 293). Our life-course research design therefore represents a relevant advancement to the literature in this field.

## THEORETICAL FRAMEWORK

Arguably, the most relevant sphere in which children's attitudes toward gender develop is in the home, where parents are the primary socializing agents (Maccoby & Martin, 1983). Berk (1985) describes the home as a "gender factory" and argues that households have two main aims: to produce goods and services, and to produce gender (i.e., to recreate the social construction of gender). Households produce and reproduce gender, and institutions such as schools and workplaces reinforce gender's production in the home with the structuring of school days, work hours, and leave policies. In the intergenerational transmission of attitudes and behaviors, children learn how to navigate the world through an adoption of attitudes that might be deemed most gender-appropriate. Paternal styles of attachment and the behaviors that fathers exhibit at home would therefore be of key relevance in the development of gender-role attitudes in children.

"Gender-role attitudes," according to van der Horst (2014), are "views held by individuals regarding the roles men and women should play in society. It is a term most often used with respect to the distinction between paid and unpaid work" (p. 2452). In this research, gender-role attitudes referred to as "gender-segregated" reflect the view that women should take care of the home and family, and men should provide economically, whereas "egalitarian" gender-role attitudes perceive men and women as equally responsible for provision and care. In this study, we

consider three types of domestic behaviors exhibited by fathers that may influence children's gender-role attitudes: paternal warmth, fathers' childcare time, and fathers' housework time.

Two key theories outline how different paternal behaviors influence children's gender-role attitudes. The *social learning theory* (Bandura, 1977) describes learning as a cognitive process that occurs through the observation of behavior, and through direct instruction. Accordingly, Bisin and Verdier (2000, 2001) argue that "preferences of children are acquired through an adaptation and imitation process which depends on their parents' socialization actions" (2001, p. 299). In other words, parents influence children's preferences through two channels: *role modeling* (or *exposure*), and *parenting style* (Doepke & Zilibotti, 2017). Children learn how to behave or think by observing and imitating their parents' actions and conversations. Parental influence is also established directly through parenting style. An "authoritative parenting style" is considered most effective for child development and comprises both warmth (i.e., emotional attachment) as well as control (i.e., sanctioning or punishing unwanted behavior) (Baumrind, 2013). We examine how the development of gender-role attitudes in children may vary according to exposure to paternal role modeling (e.g., fathers' housework hours), and/or degrees of direct paternal influence through parenting style (e.g., fathers' childcare hours, paternal warmth).

The *theory of doing gender* (West & Zimmerman, 1987) attends to the role modeling noted in the social learning theory. The theory of doing gender says that gender is not constant or fixed, but rather produced and reproduced through everyday interactions; gender is constituted by "sex-class-specific ways of appearing, acting and feeling" (Goffman, 1977, p. 303) that serve to accomplish gender, or to reaffirm membership into a categorical identity (i.e., gender-typed behaviors that align members to each other in social situations) (Berk, 1985). An individual's relationship to their gender might therefore alter over the course of a lifetime, because gender is accomplished socially, whereas sex is assigned. Thus, children learn how to "do gender" (or "undo gender"), via parental instruction or role modeling, as they watch their parents do (or undo) gender. The accomplishment of gender is put into practice through everyday interaction, and through participation in activities, behaviors, and feelings that are culturally scripted as feminine or masculine. In one of several previous unpublished manuscripts of the doing gender paper, West and Zimmerman (1987) note:

The task of "measuring up" to one's gender is faced again and again in different situations with respect to different particulars of conduct. The problem involved is to produce configurations of behavior *which can be seen* by others as normative gender behavior. (p. 20, emphasis in original)

## Father domestic behaviors

We analyze three dimensions of father involvement "which can be seen" by others as feminine-typed behaviors in contemporary western societies: childcare, housework, and parenting with an emotionally warm style of attachment. These behaviors are identified at the macro-level of "intensive mothering" culture as forming part of a cultural script for what makes a "good" mother (Hays, 1998). For example, childcare and housework have long been considered "women's work," and are therefore essential to women's "doing gender" (Berk, 1985; Bianchi et al., 2012; Hochschild & Machung, 1989). Relatedly, the Bem-Sex-Role Inventory (BSRI) (Bem, 1974) which classifies behaviors as either masculine, feminine or androgenous, considers attention and warmth toward children as key dimensions of femininity. More recent empirical evidence demonstrates that, in post-industrial societies (such as Australia), the social construction of femininity comprises emotional warmth, caring behavior, other-centered behavior, and child-rearing (Adapa et al., 2016).

This study examines whether children develop more egalitarian gender-role attitudes when fathers participate in activities that are gender-typed as feminine. Children who are exposed to two parents who behave in gender-atypical ways may develop more gender-egalitarian attitudes than those who are exposed to none, or just one. Just as maternal employment is a key predictor of gender-egalitarian attitudes in children (with paid labor representing a masculine gender-typed role) (Moen et al., 1997), it might be inferred that increased paternal involvement in feminine gender-typed activities, such as housework or childcare, would also be conducive to more egalitarian gender-role attitudes in children. When fathers engage in practices that are socially and culturally gender-typed as feminine, gender differences between parents tend to blur or even fade away (Goffman, 1977). The social learning theory (Bandura, 1977) points to the idea that exposure to paternal practices that blur gender divisions will affect the way children conceive, perceive and understand what it means to be masculine or feminine. Therefore, we expect children's gender-role attitudes to be driven by both mothers' and fathers' behaviors and to reflect increased gender egalitarianism when both parents engage in gender-atypical behaviors.

Looking at previous theories and empirical studies, there are several mechanisms through which paternal warmth and time allocated to childcare and housework might affect children's gender-role attitudes. Fathers who are highly involved in these domestic practices have been shown to hold more egalitarian attitudes toward gender roles (Bulanda, 2004; Evertsson, 2014). As noted in the social learning theory, children may therefore form increasingly egalitarian gender-role attitudes by observing their fathers engaging in behaviors gender-typed as feminine (*role modeling*), and/or because their fathers impart their own egalitarian gender-role attitudes onto their children through conversation or direct instruction (*parenting style*). In addition, fathers who display warmth with their children and are involved in childcare or housework are likely to engage in both feminine-typed and masculine-typed behaviors. Men who put into practice both masculine- and feminine-typed behaviors have been shown to hold higher self-esteem and a higher internal locus of control (Bem, 1974), which ultimately renders them more nurturing fathers than those adopting only masculine-typed behaviors (Baumrind, 1982). Therefore, fathers who are warm and highly involved with their children enact both feminine and masculine gender-typed behaviors, which would be either directly communicated or modeled at home. Children who are exposed to two parental figures who each model both feminine- and masculine-typed behaviors should develop less gender-segregated gender views.

Drawing from large-scale longitudinal datasets, a growing body of research has found that children who have warm, involved fathers develop better cognitive functioning and socio-emotional traits than children whose fathers are less warm and spend less time involved in childcare (Cano et al., 2019; Hsin & Felfe, 2014). Studies have also found that children with greater intellectual development and emotional stability are more likely to reflect both feminine and masculine traits (Bem, 1975; Woodhill & Samuels, 2003), which should correspond with the development of more egalitarian attitudes regarding the positions that women and men "should" occupy at home and at work. Therefore, we expect that increased paternal warmth and time spent on childcare should lead to more gender-egalitarian views in children.

It is relevant to note that not all domestic behaviors are equally gender-typed. Research using time-use data has shown the gender gap to vary by type of activity. Such research has consistently found that housework is particularly gender-typed, and therefore the gender gap in time spent on housework is greater than in time spent on childcare (Bianchi, 2011; Dotti-Sani, 2016). Bianchi (2011) found that the gender gap in housework was nine hours per week, whereas for childcare the gap was seven hours per week. So although the gender gap in childcare has narrowed in recent years (Cano, 2019), it has stagnated in the case of housework (Sullivan et al., 2014). Regarding parental warmth, mothers tend to be warmer than fathers (McKinney & Renk, 2008), however, there has been a movement toward gender equalization with the so-called "new fatherhood"; a style of fathering based on warmer attachments and respectful communication between children and fathers (Barbeta-Viñas & Cano, 2017, p. 25;

but see Castrillo et al., 2021). This suggests that, although childcare and emotionally warm parenting are still considered feminine practices (despite a tendency toward universality), housework remains the dividing line in gendered household practices. Therefore, we might expect that exposure to different types of paternal behaviors would have differing consequences for children's gender-role attitudes, which leads us to the following hypothesis: Hypothesis 1a—Greater paternal warmth and increased paternal participation in childcare and housework hours will be conducive to more egalitarian gender-role attitudes in children. We expect fathers' housework hours to be the most influential of these three dimensions.

If this hypothesis is substantiated, an important and previously unexplored question to consider is whether it is fathers' absolute contributions to housework, or fathers' contributions relative to mothers' contributions, that most influences gender-role attitudes in children. This distinction is important because the absolute time fathers spend doing housework may reflect household preferences for tidiness (Platt & Polavieja, 2016) rather than an equal division of domestic labor. For example, a father reporting high contributions to housework may still belong to a household reflecting gender-segregated roles if the mother spends double or triple the amount of time on housework. In sum, absolute housework does not necessarily reflect gender-egalitarian practices, whereas proportion does. We posit that fathers' housework time relative to mothers' housework time reflects how gender is produced in the household. Therefore, our next hypothesis is: Hypothesis 1b—Fathers' housework time relative to mothers' housework time will be more predictive of gender-egalitarian attitudes in children than fathers' absolute housework time.

Although this is the first study to analyze the influence of a range of paternal practices (across childhood and adolescence) on children's gender-role attitudes, several previous studies have analyzed the effect of parental practices on gender-role attitudes (i.e., the couple's division of labor, or parenting styles). Platt and Polavieja (2016) used longitudinal data from Britain to identify whether parental behaviors or attitudes mattered most in influencing children's gender-role attitudes, and concluded that behaviors (particularly the number of years that mothers spent as homemakers) were most relevant. Moen et al. (1997) found the opposite, and concluded that mothers' gender-role attitudes were the most relevant predictor, observing no significant effects for maternal behavior (e.g., participation in the labor market). It is worth noting that the data used by Moen et al., were collected in the United States between 1956 and 1986 ( $N = 246$  mother-daughter dyads), when gender roles were more stringently defined by gender-segregated values, whereas Platt and Polavieja used longitudinal data from 1994 to 2008. And, although not directly analyzing paternal warmth, Lin and Billingham (2014) studied the relationship between parenting styles and children's gender-role identities, and found that, out of a sample of 230 undergraduate students, an authoritative style of paternal parenting was significantly and positively correlated with an androgenous gender identity. Perales et al. (2021) also used LSAC to analyze the associations between parents' and children's gender ideology, finding a strong association between the two. The studies of Halpern and Perry-Jenkins (2016), Davis (2007), and particularly of Davis and Wills (2010), and Dhar et al. (2019) represent the studies that are closest to ours: Davis and Wills (2010) analyzed the influence of fathers' gender-role attitudes on children's gender-role attitudes using structural equation models with data from the National Longitudinal Study of Youth ( $N = 206$ ), and found a strong association between the two. The same results were reported by Dhar et al. (2019) in a cross-sectional sample of Indian students. We further build on this literature by studying the influence of various paternal behaviors using unique longitudinal data, a wider set of control variables, information collected from fathers, mothers and children, and by analyzing potential heterogeneous effects by children's developmental stages.

## Significance of paternal behaviors at different stages of children's development

Another significant question relates to the timing of paternal influences; that is, do paternal domestic behaviors matter most for children's gender-role attitudes when exhibited during

childhood or adolescence, or both? Research suggests that parents become less influential as children grow up (for a review, see Heckman & Mosso, 2014) because parent–child time declines, and so, therefore, does parental influence. Most psychological theories follow a similar line of thinking, arguing that early childhood is the most sensitive and relevant period in children’s development of attitudes toward gender (Kohlberg, 1966). By contrast, the social learning theory takes a life-course approach, framing gender as it is recreated throughout a lifetime (Bussey & Bandura, 1999). It is important to differentiate here between the development of gender identity, and parental influences on the development of children’s gender-role attitudes. In the latter, the social learning theory argues that parental influences (paternal and maternal) should be strongest during childhood (Bussey & Bandura, 1999). This is because, during adolescence, children’s worlds expand far beyond the home environment, and the influence of their peers and the media becomes stronger than that of their parents. Following this, paternal warmth and involvement in childcare and housework should have a stronger effect during childhood than during adolescence. The study of Halpern and Perry-Jenkins (2016), however, found that fathers’ domestic behaviors had no effect on children’s gender-role attitudes during childhood. Halpern and Perry-Jenkins’ sample included only working-class families ( $N = 109$  dual-earner couples), meaning that more evidence—including a larger sample size representing variation in socioeconomic background—is needed to investigate the extent to which paternal behaviors matter for children’s gender-role attitudes.

There is also reason to expect that fathers’ domestic behaviors will have a significant influence on children’s gender-role attitudes during adolescence. The *gender intensification hypothesis* (Hill & Lynch, 1983) suggests that, during early adolescence, there is an intensification of pressures from parents, peers and oneself to conform to gender stereotypes, meaning malleability of gender-role attitudes should be greater during adolescence (Ruble et al., 2007). Huston and Álvarez (1990) state: “Social pressures for sex-appropriate behavior are relatively benign during middle childhood, particularly for girls. With the onset of puberty, however, both psychological and social forces act to increase awareness of gender roles and efforts to adhere to them” (p. 158). This points to adolescence as a potentially more receptive developmental stage for the development of gender roles.

Finally, the social learning theory posits that one key way children learn how to do gender is by first observing their parents, and then by putting gender-typed behaviors into practice themselves. When children enter adolescence they start to perceive their own ability to perform gender, along with the social reactions to doing so, which potentially increases paternal influence through a mutual feedback loop between the child’s observations of their father and the child’s own gender practices (Bussey & Bandura, 1999). The same holds true for childcare and housework, as adolescent children are better able to share in unpaid housework and childcare duties than very young children (Shelton, 1992). When fathers perform housework or provide care for others during children’s adolescence, these activities are more likely to be shared between the child and the father. Thus, gender-egalitarian role modeling in the distribution of unpaid labor may play a more influential role in adolescence than in early childhood. This hypothesis is confirmed by Cunningham’s study (2001b), which analyzed the relative importance of parental behaviors using data from Detroit. Cunningham’s longitudinal study identified the significance of timing in the influence of parental practices, and concluded that the parental division of labor was particularly relevant when children were adolescents. The same was also found in a more recent study by Cordero-Coma and Esping-Andersen (2018), which sampled children aged from 8 to 15 years old from the German Socio-Economic Panel. Although these studies primarily focus on maternal or parental influences, we put forward the following hypothesis: Hypothesis 2—Paternal practices (parenting with emotional warmth, childcare time, and housework time) will show significant associations with children’s gender-role attitudes whenever they occur during children’s childhood and adolescence, but that the influence of these behaviors will be greater during adolescence.

## METHODS

### Data and sample

We use data from *Growing Up in Australia: The Longitudinal Study of Australian Children* (LSAC); a biannual birth-cohort study of Australian children and their families, with information collected (since 2004) from the study child, their parents, and a teacher/carer, through a combination of face-to-face and self-complete questionnaires. The LSAC sample was identified using complex probabilistic methods and is largely representative of two cohorts of Australian children; one born between March 1999 and February 2000 ( $n = 5107$  children), and one born between March 2003 and February 2004 ( $n = 4983$  children). For further details on the study's methodology, see AIFS (2016).

We restrict our analyses to children in the older LSAC cohort ("K Cohort"), and to study waves 1 to 6, when children were aged 4 to 14 years old respectively. We focus on this subsample because this age range constitutes a sensitive period in children's acquisition of gender beliefs, and a life-course stage in which children's exposure to parental influence is particularly pronounced. Our dependent variable (children's gender-role attitudes) was only measured once in LSAC data, when children were 14 or 15 years old, which coincided with wave 6 of the data collection. This age represents a key life-course stage in the expression of gender identity, and an age when children are able to make relatively independent decisions about their behaviors and beliefs (Galambos et al., 1990). Our measures of paternal and maternal domestic practices and parental socio-economic backgrounds were collected across the majority of the available waves (1–6). Such rich data allow us to analyze paternal influences on children's gender-role attitudes across different stages of child development, including early childhood and adolescence.

The initial sample size at wave 6 of LSAC, when our dependent variable was measured, was 3537. Our analyses are restricted to children who were living with their mother and father, and whose parents were both survey respondents ( $n = 2796$ ). Patterns of observations with missing information are as follows: children's gender-role attitudes ( $n = 149$ ), fathers' and mothers' warmth ( $n = 221$ ), and fathers' and mothers' childcare and housework time ( $n = 417$ ). Observations with missing information in control variables are distributed as follows: fathers' and mothers' ages ( $n = 35$ ), fathers' and mothers' levels of education ( $n = 14$ ), fathers' and mothers' employment ( $n = 6$ ), siblings' composition ( $n = 54$ ), fathers' gender-role attitudes ( $n = 674$ ), and mothers' gender-role attitudes ( $n = 87$ ). The high number of selective missing values in fathers' gender-role attitudes is of particular concern, as those who replied to these questions tended to hold university degrees, and tended to spend more time on childcare and housework. Therefore, excluding these cases from the analysis would represent an important source of sample selection bias. We address this issue by using multiple imputation based on chain equations and input data on all variables included in the analyses. We use Rubin's rules (Rubin, 1987) to combine the results of 20 imputed datasets. After imputing missing cases, our analytical sample includes 2796 children.

### Key explanatory variables: Father's domestic behaviors across children's childhood and adolescence

Our key explanatory variables represent three relevant dimensions of paternal involvement in family life. First, we captured *fathers' warmth* using a battery of 17 questions asked to parents in LSAC about their behaviors toward their children. We factor analyzed them to derive specific indicators of parenting dimensions. The results are shown in Table A2. In the factor analysis, we retained only those factors with eigenvalue larger than 1 (i.e., two factors). Factor loading represents the level of correlation between each variable, represented in rows, and each factor, in columns. The larger the factor loading, the larger the correlation between a variable



and a factor. We highlighted in bold those variables with a factor loading larger than 0.25. By looking at the factor loadings of the variables, we interpreted the first factor as an index of positive, affectionate father-child relationship (i.e., warmth). We interpreted the second factor as an index of inconsistent and problematic father-child interactions. Because we were interested in *warmth*, we retained the first factor and included it as a variable in our regression models. This variable ranges between  $-4.7$  and  $2.5$  for fathers and between  $-5.1$  and  $2$  for mothers. Second, we measured *fathers' childcare time* (in hours per week) with the question: "How much time per week do you personally spend playing with your children, helping them with personal care, teaching, coaching or actively supervising them, getting them to childcare, school or other activities?" Our third independent variable is *fathers' housework time*, which we measured (in hours per week) with the following question: "How much time per week do you personally spend on domestic tasks such as housework, home maintenance, shopping and cooking?" Similar measures following the same procedure were created for mothers' warmth and mothers' weekly hours spent on childcare and housework.

The parents responded to our three key analytical explanatory variables in four out of the six study waves; when children were 6, 8, 12, and 14 years old. To investigate the timing of paternal and maternal influences, we used measures of fathers' and mothers' warmth, and weekly hours of housework and childcare, when children were 6 (childhood) and 12 (adolescence) years old. We measured adolescence at age 12, and not at age 14, because measuring parental behaviors two years before measuring children's gender-role attitudes reduces issues arising from reverse causality. We also estimated our main models using time averages from our three key explanatory variables across all available waves. Results of these analyses are shown in Tables A4 and A5 in the Supplementary Online Appendix. Pearson correlations between all independent variables are shown in Table A1 in the Supplementary Online Appendix.

## Dependent variable

Our dependent variable is *children's gender-role attitudes*, which we measured with a battery of three questions that were asked to children in wave 6 of the LSAC, and are as follows:

*How strongly do you agree or disagree with the following statements?*

- (a) *It is better for the family if the husband is the principal breadwinner outside the home and the wife has primary responsibility for the home and children;*
- (b) *If both, husband and wife, work, they should share equally in the housework and childcare;*
- (c) *Ideally, there should be as many women as men in important positions in government and business.*

Respondents answered on a scale between 1 (*strongly disagree*) and 5 (*strongly agree*). We reverse-coded answer (a) to make it comparable with answers (b) and (c) so that higher values mean greater support for gender-egalitarian views across the three responses. We summed the three items into one variable representing the values toward the "appropriate" roles for women and men at work and at home (i.e., gender-role attitudes) and divided it by three, so that our final dependent variable corresponds to a 5-point Likert scale measure.

## Control variables

In our multivariate models, we adjusted for a set of control variables commonly used in studies on the intergenerational transmission of gender roles (see Table 1). These included whether the

TABLE 1 Descriptive statistics

	Age of the child at data collection	Mean/%	SD
Dependent variable			
Child's gender-role attitudes	14	3.87	0.71
Domestic behaviors—Child at age 6			
Father's warmth	6	0.09	0.83
Father's weekly childcare hours	6	12.04	10.22
Father's weekly housework hours	6	9.11	7.82
Mother's warmth	6	0.13	0.73
Mother's weekly childcare hours	6	23.14	18.20
Mother's weekly housework hours	6	25.69	18.32
Domestic behaviors—Adolescent at age 12			
Father's warmth	12	-0.18	0.73
Father's weekly childcare hours	12	8.34	7.51
Father's weekly housework hours	12	8.56	7.64
Mother's warmth	12	-0.22	0.96
Mother's weekly childcare hours	12	20.34	13.54
Mother's weekly housework hours	12	21.92	10.83
Controls			
Father is employed, child age 6	6	97%	
Mother is employed, child age 6	6	74%	
Father is employed, child age 12	12	95%	
Mother is employed, child age 12	12	83%	
Number of child's older siblings	12	0.71	0.72
Number of child's younger siblings	12	0.79	0.81
Child has brothers	12	59%	
Child has sisters	12	58%	
Father's age	12	46.19	4.28
Mother's age	12	43.99	5.40
Father has university degree	14	36%	
Mother has university degree	14	41%	
Father's gender-role attitudes	12	3.52	0.64
Mother's gender-role attitudes	12	3.70	0.66
Child is a girl	4	49%	
Child speaks English at home	4	92%	
Observations		2796	

Source: Longitudinal Study of Australian Children. K Cohort, Waves 1 to 6 (2004–2014). Descriptive statistics averaged over 20 imputations.

child has a brother or sister at home (two dummy variables); number of older or younger siblings (two continuous variables); language spoken at home (English or another language); mother's and father's highest level of education (university degree or below university degree), observed across the six available waves; mother's and father's employment status (employed or not employed, which includes both unemployed and out of the labor market); mother's and father's age (two continuous variables); gender of child (girl or boy); and mother's and father's gender-role attitudes, which were measured in LSAC only once, in wave 5, when children were 12 years

old. The variables capturing mothers' and fathers' gender-role attitudes were measured using the same items and responses used to measure children's gender-role attitudes. Given the relevance of parental gender-role attitudes (Platt & Polavieja, 2016), we estimated models before and after controlling for parental gender-role attitudes. A description of each variable included in our analysis, along with the child's age at the point it was measured, and means and standard deviations, are shown in Table 1.

## Estimation strategy

We modeled the intergenerational correlations between paternal behaviors and children's gender-role attitudes using multivariate linear regression, which takes the following form:

$$GA_c = \beta_1 W_f + \beta_2 C_f + \beta_3 H_f + \beta_4 X_{cmf} + \eta + \varepsilon \quad (1)$$

where the *c*, *f*, and *m* subscripts stand for *child*, *father* and *mother* respectively; *GA* is the variable capturing endorsement to gender-role attitudes; *W* is the factor variable indexing father-child emotional attachment (i.e., warmth); *C* is the variable capturing fathers' time in childcare activities; *H* represents weekly hours devoted to housework activities;  $\eta$  is the model's intercept;  $\beta_1$ ,  $\beta_2$ , and  $\beta_3$  are the key parameters of interest capturing the intergenerational influences of paternal behavior; *X* is a set of control variables for observable characteristics of children, fathers and mothers;  $\beta_4$  is the respective vector of coefficients; and  $\varepsilon$  is the usual random error term.

To test Hypotheses 1 and 2, we estimated four regression models. First, we focused on the influence of the absolute level of paternal domestic behaviors during childhood, while controlling for parental education and employment, and other household variables. In a second regression model, we analyzed the significance of paternal influences across different stages of child development by including fathers' behaviors during adolescence, in order to study whether different trajectories of paternal involvement throughout a child's life-course are associated with differences in children's gender-role attitudes. In a third regression model, we included mothers' domestic behaviors (i.e., maternal warmth, childcare time, and housework time). Then, in Model 4, we analyzed whether the relationships between paternal behaviors and children's gender role-attitudes are robust after the inclusion of fathers' and mothers' gender-role attitudes. Model 4, therefore, includes all variables.

## RESULTS

In this section we present the multivariable results to test our hypotheses. We first present empirical evidence testing our two hypotheses using different sets of regression models. We then comment on a set of sensitivity analyses conducted as robustness checks.

### Testing hypothesis 1a: Types of domestic behaviors

Our first hypothesis stated that fathers' domestic behaviors (warmth, childcare time, and housework time) would be conducive to more egalitarian gender-role attitudes in children, with fathers' time spent on housework being the most relevant behavior in influencing children's gender-role attitudes. Fathers' time spent on childcare when children were age 6 was associated with more egalitarian gender-role attitudes in children by the age of 14 or 15. This association held before ( $\beta = 0.047$ ,  $p < .05$ ) and after controlling for fathers' and mothers' gender-role

attitudes ( $\beta = 0.031, p < .05$ ). However, there was a decline in the magnitude (from 0.47 in Model 3 to 0.31 in Model 4, Table 2) and statistical significance (the effect of 0.31 in Model 4 was at the limit of significance:  $p$  value = .048) after controlling for both parents' gender-role attitudes, suggesting that fathers with more egalitarian gender values self-selected to be more involved in childcare. Among the three key domestic behaviors, the most relevant for egalitarian gender-role attitudes was fathers' time devoted to housework during children's adolescence ( $\beta = 0.071, p < .05$  in Model 4, Table 2). Paternal warmth showed no association with children's gender-role attitudes. These results are partially in line with our first hypothesis. In contrast, adolescents with mothers who parented with more warmth and spent less time on housework showed more egalitarian gender-role attitudes. Fathers' housework time showed a stronger influence on children's gender-role attitudes than mothers' domestic behaviors, and a stronger influence than maternal employment status or level of education, suggesting that paternal domestic behaviors—particularly housework—plays a key role in the development of children's gender-role attitudes. The influence of fathers' gender-role attitudes was stronger than the influence of any of the three dimensions of domestic behaviors analyzed, suggesting that, when fathers communicate their own views on gender to their children, this plays an important role in the formation of children's attitudes toward gender.

### Testing hypothesis 1b: The influence of relative versus absolute housework time

Our next hypothesis stated that the relative proportion of fathers' total housework time (i.e., fathers' housework time relative to mothers' housework time) would matter more for the development of egalitarian gender-role attitudes than fathers' absolute housework time. Looking at Table 2, Model 3, we can see that when mothers' housework time was included into the model, fathers' housework time was still substantially, positively and significantly associated with children's egalitarian gender-role attitudes. The coefficient of mothers' housework time appeared also substantially and significantly, but negatively, associated with egalitarian gender-role attitudes. The coefficient of fathers' time spent on housework barely changed once we included mothers' domestic behaviors to the model. This, together with the significant negative effect of mothers' housework time, suggests that both absolute and relative housework time are relevant for the development of gender-egalitarian values in children. This finding only applied during children's adolescence. Parental division of housework during childhood appeared to have no significant effect on children's gender-role attitudes.

Table 2 also shows results for control variables. Looking at Model 4, we can see that girls had far more egalitarian gender-role attitudes than boys in the sample, holding all else constant. Children whose mothers held a university degree scored significantly higher in gender egalitarianism than children whose mothers did not, holding all else constant ( $p < .001$ ). Yet, for fathers, having a university degree was not substantially or significantly associated with children's gender-role attitudes. Similarly, paternal employment showed no associations with children's gender-role attitudes. All other control measures (e.g., speaking English at home, parents' ages, number and gender of siblings) appeared to have no significant impact on children's gender-role attitudes after fathers' and mothers' behaviors and gender role-attitudes were factored into the model.

### Testing hypothesis 2: Significance of paternal involvement at different stages of children's development

Different dimensions of paternal involvement varied in relevance for children's gender-role attitudes by age 14 or 15, depending on when these behaviors occurred. Fathers' housework time during children's adolescence—but not during childhood—was shown to significantly increase

**TABLE 2** Regression models of children’s gender attitudes—Standardized coefficients

	M1		M2		M3		M4	
	$\beta$	SE	$\beta$	SE	$\beta$	SE	$\beta$	SE
<i>Domestic behaviors</i>								
Father’s warmth, child age 6	−0.010	0.022	−0.012	0.029	−0.032	0.029	−0.039	0.029
Father’s childcare, child age 6	0.051*	0.021	0.045*	0.025	0.047*	0.025	0.031*	0.025
Father’s housework, child age 6	0.024	0.023	0.015	0.024	0.018	0.024	0.009	0.024
Father’s warmth, child age 12			−0.002	0.028	−0.003	0.028	−0.010	0.028
Father’s childcare, child age 12			0.015	0.026	0.016	0.026	0.011	0.026
Father’s housework, child age 12			0.074***	0.027	0.072**	0.028	0.071**	0.026
Mother’s warmth, child age 6					0.011	0.023	0.003	0.024
Mother’s childcare, child age 6					−0.018	0.025	−0.016	0.024
Mother’s housework, child age 6					−0.002	0.024	−0.011	0.024
Mother’s warmth, child age 12					0.066**	0.025	0.065**	0.025
Mother’s childcare, child age 12					−0.006	0.024	−0.004	0.023
Mother’s housework, child age 12					−0.059**	0.023	−0.058**	0.022
<i>Controls</i>								
Father’s gender-role attitudes							0.135***	0.024
Mother’s gender-role attitudes							0.113***	0.022
Father is employed, child age 6	−0.015	0.024	−0.009	0.025	−0.009	0.025	−0.016	0.025
Mother is employed, child age 6	0.097***	0.022	0.071***	0.022	0.064**	0.024	0.055*	0.023
Father is employed, child age 12			−0.003	0.025	0.001	0.026	0.010	0.025
Mother is employed, child age 12			0.067**	0.024	0.055*	0.025	0.039	0.024
Child has brothers	0.048	0.029	0.045	0.029	0.073	0.022	0.045	0.029
Child has sisters	0.024	0.029	0.024	0.028	0.067	0.026	0.028	0.028
Number of younger siblings	−0.083**	0.028	−0.056*	0.029	−0.064	0.030	−0.053	0.031
Number of older siblings	−0.055	0.024	−0.049	0.029	−0.025	0.025	−0.019	0.029
Child is a girl	0.247***	0.021	0.237***	0.021	0.224***	0.021	0.247***	0.020
Father has university degree	0.038	0.023	0.041*	0.023	0.044*	0.023	0.035	0.022

(Continues)

TABLE 2 (Continued)

	M1		M2		M3		M4	
	$\beta$	SE	$\beta$	SE	$\beta$	SE	$\beta$	SE
Mother has university degree	0.094***	0.023	0.089***	0.023	0.084***	0.023	0.065**	0.023
Father's age	0.011	0.028	0.002	0.030	0.010	0.030	0.018	0.029
Mother's age	0.012	0.029	0.016	0.029	0.016	0.031	0.006	0.030
Child speaks English at home	0.025	0.020	0.027	0.019	0.023	0.029	0.009	0.020
Constant	-0.011	0.020	-0.019	0.021	-0.013	0.020	0.003	-0.019
<i>N</i>	2796		2796		2796		2796	

Source: Longitudinal Study of Australian Children. K Cohort, Waves 1 to 6 (2004–2014), multiply imputed data.

\* $p < .05$ ;

\*\* $p < .01$ ;

\*\*\* $p < .001$ .

the likelihood of more egalitarian gender-role attitudes in children. Yet the effect of fathers' childcare time was only substantial and statistically significant when enacted during childhood, and not during adolescence. The magnitude and strength of the association of fathers' housework time in children's adolescence ( $\beta = 0.071$ ,  $p < .01$  in Model 4, Table 2) was superior to fathers' childcare time during childhood ( $\beta = 0.031$ ,  $p < .05$  in Model 4, Table 2). Paternal warmth showed no effect on children's gender-role attitudes, in either childhood or adolescence.

Interestingly, even though the formation of children's gender-role attitudes was influenced by both mothers and fathers, it was done so through different domestic behaviors, and at different stages of a child's development. For example, paternal warmth was shown not to influence children's gender-role attitudes, whereas maternal warmth was the strongest indicator of children's gender-role attitudes of the three key (maternal) domestic behaviors measured, but was only significant during children's adolescence ( $\beta = 0.065$ ,  $p < .01$ ). Housework was the only domestic behavior among the three analyzed that mattered for both fathers and mothers, but, as noted, with contrary effects, and only during children's adolescence. The only domestic practice occurring during childhood that was associated with children's gender-role attitudes was fathers' childcare time, and the effect was relatively weak. These results suggest that in both developmental stages—childhood and adolescence—paternal behaviors influenced children's gender-role attitudes, but it was during adolescence that children's gender-role attitudes appeared to be most influenced by fathers' domestic behaviors, which is in line with the *gender intensification hypothesis* (Hill & Lynch, 1983).

## Supplementary analyses and sensitivity tests

Several supplementary analyses were carried out to check the sensitivity of the effects reported in the main analyses. Findings of these additional analyses are available in the Supplementary Online Materials. First, we tested a categorical form of our three key independent variables when they were measured during adolescence, in order to avoid possible multicollinearity issues between those same variables measured during childhood. Results of this analysis are shown in Table A3. Then, we estimated models using time averages from our independent variables using values from ages 4 to 14, when available. Although this methodological approach means that we could not analyze effect variations across children's socialization stages, it has the advantage of incorporating all available data across the four waves in which parents responded to our three key independent variables (see Table A4 for an explanation of when each variable in this

sensitivity test was measured, and Table A5 for results of the sensitivity test). Last, we replicated our analyses without using multiple imputation for missing cases (available upon request). Findings of these three robustness checks were similar to those reported in the main analyses.

## DISCUSSION AND CONCLUSION

In societies where gender behaviors and perceptions are changing rapidly, and fathers are becoming increasingly involved in the lives of their children (Cano, 2019; Sullivan et al., 2014), the study of paternal influences on children's gender-role attitudes holds particular relevance. This became especially apparent during the Covid-19 pandemic, in which global school closures and stay-at-home mandates suddenly boosted father-child time, and, by extension, paternal influence. Our study contributes to the existing literature on fathering (e.g., Cano et al., 2019; Fernandez-Lozano, 2019; González et al., 2018; Grunow & Evertsson, 2019; Lamb, 2004) and the intergenerational transmission of gender roles (e.g., Dhar et al., 2019; Halpern & Perry-Jenkins, 2016). Although parental influence on gender-role attitudes has previously been studied within sociology (Cordero-Coma & Esping-Andersen, 2018; Cunningham, 2001b; Moen et al., 1997; Platt & Polavieja, 2016), our key contribution to this field is the conceptualization of paternal behaviors in their different dimensions, each worthy of study in its own right in the analysis of children's attitudes toward, and the intergenerational transmission of, gender roles.

Previous studies such as Moen et al. (1997), Cunningham (2001b) and, more recently, Platt and Polavieja (2016) have focused on whether parental attitudes or parental behaviors are most significant in influencing children's attitudes toward the gendered division of labor. Moen et al. (1997) concluded that "when socialization processes are effective, it seems that they operate through verbal persuasion rather than role modeling" (p. 291), whereas Platt and Polavieja (2016) found the opposite, suggesting that "behaviours, particularly mothers' time as a housewife, could be more important than parental attitudes in the formation of adolescents' ASDL" (p. 12; ASDL stands for Attitudes toward the Sexual Division of Labor). Our study followed a new line of inquiry and analyzed which type of paternal behavior mattered most for children's gender-role attitudes; emotional attachment style, time devoted to childcare, or time devoted to housework (both absolute and relative to mothers' housework time). Importantly, we also analyzed these three dimensions of paternal involvement dynamically across two stages of child development; childhood and adolescence. Our results lead to four novel conclusions about the relationship between fathers' domestic behaviors and children's gender-role attitudes.

First, our analyses showed that paternal involvement at home was more strongly associated with the development of gender-role attitudes in children when that involvement was directed toward housework (e.g., cleaning, home maintenance, shopping or cooking), which is in line with our Hypothesis 1a. Fathers' time spent on childcare (e.g., bathing, teaching or taking children to school) was also significantly and positively associated with more egalitarian gender views in children, although less strongly than fathers' housework time. These results were robust to the different specification approaches used in the regression models, and they held after controlling for maternal involvement at home and for both parents' gender-role attitudes. The magnitude of the association was moderate to large. For example, in Model 4, fathers' time spent on housework during children's adolescence was associated with an increase of 0.071 ( $p < .005$ ) in children's egalitarian gender-role attitudes, which was comparable with the increase associated with mothers holding university degrees. Paternal warmth, on the other hand, showed no effect on children's gender-role attitudes in any of the models. We therefore conclude that there is a hierarchy of impact within types of paternal domestic behaviors on children's attitudes toward the gendered division of labor, with fathers' housework time being the most predictive dimension of the three analyzed.

A second conclusion derived from our results is that paternal influences operate in both absolute and relative ways. The amount of time fathers spent doing housework relative to mothers was as much associated with an increase in children's gender-egalitarianism as the absolute sum of fathers' housework time, contrary to our Hypothesis 1b. This result suggests that an egalitarian distribution of housework between parents is an important channel of gender transmission, but that fathers engaging in housework at all is just as relevant for the development of more egalitarian gender-role attitudes in children. Our findings add to the theoretical perspectives (e.g., Pleck, 2007) and empirical studies (e.g., Dotti-Sani, 2016) suggesting that paternal involvement at home is critical for how children produce, reproduce and perform gender.

Children's gender-role attitudes were affected by fathers and mothers through different channels of behaviors. Our findings suggest that children's egalitarian views toward gender further increase when mothers and fathers engage in gender-atypical behaviors, which is congruent with the *doing gender theory* (West & Zimmerman, 1987) and the *social learning theory* (Bandura, 1977). Maternal employment and education were important predictors of egalitarian attitudes toward gender, just as paternal involvement in housework and childcare were. The estimated associations were slightly smaller for maternal involvement in masculine-typed behaviors (such as employment or education) than for paternal involvement in feminine-typed behaviors (such as housework or childcare). These findings reinforce the idea that, in the intergenerational transmission of gender, children are primarily affected by exposure to mothers' and fathers' involvement in gender-atypical behaviors, and that paternal involvement in unpaid household labor is of key relevance for the development of egalitarian gender-role attitudes in children. As the theory of social learning concludes:

If parents who practice equality in social, educational, and other pursuits have children who are egalitarian in their gender orientation, the lack of parental gender differentiation does not mean that they have had no impact on their children. Quite the contrary. They have been highly successful in their egalitarian efforts. (Bussey & Bandura, 1999, p. 698)

The only unexpected outcome regarded parental warmth; a feminine-typed behavior that had no effect on children's gender-role attitudes when displayed by fathers, but had a positive effect when displayed by mothers. Further research is needed to understand why this is the case.

The third conclusion of our study concerns the stages of development during which paternal behaviors are most influential. Generally, fathers' behaviors mattered for children's gender-role attitudes across childhood and adolescence, but adolescence seemed to be a more critical stage for the intergenerational transmission of gender when it comes to fathers' and mothers' domestic behaviors. Across all measured paternal and maternal domestic behaviors occurring within these two stages of development, the dimension most powerfully associated with children's gender-role attitudes was fathers' housework time during children's adolescence, which is in line with Cunningham's study (2001b). It has been suggested that substitution effects and responsibilities shared between parents and children are the main reason for this; i.e., when children are adolescents, they start doing housework themselves, and this substitutes for the effects of parents' unpaid labor or sharing of responsibilities (Cunningham, 2001b; Shelton, 1992). Therefore, adolescent children sharing housework responsibilities with fathers (and therefore seeing fathers and mothers as co-responsible) might represent both a more equal redistribution of unpaid work between parents and a symbolic reference for children in understanding the value of gender egalitarianism. During childhood, however, it was paternal involvement in childcare that appeared to matter most for children's gender-role attitudes. A key conclusion here is that children who are exposed to paternal involvement in childcare during childhood are more likely to hold egalitarian attitudes toward gender than children whose fathers are not involved in



childcare during childhood. We re-estimated these models, adjusting for siblings' gender composition during childhood (available on request), as well as using categorical forms of fathers' behaviors during children's adolescence (Table A3). Results were robust to different model specifications, which enhanced confidence in our findings.

These results were partially in line with our Hypothesis 2, and they add to the theoretical discussions on the temporal ordering of paternal and maternal influences during different stages of children's development (Bussey & Bandura, 1999; Hill & Lynch, 1983). Our findings showed that paternal and maternal influences did not decline as children grew up, but rather, that each behavior played a different role in the development of children's attitudes toward gender, depending on developmental stage; fathers' childcare time mattered in childhood, and fathers' housework time mattered in adolescence (e.g., Cordero-Coma & Esping-Andersen, 2018). The changing significance of the associations between parental behaviors and children's gender-role attitudes across developmental stages also applied for mothers. For example, the findings of our study showed that early maternal employment was an important predictor of egalitarian gender-role attitudes in children, but that maternal employment during children's adolescence was not associated with children's gender-role attitudes. Some previous studies have found that maternal employment has a substantial positive significant effect on children's gender-role attitudes (Cordero-Coma & Esping-Andersen, 2018; Platt & Polavieja, 2016); however, Cunningham (2001b) found only a small association between the two, and Moen et al. (1997) found none. Our study suggests that incongruent results from previous studies on the influence of maternal employment can be understood by how and when that variable was measured. Studies that use maternal employment as a cumulative measure (i.e., number of years working) have found substantial significant effects (Cordero-Coma & Esping-Andersen, 2018; Platt & Polavieja, 2016), while studies measuring maternal employment at different points in time have found weaker (or null) associations with children's gender-role attitudes, only appreciable when children are young (Cunningham, 2001b; Moen et al., 1997), as we found in this study. Therefore, our study highlights the relevance of life-course dynamics in considering paternal and maternal influences on children's gender-role attitudes. Another pertinent conclusion here is that, although fathers' housework time was more relevant for children's attitudes toward the gendered division of labor during adolescence, maternal employment was more relevant during childhood. Previous studies had not been able to differentiate between paternal and maternal influences across different types of behaviors longitudinally, spanning from childhood to adolescence, while controlling for both parents' gender-role attitudes. To our knowledge, ours is the first study to accomplish this differentiation.

Even though this study focused its analysis on the influences of three types of domestic behaviors performed by fathers, we were able to shed light on the unresolved question of whether parental behaviors, or parental attitudes, matter most in the intergenerational transmission of gender-role attitudes (Platt & Polavieja, 2016). As noted above, the existing evidence is mixed, with some studies finding that parental behaviors matter more than parental attitudes, and other studies finding the reverse. Our results showed that both mattered, but that parental attitudes mattered more than any type of parental behavior, as has been found in some previous studies (Cunningham, 2001b; Halpern & Perry-Jenkins, 2016; Moen et al., 1997). Our results also indicate that fathers' gender-role attitudes and gendered behaviors mattered slightly more than mothers'. Our findings therefore add to the theoretical perspective (Bandura, 1977) and empirical studies (e.g., Dhar et al., 2019) that assert that children learn about gender from their fathers and mothers through a combination of observed behaviors and direct instruction, with the latter being a more effective channel of transmission.

To highlight some policy implications of our study, we note that, to undertake unpaid work at home, fathers need time. When institutions of employment place high demands on fathers' time and attention, fathers face a time squeeze. To create more gender equality for future generations, fathers need time at home with their children where they can model the egalitarian

distribution of household labor. Fathers and workplaces must set limits and flexibility on work hours to facilitate this presence. Another implication is that, in order to bring about the gender revolution, fathers need to normalize housework; to model it for themselves, for each other, and for their children. Alternative media portrayals of fathering, as well as policy interventions aimed at lowering work–family conflict (such as tele-working, paternal leave, flexible work hours), might contribute toward a new generation of men and women who hold more egalitarian views on gender and raise children who do as well.

Despite the longitudinal design of our research and the precision of directly-reported data on paternal and maternal practices and children's gender-role attitudes, this study is not without limitations. First, we acknowledge that our measures of time use were from stylized questions rather than time diaries. We opted for such a methodological strategy because the time diaries included in LSAC were child-reported. The lack of father-reported time diaries introduced biases in our measures of housework time because we would only be able to count the number of hours fathers spent doing housework when children were directly involved. However, a study by Schulz and Grunow (2012) found that “both measures [stylized time use and time diaries] yield rather consistent findings” (p. 622). Therefore, we are confident that our self-reported stylized measures of time use are robust. Second, we acknowledge that our study did not observe changes in gender-role attitudes across life-course, given that the information on gender-role attitudes was collected only in LSAC wave 5 for parents and wave 6 for children. This limitation made it impossible for us to perform panel regression models that control for unobserved heterogeneity. We do, however, have information on parental investments across the six available waves (when children were 4 to 14 years of age) that allowed us to model the trajectory of children's exposure to paternal influences over different stages of child development. Future data collection efforts might seek to overcome these issues.

In 2001, Cunningham published two influential studies (2001a, 2001b) concerning parental influences on the development of children's gender roles. These studies called for the collection of comprehensive information directly from fathers for a more rigorous analysis of the intergenerational transmission of gender (2001a, p. 198; 2001b, p. 121). Surprisingly, in the twenty years since Cunningham's studies were published, very few attempts have been made to fill this gap in knowledge. Our study represents another step in closing that gap.

Nevertheless, several questions for future research remain. First, paternal behaviors may show heterogeneous associations with children's gender-role attitudes depending on the gender of the child, as is suggested by the theory of social learning (Bandura, 1977). Previous studies have shown that fathers spend more time engaged in childcare and housework when they have sons rather than daughters (Raley & Bianchi, 2006). Therefore, it could be that paternal influences on children's gender-role attitudes are stronger when the children are all sons, due to masculine role-modeling and fathers' increased involvement in housework. Second, our study comprises data from two-parent families only, yet configurations of kinship networks have changed in recent decades, fueled by longer life expectancy, lower and later-age fertility, and increased parental separation (De Leeuw & Kalmijn, 2020). As such, there may be figures in the extended kinship matrix whose influence on children's gender-role attitudes outweighs that of biological fathers, for example non-biological fathers or caregivers, step-fathers, uncles, or grandfathers. Third, we analyzed the influence of paternal behaviors on children's gender-role attitudes, but the influence of these behaviors on children's gender-role behaviors (rather than attitudes) is unknown. Finally, our study analyzed data from Australia, where levels of fertility are comparatively high and gender equality is relatively low compared with the United States and most European countries, and where public policy incentivizes women's labor market exit after becoming mothers (Craig & Mullan, 2010). Understanding how and whether the intergenerational transmission of gender varies by: (a) the gender composition of children at home; (b) the constellation of influences (of other men) beyond the biological father; (c) using

behavioral measures of children's gender performance; and (d), under different institutional and policy designs, represent four key avenues for future research.

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