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Upward intergenerational influences on parents' innovativeness and innovation adoption: A comparative study of single- and multiple-child families

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Abstract

In the marketing and consumer behavior literature, there has been a growing attention on upward intergenerational influences, or reverse socialization, which is largely because of children's increasing influences on family decisions. This paper hypothesizes different patterns of upward intergenerational influences in single versus multiple-child families, controlling for peer and spousal influences. We found that young adult single children had a direct positive influence on their parents' innovation adoption behavior, but not a significant influence on their parents' overall innovativeness, whereas young adult children with siblings had a different effect: Their innovativeness had a significant positive influence on their parents' overall innovativeness, but not a direct impact on their parents' innovation adoption.

1 | INTRODUCTION

New product adoption and, particularly, innovative consumer behavior have been one of the most important topics for both practitioners (such as Facebook, Procter & Gambel, Google, Apple, and Tesla) and academics for decades (Goldsmith, d'Hauteville, & Flynn, 1998; Hirschman, 1980; Midgley & Dowling, 1978; Steenkamp & Gielens, 2003; Steenkamp, Hofstede, & Wedel, 1999; Venkatraman & Price, 1990). New products and innovations are being introduced frequently to consumers but are also highly risky (40% to 90% failure rate), with very costly failures for the vast majority of them in the marketplace (e.g., Webvan and Segway scooters, Gourville, 2006; and a more recent example of Google Glass), due to R&D outcomes and marketing strategies that are not appealing to consumers (Gielens & Steenkamp, 2007). Therefore, marketers have to understand what internal (Cotte & Wood, 2004; Foxall & Haskins, 1986; Hirschman, 1980; Lassar, Manolis, & Lassar, 2005; Venkatraman & Price, 1990; Wood & Swait, 2002) and external factors to an individual (e.g., social influences, Im, Mason, & Houston, 2007; Kulviwat, Bruner, & Al-Shuridah, 2009) may influence consumer adoption behavior and innovative behavior. Gatignon and Robertson (1985) developed a diffusion process model to understand the various influences on consumers who are considering adopting innovations. But very little research has investigated a unique focus on interpersonal communication transfer, one of the most important issues in diffusion research (Rogers, 2003). Similarly, although researchers have used the technology acceptance model to understand technology adoption process for over 20 years, the role of social influence in technology acceptance model has seldom been studied (Kulviwat et al., 2009).

Social influence, as an external influence on an individual, has been considered important in innovation adoption behavior in organization research (e.g., Hausman & Stock, 2003), but not in consumer research (Kulviwat et al., 2009) until recently (e.g., Aral, 2011; Godes, 2011; Iyengar, Bulte, & Valente, 2011; Iyengar, Christophe, & Valente, 2011; Narayan, Rao, & Saunders, 2011). Researchers have found evidence of social influence on consumer innovative adoption behavior,

Jianping Liang and Hongyan Jiang made equal contribution.

but they tend to consider all social influences as equal (e.g., Kulviwat et al., 2009).

At the same time, Simpson, Griskevicius, and Rothman (2012) have called for more research on the social context where consumers make decisions, and Wood and Hayes (2012) provided a review on the motives, modes, and consequences of social influence on consumer decisions to guide future research. They all examine different sources of social influences, such as romantic partners, spouses, children, and friends, but it is unclear whether these social influences are equal or unequal (e.g., one social influence may dominate all the others) and how they may differ in their impacts on consumer innovation adoption when they are all considered simultaneously. Moreover, Ekström (2006) raised an interesting point about children's influence on parents: that it is still not clear whether it is due to direct learning (e.g., changes of innovativeness) or simply the behavior of keeping up with their children (e.g., adoption behavior without changes of innovativeness). These questions are critical: Theoretically, these influences may not have equal effects on the target (e.g., one influence may have a dominant effect), and they may have different underlying mechanisms and boundary conditions. Practically, if marketers think that all social influences are equal, they may waste time and resources in their influence strategies that may not provide any positive outcomes.

In this paper, we make several important theoretical and practical contributions to the literature. First, we examine upward intergenerational influences in the new product adoption area by comparing and controlling the influences of the target parent's spouses (inside family) and friends (outside family) that have been largely neglected in the children's influence literature. Second, we demonstrate the boundary conditions of upward intergenerational influences and explain the underlying mechanisms between single- and multiple-child families, especially on the target parent's innovativeness and actual innovation adoption behavior. Finally, this research provides insightful implications for practitioners, to better target their influence strategies at single- and multiple-child families, especially when they want to increase the new product adoption possibilities for parents (who may be slow adopters or nonadopters by themselves, as age is negatively correlated with consumer innovativeness and innovation adoption, Gielens & Steenkamp, 2007; Hirunyawipada & Paswan, 2006; Im, Bayus, & Mason, 2003, 2007; Steenkamp et al., 1999).

2 | THEORETICAL BACKGROUND AND HYPOTHESES DEVELOPMENT

2.1 | Upward intergenerational influences

Children have an important influence on parents during social interactions; there is a long stream of research in sociology (Brim, 1968), anthropology (Mead, 1970), and consumer research (Grossbart, Hughes, Pryor, & Yost, 2002; Sorce, Loomis, & Tyler, 1989; Ward, 1974; Watne, Lobo, & Brennan, 2011) that demonstrates that children may influence their parents' attitudes and behaviors, often referred to as "reverse socialization," although we prefer the term upward intergenerational influences (Grossbart et al., 2002).

Family, as a fundamental unit in society, has received limited attention in the consumer adoption and innovation diffusion literature, with a few exceptions (e.g., Cotte & Wood, 2004). Parents with young adult children are likely major target consumers for many companies and firms. In many countries, young adult children remain living at home longer than they did in the past, and so the parents' decisions in consumption domains could be influenced by these close adult children (Sorce et al., 1989), in addition to traditionally studied sources of influence, such as young children, spouses, and friends (Baranowski, 1978; Brim, 1968; Papert, 1996; Peters, 1985; Tapscott, 1998).

Interestingly, in the innovation domain, although young adult children may influence their parents' decision making, such upward intergenerational influences have seldom been investigated (but see Mathur, 1999). Thus, it is unclear whether young adult children could influence their parents' innovation adoption and how significant this upward intergenerational influences are, compared with spousal and peer influences.

Spousal influence on joint family decision making has been found in many studies (Su, Zhou, Zhou, & Li, 2008), such as spousal influence strategies to resolve conflict between preferences (Webster & Reiss, 2001) and spousal behavioral interactions across decision episodes to reach harmony (Corfman & Lehmman, 1993). Peer influences from friends, due to selection and socialization effects, have also been found in various areas, including antisocial, deviant, and health-risk behaviors (Brechwald & Prinstein, 2011). Peer socialization may occur through modeling or imitation, as well as through social comparison or behavioral approximation (Brechwald & Prinstein, 2011). But in addition to these spousal and peer socialization effects, there have been calls for more research into what types of attitudes and behaviors that parents actually learn from their children (Ekström, 2006, 2007; Moschis, 1987). Watne et al. (2011) found that in the technology space, children are seen to have expert power and to influence their parents' behaviors (see also Mathur, 1999). Furthermore, Ekström (2006) argued that although it is not clear whether it is because of direct learning or because parents want to keep up with their children, it is clear that children influence their parents in terms of diffusion of innovations.

This research examines these different types of social influences on consumer innovation adoption. In a novel way, we investigate the influences of young adult children, while simultaneously controlling for spousal and peer influences, on the target parent's innovativeness and innovation adoption, and we compare the different patterns between single- and multiple-child families. The setting for our research is China, the only country that has enforced a one-child policy for more than 30 years (especially in cities and urban areas). China is an interesting setting to test our ideas, particularly as other researchers have found differences in family decision making in China, as compared with the United States (Wang, Holloway, Beatty, & Hill, 2007). Also, Chinese children and adolescents do show evidence of upward intergenerational influences (McNeal & Yeh, 2003; Wang et al., 2007).

2.2 | Innovativeness

Consumer innovativeness is defined as individuals' underlying preference for new and different experience (Hirschman, 1980; Venkatraman & Price, 1990), or the tendency to willingly embrace change and try new things (Cotte & Wood, 2004). Like these seminal works, our approach to consumer innovativeness is multidimensional; we believe consumer innovativeness includes both cognitive (propensity to engage in experiences that stimulate thinking) and sensory (actively seeking stimulation and arousal from novelty) aspects. As such, we continue in a long tradition of considering consumer innovativeness to be a multidimensional construct (Cotte & Wood, 2004; Hirschman, 1980; Hirunyawipada & Paswan, 2006; Park, Yu, & Zhou, 2010; Venkatraman & MacInnis, 1985; Venkatraman & Price, 1990; Wood & Swait, 2002). Following Wood and Swait (2002) and Cotte and Wood (2004), we will measure consumer innovativeness as two subscales, reflecting these cognitive and sensory components.

A substantial body of research has already demonstrated the association between consumer innovativeness and innovative behavior or adoption (Goldsmith, Freiden, & Eastman, 1995; Im et al., 2003; Manning, Bearden, & Madden, 1995). For example, Lu, Yao, and Yu (2005) found that individuals with higher personal innovativeness in information technology are likely to have more positive intentions to adopt high technology. Although some studies have been equivocal on the relationship between consumer innovativeness and innovative adoption behavior (for recent reviews, see Bartels & Reinders, 2011; Kaushik & Rahman, 2014), we maintain that consumer innovativeness is an important indicator of consumers' actual preferences for new products and might have an impact on their innovation adoption (see Cotte & Wood, 2004; Wood & Swait, 2002).

Considering what can influence consumer innovativeness and consumer innovation adoption or behavior, we turn to family, as one source of social influence (Cotte & Wood, 2004). Social influences, such as upward intergenerational influences, can impact consumers' innovation adoption behavior directly (i.e., without changing someone's underlying innovativeness) and indirectly (i.e., by changing someone's underlying innovativeness). Several researchers have demonstrated that social influence is a critical element in consumers' adoption intention for innovations (Kim & Park, 2011; Kulviwat et al., 2009). According to Social Learning Theory (Bandura, 1977), human cognition and behavior are learned observationally within a social context through continuous social interactions. Thus, social influence may be particularly important for parents' innovation adoption decisions, which requires gathering a large body of information from different people in society, including watching what their own adult children do.

2.3 | Upward intergenerational influences on innovativeness

Researchers have demonstrated that children impact their parents' purchasing decisions (Baldassarre, Campo, & Falcone, 2016; Nicholls & Cullen, 2004; Wilson & Wood, 2004) and the values or attitude of their parents (Dillon, 2002). If children have more knowledge of a product, they could exert more influence on parents' purchase decision for that product (Thomson, Laing, & McKlee, 2007). And age has been shown to be negatively correlated with consumer innovativeness (Gielens & Steenkamp, 2007; Hirunyawipada & Paswan, 2006; Im et al., 2003, 2007; Steenkamp et al., 1999). Therefore, compared with parents, young adult children are likely to be more knowledgeable about innovative products and more likely to be the early adopters of innovations in a family. Consequently, young adult children could have a significant impact on parents' innovativeness and the adoption of innovative products.

Compared with parents of multiple children, parents with a single child tend to devote greater attention to this only child and are more inclined to cater to their child's needs for products (Falbo, 1987). Thus, in a single-child family, the influence of the child on their parents' purchases is usually through pestering behavior. As a result, although single children in a family may have direct influence on parents' innovation adoption, parents' freedom of choice and independence could feel threatened. Psychological Reactance Theory (Clee & Wicklund, 1980) states that when people's freedom is threatened, they will react against attempts to control their behavior. Moreover, when social influence attempts are the source of reactance, people are more likely to move in the direction opposite from the influence effort. In light of this, we posit that young adult single children would exert no significant impact on parents' innovativeness, due to parents' reactance to their influence. In contrast, parents are less likely to be able to cater to multiple children's needs; thus, they will not tend to react against their child's influence, and their innovativeness is more likely to be influenced. Therefore, we posit that whereas a young adult single child exerts no direct significant influence on parents' innovativeness (due to reactance), young adults in a multiple sibling family will significantly influence their parents' innovativeness (due to social and direct learning).

In addition, consumers' peers can have a positive influence on behavior by encouraging positive behavior, such as academic success or healthy lifestyles (Costello & Hope, 2016). For instance, prior research has shown a relationship between people's assessments of their peers' volunteering behaviors and their own self-reported volunteering behaviors (Law, Shek, & Ma, 2013). Peer socialization may involve the adoption of peers' valued behaviors or treasured products. Peer influence is one of the most powerful predictors of risk behavior (Jaccard, Blanton, & Dodge, 2005) and health-risk behaviors (Prinstein & Dodge, 2008).

Besides, spousal preference usually exerts another significant influence in family decision making (Beharry-Borg, Hensher, & Scarpa, 2009; Carlsson, He, Martinsson, Qin, & Sutter, 2012). When a family purchase results in conflict, spouses' influence tactics play important roles (Kirchler, 1990). Spouses influence each other in purchase decisions. Overall, peers and spouses may exhibit great influences on parents' innovativeness and innovation adoption. Therefore, we attempt to control for the influences of peer and spouse when investigating the upward intergenerational influences. On the basis of the literature,

we posit that parents' innovation adoption is directly (vs. indirectly) influenced by the innovativeness of young adult children in single-child (vs. multiple-child) families. The upward intergenerational influences on the parent from an adult child hold even when controlling for the influences from peer and spouse. More specifically, our hypotheses are as follows:

> H1a. The innovativeness of young adult children in single-child families has a positive *direct* influence on parents' actual innovation adoption behavior.
>
> H1b. The innovativeness of young adult children in multiple-child families has a positive *indirect* influence on parents' actual innovation adoption behavior via parents' innovativeness.

3 | METHOD

3.1 | Participants

We recruited participants from undergraduate students, their families, and their parents' friends in various cities across China. Initially, we recruited undergraduate students and asked them to distribute the other questionnaires to both their parents (to measure and control for spousal influence) and one of their parents' friends (to measure and control for peer influence). They were paid RMB 50 Yuan (about US$8.5) when they returned the whole package, regardless of whether all questionnaires were filled out. A total of 300 packages were distributed, and 240 sets of questionnaires were returned.

3.2 | Measures

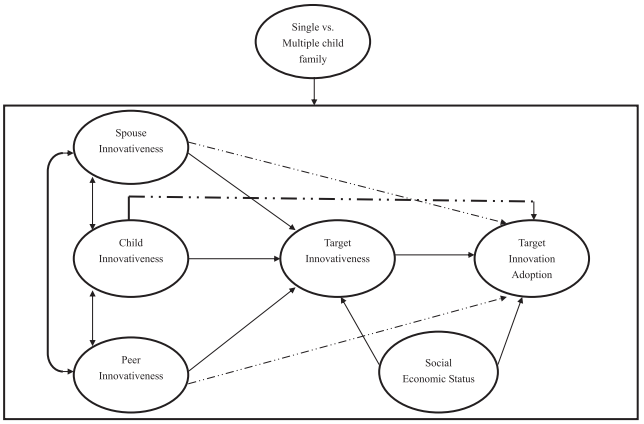
As outlined in our literature review, there is a solid tradition of measuring consumer innovativeness as a multidimensional construct involving both cognitive and sensory aspects (e.g., Venkatraman & Price, 1990). Following recent tradition (see Cotte & Wood, 2004; Wood & Swait, 2002), we measured need for cognition (five items) and need for change (six items) as two innovativeness indicators for each participant (see Appendix 0). Child innovativeness, spouse innovativeness, and peer innovativeness were provided as the index of child influence, spouse influence, and peer influence separately. Moreover, adapted from Cotte and Wood (2004), we measured innovation adoption using the ownership of a number of products and services, which were pretested (we interviewed parents in different Chinese families and consulted with professors and experts in new products and innovation areas) to be considered innovative for parents at the time of the data collection, including online shopping, skin-care products, digital video cameras, microblog, online communication tools, and health care products. As in Cotte and Wood (2004), we summed the innovative products/services adoption behavior for each product and service (1 = adoption, 0 = nonadoption) to create an index of innovation adoption. Demographics (e.g., age, gender, number of siblings, birth order, education, and income) were measured at the end of the questionnaire.

3.3 | Results

A structural equation model was used to test how the innovative adoption of the target parent (the parent who asked a friend to participate in this study) was affected by the relative influences of their adult children (the undergraduate students), spouses (the students' other parent), and peers (the parents' friends who participated in this study). In the conceptual model (see Figure 1), the constructs of innovativeness of adult children, spouses, and peers were used as the independent variables, and the target's innovativeness was used as the mediator, followed by the target's innovative adoption as the dependent variable. In the measurement model (see Table 1), the constructs of innovativeness of adult children, spouses, and peers included measures of need for cognition (α = .71), need for change (α = .62), and innovation adoption. The target's innovativeness included measures of need for cognition and need for change. The target's innovative adoption was measured by an index of innovative products and services. Social economic status was a control variable measured as a formative construct including the target parent's age, education, and income.

Using innovation adoption as the dependent variable, our structural model possessed very good fit indices: a likelihood ratio statistic less than 3 (χ^2/df = 1.33), GFI of .97, and RMSEA of.03 (Bagozzi & Yi, 2012). Moreover, NFI was .91, IFI was .98, CFI was .97, TLI was.94, and RMR was.04, which all met the standard criteria in SEM (Hu & Bentler, 1999).

Using the whole sample (see Table 1), we found an upward intergenerational influence (β = .18, p < .01) on the target's innovativeness, even controlling for peer influence (β = .34, p < .001) and spousal influence (β = .26, p < .001) in the model using the target's innovation adoption as dependent variable. We used the results in the full



Note: Dotted lines were included only for partial mediation model test. Moderators were used as grouping variables in AMOS.
Figure 1 Conceptual model

FIGURE 1 Conceptual model. Note: Dotted lines were included only for partial mediation model test. Moderators were used as grouping variables in AMOS

TABLE 1 Structural model results for direct effect, full mediation, and partial mediation models

Models	Direct effect	Full mediation	Partial mediation
	TI	TIA	TIA
Controls			
SES → TI	.22*	0.06	0.09
SES → TIA		2.13*****	2.17*****
Path			
SI → TI	.25***	.26*****	.26*****
CI → TI	.18*****	.18***	.17***
PI → TI	.34*****	.34*****	.34*****
TI → TIA		0.02	−0.47
SI → TIA			0.06
CI → TIA			0.08
PI → TIA			0.32
Model fit statistics			
χ^2	64.66	95.89	93.94
df	56.00	72.00	69.00
χ^2/df	1.15	1.33	1.36
NFI	0.94	0.91	0.91
CFI	0.99	0.97	0.97
IFI	0.99	0.98	0.98
GFI	0.98	0.97	0.97
TLI	0.97	0.94	0.93
RMSEA	0.02	0.03	0.03
RMR	0.03	0.04	0.04
R^2 – TI	0.61	0.60	0.59
R^2 – TIA		0.31	0.32

Note. Unstandardized beta coefficients are shown in AMOS. Total indirect effects were tested in significance derived from bootstrapping with 1,000 replications in AMOS.

Abbreviations: CI, child innovativeness; PI, peer innovativeness; SES, social economic status; SI, spouse innovativeness; TI, target innovativeness; TIA, target innovation adoption.

*p < .10. **p < .05. ***p < .01. ****p < .005. *****p < .001 (two-tailed).

TABLE 2 Structural model results for single-child families (n = 135)

Models	Direct effect	Full mediation	Partial mediation
	TI	TIA	TIA
Controls			
SES → TI	0.12	0.12	0.22
SES → TIA		1.59****	1.83****
Path			
SI → TI	0.17*	.21*	.16*
CI → TI	0.13	0.17	0.04
PI → TI	.33****	.44****	.38****
TI → TIA		0.32	−1.19
SI → TIA			0.43
CI → TIA			.82***
PI → TIA			.61*
Model fit statistics			
χ^2	73.74	95.21	84.39
df	56.00	72.00	69.00
χ^2/df	1.32	1.32	1.22
NFI	0.85	0.82	0.84
CFI	0.95	0.93	0.96
IFI	0.96	0.95	0.97
GFI	0.95	0.93	0.94
TLI	0.85	0.84	0.90
RMSEA	0.05	0.05	0.04
RMR	0.03	0.05	0.04
R^2 – TI	0.55	0.58	0.50
R^2 – TIB		0.20	0.42

Note. Unstandardized beta coefficients are shown in AMOS. Total indirect effects were tested in significance derived from bootstrapping with 1,000 replications in AMOS.

Abbreviations: CI, child innovativeness; PI, peer innovativeness; SES, social economic status; SI, spouse innovativeness; TI, target innovativeness; TIA, target innovation adoption.

*p < .10. **p < .05. ***p < .01. ****p < .005. *****p < .001 (two-tailed).

mediation model to illustrate the effects of different social influences (results remain the same in all three models).

Furthermore, we found that in the structural model for single-child families (n = 135; see Table 2), the partial mediation model was better than the full mediation model using innovation adoption as the dependent variable ($^{\triangle}\chi^2_{(3)}$ = 10.82, p < .05). Moreover, young adult children from one-child families had a strong (the strongest among all influencers in the model) and positive direct influence on a target's innovation adoption ($ß$ = .82, p < .01) without the mediation effects of the target's innovativeness. Hence, H1a was supported.

However, in the structural model for multiple-child families (n = 204, see Table 3), the partial mediation model was not better than the full mediation model using the innovation adoption as dependent variable ($^{\triangle}\chi^2_{(3)}$ = 6.32, p > .05), and all direct influence paths to parent innovation adoption were nonsignificant, including the one from young adult children ($ß$ = −.16, p = ns). Hence, H1b was supported.

4 | DISCUSSION

This research makes several theoretical contributions. First, the results of this study enrich the innovation adoption literature by introducing upward intergenerational influences, while comparing and controlling the influences inside families (i.e., the target parents' spouses) and outside families (friends of the target parents). Previous research has mainly focused on the intergenerational influences from parents to children (e.g., O'Connor, 1979; Peterson & Mccabe, 2004) or on the influences of adolescents (under the age of 18) on parents (e.g., Dalakas & Shoham, 2006 ; Jenkins, 1979). This paper is one of the first

TABLE 3 Structural model results for multiple-child families (n = 204)

Models	Direct effect	Full mediation	Partial mediation
	TI	TIA	TIA
Controls			
SES → TI	0.20	0.05	0.06
SES → TIB		2.17*****	2.39*****
Path			
SI → TI	.32*****	.31*****	.28*****
CI → TI	.21**	.20**	.21***
PI → TI	.36*****	.31*****	.33*****
TI → TIB		−0.19	−0.19
SI → TIB			−0.45
CI → TIB			−0.16
PI → TIB			0.46
Model fit statistics			
χ^2	56.48	94.90	88.58
df	56.00	72.00	69.00
χ^2/df	1.01	1.32	1.28
NFI	0.92	0.87	0.88
CFI	0.999	0.96	0.97
IFI	0.999	0.97	0.97
GFI	0.97	0.96	0.96
TLI	0.998	0.91	0.92
RMSEA	0.006	0.04	0.04
RMR	0.05	0.06	0.06
R^2 – TI	0.64	0.64	0.63
R^2 – TIB		0.34	0.39

Note. Unstandardized beta coefficients are shown in AMOS. Total indirect effects were tested in significance derived from bootstrapping with 1,000 replications in AMOS.

Abbreviations: CI, child innovativeness; PI, peer innovativeness; SES, social economic status; SI, spouse innovativeness; TI, target innovativeness; TIA, target innovation adoption.

*p < .10. **p < .05. ***p < .01. ****p < .005. *****p < .001 (two-tailed).

attempts to investigate the upward intergenerational influences of young adult children (above the age of 18) on parents in the innovation diffusion context. Furthermore, the roles of peers and spouses' impact have not been considered into prior study of upward intergenerational influences. In this research, we simultaneously control for the influences of family members (spouses) and influences outside families (peers).

Second, on the basis of a new perspective of Psychological Reactance Theory, we identify the moderation effects of single- and multiple-child families on upward intergenerational influences and provide an explanation for their different underlying mechanisms. This research has demonstrated that adult children from single-child families and multiple sibling families have different patterns of influence on their parents. We are the first to provide insights into the studies of single- versus multiple-child influences on parents' consumption behavior. In past research, the child' influences on parents' consumption behavior were considered simply, and the differences between single- and multiple-child families were ignored (Dalakas & Shoham, 2006; Jenkins, 1979). In contrast to those previous studies, our findings indicate that a young adult from a single-child family has a direct positive influence on his or her parents' innovation adoption behavior, but not a significant influence on his or her parents' trait innovativeness. However, for young adults from multiple-child families, their own innovativeness has a significant positive influence on their parents' innovativeness, but not a direct impact on parents' adoption of innovative products.

These results could be explained by the Psychological Reactance Theory (Clee & Wicklund, 1980). Specifically, parents are more likely to react against their children's influence by not changing their own innovativeness in single-child families, compared with multiple-child families. These results help answer the question about children's influence on parents raised by Ekström (2006): that it is still not clear whether it is due to direct learning (e.g., changes of innovativeness) or simply the behavior of keeping up with their children (e.g., adoption behavior without changes of innovativeness). However, these differing effects of multiple siblings versus single children on upward intergenerational influences deserve more research, specifically across a wide variety of purchase and consumption contexts.

This study also provides practical implications for marketers. First, given that parents' innovative adoption is influenced by adult children, marketers' efforts toward parents could also focus on their offspring. Marketers could use appeals to encourage adult children to diffuse innovative products to their parents, who are usually slow adopters or nonadopters of those innovation by themselves. For example, marketers could promote gift giving (i.e., more direct ways) and/or Word of Mouth (WOM) (i.e., more indirect ways) of new products from young adult children to parents.

However, their marketing strategies should be different for single- and multiple-child families. Specifically, for single-child families, children's influence on parents' actual innovation adoption behavior should be encouraged (e.g., more direct ways of gift giving), whereas for multiple-child families, children's influence on parents' actual innovation adoption behavior seems to be more indirect via parents' innovativeness traits (e.g., more indirect ways of WOM). Nevertheless, this influence may be more significant in the long run, as parents' innovativeness could be an important predictor for the innovation adoption behaviors in which parents are really interested (e.g., leading to more adoptions of other relevant or even irrelevant new products and innovations), instead of a compliance with children's preferences (e.g., leading to the adoptions of only those new products and innovations given directly by the children). Marketers could use the children's innovativeness in multiple-child families to predict how innovative their parents could be and how likely their parents could adopt innovations beyond children's preferences, but within parents' interests, especially when it is more difficult or more costly to measure the parents' innovativeness than their children's innovativeness. For example, marketers can target both young adult children and their parents for

new product adoptions in the same multiple-child families by simply measuring the young adult children's innovativeness instead of measuring both children and parents' innovativeness (which is more difficult and most costly).

Despite these strengths, this study also has several limitations. One way to improve on this kind of research is using a longitudinal design to examine the causal relationship between children's innovativeness and parents' innovative adoption. Second, future research should probe into other motivational variables for the present conceptual framework, such as uniqueness seeking and sensation seeking (Burns & Krampf, 1992). The addition of other essential linkages would provide for a more thorough underlying mechanism accounting for the parents' innovation adoption. In addition, the participants in this study are all from a single country that represents a collectivistic culture. The data should be collected from multiple countries to confirm the conclusion about upward intergenerational influences across different cultures in the future studies.

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CONFLICT OF INTEREST

No potential conflict of interest was reported by the authors.

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APPENDIX

Measurement scales

Need for cognition (adapted from Cotte & Wood, 2004) 5-point scale, 1 = *disagree completely*, 5 = *agree completely* Average Cronbach's alpha for self-ratings is .71 and average Cronbach's alpha for rating others is.71	(a) I would rather do something that requires little thought than something that is sure to challenge my thinking abilities. (b) I try to anticipate and avoid situations where there is a likely chance I'll have to think in depth about something. (c) I only think as hard as I have to. (d) The idea of relying on thought to get my way to the top does not appeal to me. (e) The notion of thinking abstractly is not appealing to me.
Need for change (adapted from Cotte & Wood, 2004) 5-point scale, 1 = *disagree completely*, 5 = *agree completely*) Average Cronbach's alpha for self-ratings is .62 and average Cronbach's alpha for rating others is.65	(a) When I see a new or different brand on the shelf, I often pick it up just to see what it is like. (b) I like introducing new brands and products to my friends. (c) I enjoy taking chances in buying unfamiliar brands just to get some variety in my purchase. (d) I often read the information on the packages of products just out of curiosity. (e) I get bored with buying the same brands even if they are good. (f) I shop around a lot for my clothes just to find out more about the latest styles.