Every Kid (and Family) in a Park? Free National Parks Admission for Children and Spillovers in Family Recreation

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Abstract

Family recreation contributes to positive family health and well-being and plays an important role in promoting healthy youth development. The Family Activity Model posits that families seek out novel activity environments for recreation. National parks are novel environments and create opportunities for engaging in family recreation activities such as hiking. Therefore, we evaluate the reach of the "Every Kid in a Park" initiative of the U.S. National Park Service, which offers free admission to children in fourth grade and their guests. Using a large, nationally representative data sample from the American Time Use Survey, we conduct difference-in-differences analysis to determine whether hiking patterns by family members of fourth-graders have changed following the policy implementation. We find that hiking patterns have increased overall for family members of fourth-graders following the implementation of the initiative. Moreover, we find no evidence of effects being concentrated among specific socioeconomic groups.

Keywords: disparate policy effects, economic inequality, Family Activity Model, family leisure, national parks visitation, recreation pricing, recreation with children

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Introduction

Family leisure and recreation contribute to positive family health and well-being and promote healthy youth development. Research and social trends indicate that parents and policymakers alike continue to be interested in strengthening families. Social ideologies such as "the family that plays together stays together" demonstrate a widely held view that family leisure and recreation benefits children and families. Research suggests that families need a mix of both familiar and novel recreation to develop healthy relationships and functioning (Melton, 2017; Zabriskie & McCormick, 2001). Additionally, promoting physical activity among children and their families remains a public health priority in the United States. Nonetheless, best practices for increasing physically active family recreation are not fully developed (Flynn, Bassett, Fouts, Thompson, & Coe, 2017). Given that people are more likely to be physically active outdoors, and given the many considerations that impact family participation in outdoor recreation (Godbey, 2009), a policy intervention, such as changing entrance fees, might induce differential responses among families who depend on the affordability of outdoor recreation sites (Zhang, Lu, & Holt, 2010). Researchers, policy makers and social advocates worry that entrance fees at public recreation sites affect visitation and exclude the economically disadvantaged and minorities (Dustin, More, & McAvoy, 2000; Schwartz & Lin, 2006), and little is known about how changes in entrance fees at national parks alter family recreation among these populations. Families may experience additional constraints when seeking recreation activities, such as the perception that children may not be welcome in some spaces. Thus, program messaging that increases perceptions that recreation sites welcome and accommodate families with children may shape choices about where to recreate.

This study aims to evaluate physically active family recreation in the context of the "Every Kid in a Park" initiative of the U.S. National Park Service (NPS) to more fully understand the implications of admission fees on family leisure and recreation. In 2015, U.S. 2

president Barack Obama and the NPS launched the "Every Kid in a Park" initiative, which provides a free annual pass granting free admission to any NPS site for all fourth-graders and accompanying guests. Given the reliance of fourth-graders on family members for information, scheduling, and transportation, the policy impact was not limited to fourth-graders; the program was intended to spill over to their families. While the program was broad, easy to implement, and easy to utilize, little is known about the reach of the program. This policy may have served to effectively reduce constraints (e.g., prohibitive entrance fee costs) to family leisure in novel settings and increase opportunities for physically active forms of family recreation. Thus, we explore whether and to what extent families with fourth-graders increased outdoor recreation time following program implementation compared to families with second- and third-graders. Further, we focus on different segments of the population and analyze the interplay between family resources and ethnicity and their impact on family utilization of the free admission program.

We rely on a unique data set to explore family utilization of free access to national parks. To estimate changes in recreation among families with fourth-graders, we use the American Time Use Survey (ATUS; see Hofferth, Flood, & Sobeck, 2015). The data set is large and nationally representative, allowing us to move beyond small homogeneous samples to explore a broad view of family recreation and to examine nuances of family recreation stemming from sociodemographic diversity and differences in familial contexts. We observe families whether or not they chose to recreate, unlike much previous work relying on surveys of visitors that can say nothing about the people who did not visit. Additionally, the data were generated in naturalistic settings from actual time use, minimizing concerns about misreporting of family recreation. Therefore, the goals of this study were to use ecologically valid and nationally representative data to examine family recreation responses to the Every Kid in a Park initiative and to determine if income and ethnicity played a role in those responses.

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Background

The Family Activity Model

Family leisure has been defined as "the time that parents and children spend together in free time or recreational activities" (Shaw, 1997, p. 98). A more inclusive definition, however, states that family leisure can occur between "parents and children, husbands and wives, siblings, and other close relations" (Orthner, Barnett-Morris, & Mancini, 1994, p. 176). Shared family leisure impacts the well-being of family relationships and the overall quality of life for families (Hodge et al., 2017). Indeed, scholars have argued that leisure is the context in which families develop emotional bonds, build problem solving skills, and refine communication processes that make their relationships successful (Orthner et al., 1994).

The Family Activity Model (FAM) (Melton, 2017) offers a typology of family activities scholars can use for understanding family leisure motivations and experiences and their outcomes. Historically, scholars have encouraged individuals and families to seek out two types of leisure or recreation: first, *core leisure*, which meets needs for stability by providing familiar and predictable leisure experiences, and second, *balance leisure*, which meets needs for change by providing new or novel leisure experiences (Iso-Ahola, 1980; Kelly, 1996; Melton, 2017; Zabriskie & McCormick, 2001). The FAM provides further detail on the core and balance classifications by examining the *activity environment*. Activity environment consists of "all the environmental factors that interact during an activity" (Melton, 2017, p. 459) that determine the *familiarity* or *novelty* of an experience include the location, setting, structure, and objects of or in the environment (Melton, 2017). Variation or degrees of change in these factors, and the overall activity environment, can be used to determine the "amount of incongruity afforded within a specific family experience" (Melton, 2017, p. 459). Thus, on a continuum of incongruity, as the

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familiarity of a family leisure experience increases, it moves closer to the *core* leisure domain. Conversely, as the novelty of a family leisure experience increases, it moves closer to the *balance* leisure domain.

For the purposes of this paper, we focus on family leisure experiences occurring in highly novel or incongruous activity environments. National parks afford families opportunities for engaging in new or unfamiliar (balance) forms of leisure or recreation activities such as hiking and represent highly incongruous or novel activity environments. Hiking is a family leisure activity in which many of the factors driving novelty are present, particularly if a family is hiking with children who have less experience. Even if a family goes hiking together with some frequency, a change in setting, such as hiking in a national park, likely increases the incongruity of the environment. Moreover, in any outdoor setting, families and individuals are less able to control their immediate environment. For example, changes in weather and an increased level of challenge or risk associated with elevation gain, rocky or rough terrain, or lack of immediate emergency help are factors largely beyond the control of participants, which increases the incongruity of the environment. In fact, families can manipulate, to a certain extent, the incongruity of their experiences by selecting hikes with specific characteristics that meet the needs of their family members.

Family Leisure and the Presence of Children

Parents use family leisure to meet their children's needs and, specifically, to introduce and share the activities they enjoy with their children (Orthner et al., 1994) and socialize their children to certain behaviors (Shaw & Dawson, 2001). At the same time, research has consistently indicated that the presence of children impacts the motivations for and experiences of family leisure, including, and perhaps especially, more novel forms of family leisure. For example, focus groups with parents who visited zoos indicated that the presence of their children motivated them to seek out zoo experiences, and the absence of their children decreased their

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likelihood of visits. Indeed, the authors stated, "Children are a catalyst in generating a family visit (repeat or first-time) to an attraction" (Turley, 2001, p. 2). Travel and vacation types of family leisure have also been identified as a realm in which children exert considerable influence on destinations as well as activity selection at those destinations (Madrigal, 1993; Seaton & Tagg, 1995). Interestingly, there is some indication that children from high-socioeconomic-status families (specifically parents with high levels of education and income) exert more influence on purchases and decision-making (Howard & Madrigal, 1990). Overall, families with children are more likely to seek out recreation and leisure experiences that accommodate and meet the needs or interests of their children.

Family Leisure in Supporting Family, Child Well-Being

Scholars have argued for sustainable and long-term prevention to support lifestyle changes that support children's health—particularly physical activity occurring in the outdoors (McCurdy, Winterbottom, Mehta, & Roberts, 2010). Physical activity in natural spaces can promote a range of physical health indicators including reduced obesity and associated morbidities (e.g., Type 2 diabetes and hypertension) (McCurdy et al., 2010). Additionally, physical activity in natural environments may also improve mental health outcomes in children, including reducing anxiety and depression (McCurdy et al., 2010).

Families also seek out recreation and leisure experiences to develop and maintain family relationships, a fact that has been the subject of research over the last several decades (Hawks, 1991; Hodge et al., 2015, 2017; Holman & Epperson, 1984). Scholars have connected family recreation to family stability, functioning, cohesion, adaptability, interaction, communication, bonding, and satisfaction with family life (Holman & Epperson, 1984; Orthner & Mancini, 1990; Poff, Zabriskie, & Townsend, 2010; Smith, Freeman, & Zabriskie, 2009; Zabriskie & McCormick, 2003). Among this body of literature, some studies have examined outdoor, adventure, and nature-based recreation explicitly under the assumption that outdoor family

recreation creates opportunities for healthy youth development (Lee, Graefe, & Burns, 2008) and family growth and cohesion (Lee & Graefe, 2010). For example, a study of family campers in a state park provided moderate support for an association between outdoor recreation and family cohesiveness (West & Merriam, 1970) and posited that family recreation in outdoor settings facilitated a higher level of interaction in a family group. A second study indicated that satisfaction with outdoor recreation was more predictive of family cohesion than satisfaction with media-based leisure or sports (Ragheb, 1975).

Qualitative explorations of family outdoor recreation have identified families' own motivations for engaging in outdoor recreation. In one study, family campers at an agricultural fair revealed that the most important and meaningful components of the camping experience were the opportunities to engage and interact with family members, tell family stories, share family history, and maintain family relationships (Kyle & Chick, 2004). Likewise, residential family campers and families participating in a one-day outdoor adventure recreation program perceived that their participation in these forms of structured outdoor recreation increased their family strength (Freeman & Zabriskie, 2002). Overall, research demonstrates an association between outdoor family recreation and the quality of family relationships and life.

Family leisure and youth adjustment. Research has also indicated that parents intentionally structure and design shared family leisure with the intent of improving their family life and teaching their children healthy and moral behaviors (Shaw & Dawson, 2001). A growing body of literature has indicated that family leisure is associated with child psychosocial adjustment and physical health. For example, a comparison of high-adjusted and low-adjusted boys indicated that high-adjusted boys spent more time in interactive and engaged forms of recreation with their fathers than did low-adjusted boys (Hume, O'Connor, & Lowery, 1977). Low-adjusted boys in the same study spent less time overall in family recreation than did high-adjusted boys (Hume et al., 1977). While the directionality of the association between family

leisure and adjustment was not established in Hume et al.'s (1977) study, we can assume that a meaningful connection between family leisure and children's psychosocial adjustment exists. Indeed, more recent literature supports this assumption. One study examining family mealtimes and adolescent adjustment indicated that, when controlling for family connectedness, adolescents who ate meals with their families more often were less likely to report engaging in risk-taking behaviors such as tobacco or marijuana use and alcohol consumption, and were more likely to report higher grade point averages and fewer depressive symptoms (Eisenberg, Olson, Neumark-Sztainer, Story, & Bearinger, 2004). Thus, findings from this study suggest that shared family experiences (such as family mealtime) support adolescent well-being (Eisenberg et al., 2004).

Family leisure and youth physical activity. Researchers have also examined the effect of family recreation on child physical activity and health. Physically active forms of family recreation provide parents with an accessible method for directly influencing children's current and future physical health (Hardman & Stensel, 2003; Quarmby & Dagkas, 2010). Moreover, research indicates that engaging children in physically active recreation from an early age can predict lifelong participation in physically active recreation (Quarmby & Dagkas, 2010; Turtiainen, Karvonen, & Rahkonen, 2007). Likewise, children who engage in outdoor recreation when they are young are more likely to continue participating in outdoor recreation as adults (Hawks, 1991; Yoesting & Burkhead, 1973). In another study, scholars identified the intentionality behind using outdoor recreation to support and improve the physical health and overall well-being of children. Specifically, mothers used nature-based recreation to increase the social, psychological, and physical health of their children in rural, low-income contexts (Izenstark, Oswald, Holman, Mendez, & Greder, 2016). Natural environments appeared to motivate and create opportunities for adolescents to achieve the recommended level of physical activity in another study (Fromel, Kudlacek, Groffik, Svozil, SImunek, & Garbaciak, 2017).

Overall, family recreation, specifically outdoor or nature-based recreation, can be used by parents to influence the physical health and psychosocial adjustment of their children.

Family Leisure and Ethnicity

Differences in leisure behavior by ethnicity have been documented by scholars and outdoor recreation professionals, including social scientists associated with public lands. In one of the earliest examinations of ethnicity and outdoor recreation in the United States, Washburne and Wall (1980) reported that minority populations (particularly Blacks) were less likely to participate in outdoor recreation in a variety of settings (e.g., urban parks and wild lands). In a subsequent review of theory and research for framing differences in outdoor recreation among Americans, Blacks were reported to be more likely to access local parks than state or national parks, which they visited less frequently (McDonald & Hutchinson, 1986). For example, research on recreation behaviors among ethnic groups in national forests noted that some groups had "virtually no representation among forest users" (Johnson, Bowker, English, & Worthen, 1997, p. 1). This may suggest that Blacks are less likely than Whites to access recreation areas requiring travel (Johnson et al., 1997).

Differences in outdoor recreation behavior by ethnicity have been ascribed to the "marginality explanation" and the "ethnicity perspective" (Washburne & Wall, 1980, p. 1). The marginality explanation suggests that lower levels of park use and outdoor recreation are the "consequence of the cumulative effects of social, economic, and education discrimination and segregation practices" (Washburne & Wall, 1980, p. 1), meaning that Blacks generally have less time for leisure, less access to transportation, and fewer financial resources for purchasing outdoor recreation equipment (Washburne & Wall, 1980). The ethnicity perspective operates outside of socioeconomic factors and assumes that, culturally, minority groups have established norms, values, and socialization processes that are different from the mass culture (Floyd & Shinew, 1999; Washburne & Wall, 1980). Research in ethnic minority groups (i.e., Blacks and

Mexican Americans) has garnered empirical support for the marginality explanation (Floyd, Gramann, & Saenz, 1993; Floyd & Shinew, 1999), suggesting that demand response to entrance fees may be sensitive to ethnicity. Additionally, research documents some indication of the presence of the ethnicity perspective and conjectures that as social distance between Blacks and Whites decreases, a shared frame of reference for leisure preferences may emerge (Floyd & Shinew, 1999). Generally, research suggests that outdoor recreation behaviors may vary by ethnicity.

Some studies have also examined more specific *family* leisure behaviors by ethnicity. In a comparison of middle-class Black and White parents' perceptions of leisure behavior and feeling welcome, Black families reported feeling less welcome in all leisure spaces and activities included in the study (Philipp, 1999). Some of the greatest differences in feeling welcome occurred in outdoor recreation activities such as "camping in the mountains" and "picnicking in a park." Black parents also rated these activities as slightly less important for their children than did White parents, suggesting potential support for the ethnicity perspective (i.e., different values regarding children's leisure behaviors). For Mexican American parents and their adolescent children, family leisure participation was an indicator of acculturation. Lower levels of balance family leisure were associated with lower levels of acculturation (Christenson, Zabriskie, Eggett, & Freeman, 2006). Thus, policies affecting child and family participation in outdoor recreation may be sensitive to a family's ethnicity, and assessments of policy effectiveness should consider ethnicity in their evaluations.

Constraints to Family Leisure

Research regarding barriers (i.e., constraints) to leisure originated in leisure in a family context. Three types of leisure constraints were identified: intrapersonal, interpersonal, and structural (Crawford & Godbey, 1987). Subsequent research on constraints to adolescent sports participation critiqued the three-constraint model (Casper, Bocarro, Kanters, & Floyd, 2011).

This research suggested a more detailed approach (specifically, a model containing seven dimensions of constraint) is a stronger, most valid approach to constraint measurement, but that the three-constraint model is still an effective and simple theoretical framework (Casper et al., 2011). Since our study did not explicitly measure constraints, we opt to use the three-constraint model to conceptualize factors that may have deterred families from participating in The Every Kid in a Park Initiative. It is also important to note that constraints can interact with each other (Jackson, Crawford, & Godbey, 1993). In other words, antecedent constraints may have a cumulative effect on leisure motivations and behaviors. We also note that constraints can be *negotiated*, or in other words, people implement strategies to overcome perceived or real barriers to participation (Jackson et al., 1993). Indeed, "leisure participation is dependent not on the absence of constraints but on negotiation through them" (Jackson et al., 1993, p. 1). In the following sections, we define each of the three constraints to family leisure in the context of The Every Kid in a Park Initiative.

Intrapersonal constraints. Intrapersonal constraints are those that operate on a psychological or intra-individual plane and include phenomenon such as group attitudes, socialization into leisure activities, and "subjective evaluations of the appropriateness and availability of various leisure activities" (Crawford & Godbey, 1987, p. 122). Group attitudes regarding the presence of children in leisure spaces may influence families' decisions to choose or avoid specific forms of leisure in specific settings or locations. Indeed, families who perceive a particular leisure space as unwelcoming, unaccommodating, or unfit for children may express less preference for that leisure space and its associated activities. Increasing families' awareness of the appropriateness of a given leisure space for children through targeted policy and messaging may be an effective way to increase families' visitation to and use of that space.

Interpersonal constraints. Interpersonal constraints to family leisure may arise from differences in leisure preferences between family members (Crawford & Godbey, 1987). Interpersonal constraints may also arise for nonleisure-specific family interactions. Families experiencing high frequency or intensity in conflict, for example, may seek out fewer shared leisure experiences or shared leisure experiences that do not require much interaction (Crawford & Godbey, 1987). Thus, policy targeting one family member's behavior may be less effective if direct differences in leisure preferences exist between family members. This may be especially true if the policy focuses on children who depend on their parents for access to many leisure and recreation experiences.

Structural constraints. Structural constraints are those that operate as intervening factors between leisure preference and actual leisure behavior, such as lack of resources (i.e., financial or temporal), work schedules, knowledge of leisure opportunities, and family life stage (Crawford & Godbey, 1987). Low income may constrain family recreation in several ways (Kleiber, Walker, & Mannell, 2011; Stodolska, Marcinkowski, & Yi-Kook, 2007). First, costs associated with a particular recreation experience-of which there may be many-likely limit access for low-income individuals and families (Crompton, 2016). A study of low-income mothers found that "the conditions of poverty shaped common opportunities for family time. Lack of resources . . . encouraged mothers to search for inexpensive family activities" (Tubbs, Roy, & Burton, 2005, p. 87). Similarly, Harrington (2015) reported that low-income parents sought out inexpensive or no-cost, purposive, goal-oriented family recreation, whereas middleincome families did not mention cost in their description of family recreation planning and practices. Second, low earners may engage in less leisure time because they work longer hours to compensate for low wages (Stodolska et al., 2007), or they may work nonstandard hours that constrain leisure time with other family members (Tubbs et al., 2005). Additionally, families with discretionary income may purchase more family time by paying for third-party service

providers to complete routine household tasks or by purchasing high-cost, high-involvement experiences (e.g., amusement parks), both options that are not accessible to low-income families (Tubbs et al., 2005).

Pricing Outdoor Recreation

Several considerations deserve attention when discussing policies involving price changes in recreation. Efficiency arguments suggest that site fees serve to allocate access to recreation. Classical economic theory posits that people increase demand for recreation when the price of recreation falls (Rosenthal et al., 1984), and the level of price sensitivity determines the size of the response. If granting free admission creates a large response where many families visit parks, then crowding and site deterioration could result. On the other hand, if demand is relatively unresponsive to price, then free admission will likely have minimal effects on family recreation. Past empirical work on price responsiveness is mixed. Some previous research found that visitors showed sensitivity to recreation site admission prices (Kim & Crompton, 2001; More, 1999). Of note is a study of overall fee changes at national parks by Schwartz & Lin (2006) which projected that visitation declined following increased entrance fees at national parks. On the other hand, Walsh, Peterson & McKean (1989) observed that changes in visitation due to price increases at recreation sites tended to be small. Prior work evaluated overall visitation as entrance fees changed. Families with young children face different time constraints and may respond differently to price changes at national parks, and no prior work has studied pricing effects on this particular group. Additionally, most past work has focused on a few specific recreation sites, often in a state park system. We contribute to this literature by evaluating price changes at recreation sites with highly novel environments by families from across the United States.

Scholars and policy makers recognize a tension between pricing based on revenue goals and the potential to exclude families with low ability to pay (Crompton, 2011; Crompton, 2016; More, 1999; Rosenthal, Loomis, & Peterson, 1984; Scott, 2014; Williams, Vogt, & Vitterso, 1999). Access fees are often a small fraction of the overall costs associated with outdoor recreation. Low-income families who cannot afford the accompanying travel and equipment costs continue to face access barriers and may not respond to free admission programs (More, 1999), resulting in a concentrated response. Despite theoretical reasons to believe that lowincome families cannot easily adjust their recreation on changes in fees alone, empirical work consistently finds that low-income families demonstrate price sensitivity and may in fact be responsive to changes in entrance fees (Lamborn, Smith, & Burr, 2017; More & Stevens, 2000; Reiling & Kotchen, 1996; Schwartz & Lin, 2006; Stevens, More, & Allen, 1989).

The Every Kid in a Park initiative creates an opportunity to closely examine family leisure and recreation behavior when a cost constraint is relaxed. Thus, we seek to examine the impact of The Every Kid in a Park initiative on low- and high-income families.

Every Kid in a Park Initiative

On September 1, 2015, the National Park Service launched the Every Kid in a Park initiative, which provides free admission to any NPS site for all fourth-graders and accompanying family members. In line with the mission of the National Park Service to protect resources and promote public use and enjoyment of natural wonders (Chase, 1987), the initiative intended to introduce fourth-graders and their families to public lands, develop the next generation of outdoor stewards, and inspire a deep, lifelong connection to America. The program was part of a broader strategy by the Obama administration to engage young people "from all ages and all backgrounds with the great outdoors" (Kupper, 2016).

To participate in the free admission program, fourth-graders and elementary educators visited a website, https://www.everykidinapark.gov/get-your-pass/, hosted by the National Park Service. To receive a pass, applicants were required to provide a zip code. All completed requests were approved. Teachers were permitted to apply for multiple passes simultaneously,

ostensibly to distribute them to students. Following approval of an application, a student or teacher printed out a unique barcode on paper and presented the paper at a national park to receive an annual pass.

The "Every Kid in a Park" initiative included interesting design features that deserve attention. First, the program accommodated any family structure including large families, families with an unmarried step-parent, foster families, and families with guardians. This unusual flexibility in family variability guaranteed that family response or non-response was not due to program exclusion based on family characteristics. Second, the NPS provided welcoming and embracing messaging to families, thereby increasing families' awareness of the appropriateness of a given leisure space for children. Third, the program introduced ownership of an annual pass rather than offering a discount at the door, perhaps increasing the value of family recreation by leveraging endowment effects in decision-making (Crompton, 2016). Fourth, program goals explicitly mentioned a hope that offering free admission would functioned as an introductory pricing scheme designed to expose users and create attachment leading to later use. Finally, the policy targeted children, who play an integral role in determining family recreation in other contexts (Madrigal, 1993; Seaton & Tagg, 1995; Turley, 2001).

While the program was broad, easy to implement, and easy to utilize, little is known about the reach of the program. Over four million applications were made from all parts of the country during the first two years of the program (U.S. Department of the Interior, National Park Service, 2017). Although receiving an "Every Kid in a Park" pass was a necessary part of program utilization, it did not guarantee that a fourth-grader visited a park, and we have no information about where or how often fourth-graders used their passes.

Current Study

In the current study, we examine changes in family recreation in the context of the Every Kid in a Park initiative to more fully understand the implications of admission fees on family leisure. We make four distinct contributions to the literature. The first contribution is our study of families with children engaging in a specific form of novel or balance leisure (i.e., hiking). While prior research has focused on evaluating contributions of broad categories of family leisure (i.e., core and balance), the Family Activity Model (FAM) allows for theoretically driven examinations of specific family activities and their environments (Melton, 2017). By creating a continuum that expands upon the discrete, binary categories of core vs. balance leisure used in previous research (e.g., Zabriskie & McCormick, 2001, 2003), the FAM provides greater detail for understanding motivations, experiences, and outcomes associated with specific family leisure activities. Additionally, past work on family leisure has focused on visitation at somewhat incongruous activity environments, often in a state park system, and not enough research explores family recreation in *highly* incongruent environments. We contribute to this literature by evaluating how price changes at recreation sites with highly novel environments affect families across the United States.

Second, we offer a careful analysis of the demand response for recreation among a specific population, filling the need for more research investigating "the way in which different segments of the population are affected by [fee changes at recreation sites]" (Schwartz & Lin, 2006). Prior work evaluated overall visitation as entrance fees changed. Families with children face different constraints and may respond differently to price changes at national parks, and no prior work has studied pricing effects on this particular group.

Third, we move the recreation policy literature beyond associations and closer to causal explanations. Specifically, we provide reduced-form evidence on the causal effect of giving free admission to national parks on outdoor recreation time. Prior work on recreation policy generally relies on surveys of affected visitors only, resulting in an inability to draw causal conclusions. Because we can observe recreation patterns for families before and after program implementation independent of program eligibility, we can compare changes in patterns. In

2017, scholars from multiple disciplines developed specific recommendations for future research examining the connection between nature contact and human health, including a recognized need for more economic and policy studies (Frumkin et al., 2017). With our study, we answer their call.

The fourth contribution is our use of a large, nationally representative sample from the United States. The data allow us to move the literature beyond small homogeneous samples to explore a broader view of responses to admission fee changes. By considering a broadened area, we estimate effects that more easily generalize. Additionally, the large data set allows us to examine nuances of family recreation stemming from sociodemographic diversity.

We offer several hypotheses as we move forward with our analysis. We expect that overall family recreation will increase among families affected by the Every Kid in a Park initiative. Given theoretical and empirical support for income barriers to family recreation, we expect important interplay between family income and the free admission program resulting in smaller changes in family recreation among low-income families. Considering the dearth of research on ethnicity and family leisure in particular, we make no specific hypotheses about how the free admission program differentially affects families based on ethnicity.

Data and Methods

Our empirical analysis of changes in family recreation utilized individual-level time-use diaries from the American Time Use Survey (ATUS; see Hofferth et al., 2015). We use data from September 1, 2013, through December 31, 2016, to capture recreation time before and after program implementation on September 1, 2015.

Participants

The sample included 6,843 participants who were predicted to have a second-, third-, or fourth-grader living in their household. Due to limitations in the data, we observe time use

information only for household members who are at least fifteen-years-old. These participants came from every state within the United States and Washington, DC. Table 1 identifies demographic information for the sample, separated by whether the participant had a fourth-grader or a second- or third-grader (and no fourth-grader) in the household. We focus on a comparison population with second- or third-graders in the household to avoid program contamination effects on older children. Using independent means significance testing and allowing for difference in variance between samples (Ruxton, 2006), we compared the sub-samples and found no significant differences between family members in the treated and control samples.

	2nd-/3rd-Grader Households ^b		4th-Graders ^c ($N_2 = 3,971$)			
	$(N_1 = 2,872)$					
Variables	М	SD	Range	М	SD	Range
Female ^d	0.526	0.499	0–1	0.531	0.499	0–1
Age	36.545	11.373	15-85	37.517	11.750	15-85
Number of people in household	4.767	1.491	2–12	4.946	1.609	2–15
Number of kids in household	2.376	1.134	0–9	2.578	1.264	0–10
Single-parent home ^e	0.221	0.415	0–1	0.201	0.401	0–1
Low-income family ^f	0.502	0.500	0–1	0.485	0.499	0–1
Employed full-time ^g	0.557	0.497	0–1	0.542	0.498	0–1
High school grad ^h	0.799	0.401	0–1	0.765	0.424	0–1
College grad ⁱ	0.382	0.486	0–1	0.388	0.487	0–1
Black, non-Hispanic ^j	0.133	0.340	0–1	0.118	0.323	0–1
Hispanic ^k	0.265	0.441	0–1	0.268	0.443	0–1
White, non-Hispanic ¹	0.534	0.499	0–1	0.540	0.498	0–1
Other race ^m	0.068	0.252	0–1	0.074	0.261	0–1

ATUS Family Demographics and Makeup: Descriptive Statistics^a

Note. ^aAll calculations use nationally representative weights. ^bRespondents have a child ages 7 or 8 in the household. ^cRespondents have a child ages 9 or 10 in the household. ^dFemale: 0 = male, 1 = female. ^eSingle-parent home: 0 = more than 1 parent present, 1 = only 1 parent present. ^fLow-income family: 0 = family earns below the sample median income, <math>1 = family earns above the sample median income. ^gEmployed full-time: 0 = not employed full-time, 1 = employed full-time. ^hHS grad: 0 = respondent does not have a high school diploma, <math>1 = respondent has a high school diploma. ⁱCollege grad: 0 = respondent does not have a bachelor's degree, <math>1 = respondent has a bachelor's degree. ^jBlack: 0 = not Black or Black and Hispanic, 1 = Black and non-Hispanic. ^kHispanic: 0 = not Hispanic, 1 = Hispanic. ⁱWhite, non-Hispanic: 0 = not White or White and Hispanic, <math>1 = White and non-Hispanic. ^mOther race: 0 = White, Black, or Hispanic, 1 = not White, Black, or Hispanic.

Procedure

The U.S. Census Bureau administered the ATUS in connection with the Current Population Survey (CPS). A phone interview lasting about 30 minutes documented an individual's time use over a 24-hour period, from 4 a.m. of the previous day until 4 a.m. of the interview day. Respondents accounted for all time throughout the day (Hamermesh, Frazis, & Stewart, 2005). The surveyors collected data for each day of the week, although they oversampled weekends. Interviewers used the Day Reconstruction Method and computer assistance to elicit high-quality recall and accuracy (Kahneman et al., 2004). We used sampling weights provided by the ATUS to ensure that the sample was representative of the United States' national population.

Measures

Of particular interest is the survey's refined measures of leisure activities. Although the data did not contain information about visits by respondents to national parks specifically, we observed how often respondents engaged in hiking. We used hiking because national parks visitors regularly participate in that activity. In fact, day and night hiking accounts for by far the largest portion of search-and-rescue operations in national parks (Heggie & Heggie, 2009). Using representative sampling weights, we found that the average time spent hiking over the sample was 0.36 minutes per day (SE = 0.10), which is equivalent to 2.18 hours per year. The sample contained age information of household members, and we used age to assign observations to the treatment group and control group. Treatment households had a nine- or tenyear-old child living in the household, the most common ages of fourth-graders. We assigned households to the control group if the respondent had a seven- or eight-year-old child living in the household, common ages for second- and third-graders. In addition, we constructed a

dichotomous post-treatment variable indicating whether the interview occurred after the implementation of the Every Kid in a Park initiative on September 1, 2015.

To explore connections between program utilization among low-income families, we included a dichotomous variable if family income was below the sample median income level of \$60,000. The low-income variable approximately corresponded to having income below 175% of the poverty threshold, depending on family size (Bishaw & Glassman, 2016). We viewed strict adherence to the poverty threshold as too restrictive and included households somewhat above the poverty threshold in our measure of low income. We also analyzed connections between program utilization and ethnicity by including dichotomous variables for respondents identifying as part of a minority (minority = 1; White, non-Hispanic = 0). The ATUS reports county level geography for a small subset of respondents, preventing us from studying connections between program utilization and proximity to a national park.

Analytic Strategy

To measure the spillovers in family recreation due to the Every Kid in a Park initiative, we used repeated cross sections to perform difference-in-differences analysis. We used ordinary least squares estimation, despite many observations with zero hiking time reported. OLS estimates of linear models show greater robustness than Tobit estimates when nonparticipation is caused by the fact that time diary surveys sample days rather than longer time horizons (Steward, 2013). Households with a second- or third-grader are arguably similar to households that contain a fourth-grader and comprise a control group that was not eligible for the Every Kid in a Park program. We compared hiking time of family members before and after program implementation. We assumed parallel movements in trends in the absence of the program and focused attention on the delta parameter. We also assumed that no other shock or policy

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disproportionately affected households with fourth-graders in 2015–2017. The parsimonious model takes the following basic form:

$$H_{it} = \beta_0 + \beta_1(4th \ grade_{it}) + \beta_2(post \ policy_{it}) + \delta(4th \ grade_{it} * post_{it}) + \theta_i \cdot X + \epsilon_{it}$$

where H_{it} is a measure of the time spent hiking by individual *i* at time *t*. The variable $4th \ grade_{it}$ indicates whether the respondent has a fourth-grader living in the household, and the variable *post policy_{it}* indicates whether the observation occurred following the implementation of the initiative. The vector *X* contains control variables (including household income, educational attainment, employment status, marital status, race, ethnicity, sex, and number of children in the household).

We augmented this framework to relax the parallel trends assumption. First, we allowed each state to follow its own linear time trend by adding state-specific linear time trends. Second, we estimated an event-study version of the model that includes dichotomous variables for policy leads (Bertrand, Duflo, & Mullainathan, 2004). Given the short time window and seasonality of family recreation, we used the event study model as a robustness check to test whether families adjusted to the "effects" of the free admission policy before it was implemented in September 2015. The augmented framework provides credibility for our estimates of the effect of free admission on recreation time among families with children.

Given the broad aim of the program to give park access to every fourth-grader, we continued the analysis to study disparate treatment effects. To determine whether effects were concentrated among specific sociodemographic groups, we estimated a triple difference model, allowing for responses to differ by income or minority status. First, we conducted a between-

income difference-in-differences strategy by comparing changes in time use of low-income and high-income households with a fourth-grader. Again, we focused attention on the delta parameter to detect disparate effects. The model allowing for heterogeneous responses by low-income households is estimated as follows:

$$\begin{aligned} H_{it} &= \beta_0 + \beta_1 (4th \ grade_{it}) + \beta_2 (post_{it}) + \beta_3 (lowincome_{it}) + \gamma \cdot (2 \ way \ interactions) \\ &+ \delta (4th \ grade_{it} * post_{it} * lowincome_{it}) + \theta_j \cdot X + \epsilon_{it} \end{aligned}$$

whereas before H_{it} is a measure of the time spent hiking by individual *i* at time *t*. The variable $4th \ grade_{it}$ indicates whether the respondent has a fourth-grader living in the household, and the variable $post_{it}$ indicates whether the observation occurred following the implementation of the initiative. The two-way interactions vector contains all two-way interactions of the $4th \ grade_{it}, \ post_{it}, \ and \ lowincome_{it} \ variables.$ The $4th \ grade_{it} * post_{it} * lowincome_{it}$ variable is the three-way interaction variable of interest that can detect disparate responses by income. As before, the vector *X* contains control variables (including educational attainment, employment status, marital status, race, ethnicity, sex, and number of children in the household).

We similarly estimated changes in hiking time for non-Whites and Hispanics as follows:

$$H_{it} = \beta_0 + \beta_1 (4th \ grade_{it}) + \beta_2 (post_{it}) + \beta_3 (minority_{it}) + \gamma \cdot (2 \ way \ interactions)$$
$$+ \ \delta(4th \ grade_{it} * post_{it} * minority_{it}) + \theta_j \cdot X + \epsilon_{it}$$

whereas before H_{it} is a measure of the time spent hiking by individual *i* at time *t*. The variable $4th \ grade_{it}$ indicates whether the respondent has a fourth-grader living in the household, and

the variable $post_{it}$ indicates whether the observation occurred following the implementation of the initiative. The two-way interactions vector contains all two-way interactions of the $4th \ grade_{it}, \ post_{it}, \ and \ minority_{it}$ variables. The $4th \ grade_{it} * post_{it} * minority_{it}$ variable is the three-way interaction variable of interest that can detect disparate responses by minority status. As before, the vector X contains control variables (including household income, educational attainment, employment status, marital status, sex, and number of children in the household).

Results

Overall Policy Response

Hiking among family members of fourth-graders increased following the implementation of the Every Kid in a Park initiative. Figure 1 demonstrates hiking trends before and after the implementation of the initiative, not controlling for individual and family characteristics. We observed increases in average hiking time following program implementation among the treated population. On the other hand, we saw no increase in hiking among the control group.



Figure 1. Average minutes of daily hiking by family members of 4th-graders versus 2nd- and 3rd-graders

The models provide evidence of a policy effect in all specifications, as shown in Table 2. Column 1 reports baseline results with no individual, state, or time controls. Treated family members increased hiking time by an average of nearly one minute per day, equivalent to an average of five hours a year. Column 2 reports estimates when the model includes individual and time controls, and column 3 reports estimates when including state-by-year fixed effects. Estimates of the policy impact are robust to the inclusion of sociodemographic controls. Including individual controls and state-by-year fixed effects did not diminish differences in hiking time following program implementation. In addition, event study analysis showed no positive effect of the program before implementation and confirmed a positive effect of the program following implementation.

Table 2

Difference-in-Differences Estimation of the Impact of Fourth-Grade National Parks Pass on F Members' Recreation Time (N = 6,843)

Hiking Time (min. per day)

	(1)	(2)	(3)
Treated	-0.19	-0.17	-0.09
	(0.30)	(0.22)	(0.23)
Post implementation	-0.30	-0.56	-0.66
	(0.22)	(.46)	(0.47)
Treated*post implementation	0.95 **	0.89 **	0.94 **
	(0.40)	(.40)	(0.41)
\mathbb{R}^2	0.001	0.01	0.04
Individual controls		Х	Х
Year fixed effects		Х	Х
(Year x state) fixed effects			Х

Note. *p < .10, **p < .05, ***p < .01. Additional controls: age, female, Black, Hispanic, married, level of education, employment, number of children in the household, age of youngest household child.

Disparate Policy Response by Income

When estimating differential treatment effects based on income, we find little evidence of

disparate impact of the initiative. Figure 2 demonstrates hiking trends before and after the

implementation of the initiative, not controlling for individual and family characteristics.







The averages show differences in how low-income and high-income families of fourthgraders adjusted to the policy, with most of the policy adjustment occurring among high-income families. However, we cannot reject that the responses of low- and high-income families were the same. Table 3 demonstrates the insignificance of the gap another way. We found that overall, families of fourth-graders increased hiking time following implementation of the policy. When focusing on the delta parameter, we determined that the difference between low-income and high-income families was not statistically significant in any model specification.

Table 3

Triple Difference-in-Differences Comparison of the Impact of Fourth-Grade National Parks Pass on Family Members' Recreation Time in Low-Income Families versus High-Income Families (N = 6,843)

	(1)	(2)	(3)
Treestad	0.02	0.15	0.29
Treated	0.03	0.15	0.28
	(0.31)	(.31)	(0.32)
Post implementation	0.14	-0.18	-0.28
	(0.42)	(0.55)	(0.56)
Low-income	0.48	0.55	0.51
	(0.34)	(0.37)	(0.37)
Treated*post implementation	1.31 **	1.26 **	1.20 **
	(0.56)	(0.56)	(0.57)
Treated*low-income	-0.64	-0.62	-0.73
	(0.44)	(0.44)	(0.45)
Post*low-income	-0.64	-0.75	-0.72
	(0.60)	(0.61)	(0.45)
Treated*post*low-income	-0.77	-0.80	-0.57
	(0.79)	(0.80)	(0.82)
R ²	0.003	0.01	0.04
Year fixed effects		Х	Х
(Year x state) fixed effects			Х

Hiking Time (min. per day)

Note. p < .10, p < .05, p < .05, p < .01. Additional controls: age, female, Black, Hispanic, married, level of education, employment, number of children in the household, age of youngest household child.

Disparate Policy Response by Ethnicity

When estimating impacts based on ethnicity, we found no evidence of a disparate

response. While we saw the largest increases in hiking among White, non-Hispanic families with

fourth-graders, we also found increases in hiking among minorities, as shown in Figure 3, and we cannot reject that the responses were the same.

Figure 3. Average minutes of daily hiking by family members of fourth-graders versus secondor third-graders by minority status



Although regression estimates confirm an overall increase in hiking time among families of fourth-graders after the policy adoption, we see no differential response by ethnicity in any model specification, as shown in Table 4.

Hiking Time (min. per day)

Table 4

Triple Difference-in-Differences Comparison of the Impact of Fourth-Grade National Parks Pass on Family Members' Recreation time in Minority Families versus White, non-Hispanic Families (N = 6,843)

	(1)	(2)	(3)
Treated	-0.11	0.02	0.13
	(0.30)	(0.30)	(0.31)
Post implementation	-0.03	-0.40	-0.51
	(0.42)	(0.55)	(0.56)
Minority	0.24	0.43	0.48
	(0.34)	(0.37)	(0.39)
Treated*post implementation	1.27 **	1.24 **	1.21 **
	(0.55)	(0.55)	(0.56)
Treated*minority	-0.41	-0.40	-0.48
	(0.44)	(0.44)	(0.45)
Post*minority	-0.34	-0.32	-0.28
	(0.60)	(0.60)	(0.63)
Treated*post*minority	-0.68	-0.72	-0.53
	(0.80)	(0.80)	(0.81)
R ²	0.003	0.01	0.04
Year fixed effects		Х	Х
(Year x state) fixed effects			Х

Note. *p < .10, **p < .05, ***p < .01. Minority includes non-White and Hispanic respondents. Additional controls: age, female, married, level of education, employment, number of children in the household, age of youngest household child.

Discussion

Family recreation promotes well-being and health for family members, and families find

novel recreation experiences, like visiting a national park, to be strengthening. While it is

theoretically expected that families have responded to national parks recreation policy, little is known empirically about how families have adjusted their recreation behaviors in response to fee changes. Additionally, entrance fees at public recreation sites may differentially affect the economically disadvantaged and minorities (Dustin et al, 2000; Schwartz & Lin, 2006). Therefore the overall aim of this study was to better understand the effect of free admission for families with children. This research uses a difference-in-differences strategy to measure whether and to what extent families with fourth-graders increased recreation time following the launch of the Every Kid in a Park initiative compared to families with second- and third-graders.

Overall Response

Families with children responded to the national parks free admission program. We estimate that hiking time increased by about five hours a year among families with fourthgraders. Using the Family Activity Model (FAM), we argue that hiking, particularly in national parks, affords families opportunities for engaging in novel or unfamiliar leisure behaviors (Melton, 2017). The novelty of family leisure can be established in several ways (e.g., the frequency of participation, the level of control over the activity environment). Time can also indicate novelty, which is particularly relevant to this study (Melton, 2017). We established hiking as a novel family leisure activity by examining the average time spent hiking each year. For the entire sample, families spent slightly more than 2 hours per year hiking. This small amount of time suggests hiking as a family leisure behavior continued to occur in a highly incongruous activity environment. Even with an increase of about five hours for families of fourth graders after policy changes, hiking remains highly incongruous. In other words, families did not spend sufficient time hiking together to increase the familiarity of the activity environment and change the activity from *balance* (i.e., highly novel) to *core* (i.e., highly familiar). Thus, policies such as the Every Kid in a Park free admission program, appear to influence and shape families' leisure behavior with regard to novel leisure experiences, and novel family leisure experiences have the potential to drive positive development and family well-being

Our empirical findings further complement theoretical work that posits that price is an important determinant of family recreation (Rosenthal et al., 1984). Our findings are consistent with research by Schwartz and Lin (2006), who also found price responsiveness at national parks. Our findings are not necessarily at odds with Walsh, Peterson, and McKean (1989), who suggested that changes in visitation due to price increases at recreation sites tended to be small and that differences in context explain differences in findings. Walsh, Peterson, and McKean (1989) evaluated local recreation attractions that were not friendly to children, whereas we evaluated families visiting national parks, which more often fulfill balance leisure needs. Taken together, the findings suggest that individuals may be less responsive to price compared to families with children, and responses at local attractions may differ from those at national parks.

In addition to providing free admission to families with children, the Every Kid in a Park initiative signaled to families with young children that they are welcome at national parks and will be accommodated in their recreation. While we suspect that price was a primary driver, we cannot disentangle price effects from the impact of increased positive messaging to families. Very little work has explored the effectiveness of advertising public lands to specific populations, and more research is needed to understand the degree to which families adjust their recreational activities in response to marketing campaigns.

Disparate Response by Income

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We found no strong evidence that the park initiative differentially changed family recreation based on household income. Our findings complement previous empirical research that suggests that low-income families show sensitivity to costs when planning family recreational experiences (Harrington, 2015; Lamborn et al., 2017; More & Stevens, 2000; Reiling & Kotchen, 1996; Schwartz & Lin, 2006; Stevens et al., 1989; Tubbs et al., 2005). We suggest caution in interpreting disparate response findings. First, we have theoretical reasons to expect that low-income families who cannot afford travel and equipment costs are less likely to access national parks sites, even with free admission (More, 1999; Rosenthal et al., 1984; Williams et al., 1999). Second, while we did not find statistically significant differences in how low- and high-income families responded to the park initiative, patterns demonstrated in Figure 2 suggest the analysis may not have enough power to identify a concentrated response among high-income families.

While cost is not a factor that inherently alters the incongruity of the activity environment as explained by the Family Activity Model (Melton, 2017), we suggest entrance fee costs may in fact be a contributing factor to novel, or balance, forms of family leisure. It may be that, for some families, the cost of specific family leisure activities such as a national parks entrance fee may increase the novelty of the activity because families may engage in an activity with an associated costs less frequently. This effect may impact families inequitably, with low-income families reducing participation in novel family leisure activities at a higher rate than middle- or highincome families. Thus, cost of family leisure experiences and activities may constitute yet another factor in the Family Activity Model that could help distinguish novel from familiar family leisure activities. Indeed, previous research using the dichotomous categories of core and balance family leisure (e.g., Zabriskie & McCormick, 2001; 2003) suggests that balance (or highly novel) family leisure involves a greater use of resources such as time and money. Therefore, policymakers should carefully consider the potential impacts of cost increases on families, particularly families with fewer resources.

Disparate Response by Ethnicity

We found increases in recreation in ethnic minority and White, non-Hispanic families alike and found no strong evidence of disparate responses to the initiative among ethnic minority families. This finding supports the marginality explanation for why minorities visit outdoor recreation spaces less often. As noted earlier in this paper, the marginality explanation for ethnic minorities' lower levels of participation in outdoor recreation address long-standing and systemic forms of discrimination that have limited access to leisure time, transportation, and financial resources for purchasing leisure experiences (i.e., entrance fees) and leisure equipment (Washburne & Wall, 1980). Thus, the finding that minorities responded to pricing at national parks suggests that financial constraints remain an important determinant of family leisure behaviors among minority families.

An important feature of the Every Kid in a Park initiative is its friendly, warm, and embracing messaging to all families, including minorities. Considering past research documenting that Black families feel less welcome than White families in outdoor recreation settings (Philipp, 1999), the positive messaging to families may have been particularly important in contributing to Black families' responses to the program. Increasing perceptions of openness and feelings of belonging at recreation sites may be an important channel for increasing outdoor family recreation among minorities and potentially increasing physically active recreation in outdoor spaces. More research is needed to understand differences in responses to messaging among families of diverse ethnic groups. Finally, we suggest caution in interpreting disparate response findings by ethnicity findings. First, we have theoretical reasons to expect that minorities face constraints to recreation and may be less likely to access national parks sites, even with free admission (Washburne & Wall, 1980). Second, while we do not find statistically significant differences in how minorities and White, non-Hispanics responded to the park initiative, patterns demonstrated in Figure 3 suggest that the analysis may not have enough power to identify a concentrated response among White, non-Hispanic families. We can reject the hypothesis that minorities increased recreation more than White, non-Hispanics did, suggesting that the policy did little to reduce preexisting gaps in family recreation between minorities and White, non-Hispanics.

Policy Implications

Our research results lend themselves to important and perhaps novel policy implications. First, the Every Kid in a Park initiative gives support for the effectiveness of policies targeting children as a means to increase novel forms of family recreation. Increasing opportunities for novel forms of family recreation may increase families' adaptability (i.e., their flexibility and ability to adapt to new experiences or situations) (Zabriskie & McCormick, 2001). Adaptability is a component of overall family functioning (Melton, 2017; Olson, 1986; Zabriskie & McCormick, 2001), and may support more resilient individuals and families. Our findings support past research that suggests that children play an important role in determining family recreation agendas, especially when considering novel forms of family leisure. Policy-makers could expand this channel of influence to increase family recreation and public health by providing children with recreation opportunities with their families in a variety of novel settings.

Policy-makers could further consider the impact of messaging on leisure behavior among families with children. If, as is suggested by leisure constraints research (Crawford & Godbey,

1987), families perceive some leisure spaces as unaccommodating to children, then messaging may play at least some role in supporting families' abilities to overcome that constraint. Indeed, this may be especially relevant to policies seeking to support physically active forms of family leisure and recreation, since physical activity is more likely to occur in outdoor recreation settings. Communicating that families are welcome in public outdoor recreation spaces may be even more important for families of ethnic minority groups; therefore, policy-makers should consider inclusivity and diversity when constructing policy messaging.

Policy-makers ought to carefully consider the implication of changing recreation fees on family recreation, given that families with young children of all backgrounds respond to pricing at national parks. Just as decreasing admission prices increased family recreation, increasing prices would most likely result in driving down park visitation by families with children. Implementing quotas or requiring advance reservations rather than increasing access fees may better accomplish goals to decrease overcrowding while encouraging family recreation and remaining true to the mission of the National Park Service to promote public use and enjoyment of natural wonders (Chase, 1987).

The Every Kid in a Park initiative included new and creative policy features that contributed to its ability to increase family recreation. The policy targeted children, provided welcoming and embracing messaging to families, was flexible enough to include diverse family structures, and decreased recreation costs to families over a period of time. Policy-makers could replicate these policy features to increase family recreation at state or local outdoor recreation sites. For example, giving a child a coupon for a free camping stay at a state park, along with positive messaging, could potentially increase family recreation.

Limitations and Conclusions

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The ATUS data set allows us to make substantial progress in understanding the effects of changes in recreation fees, yet limitations of this research remain. Our results supply indirect evidence that providing free access to national parks increased family recreation. While we are unable to definitively measure that hiking took place in national parks, we see no other explanation for why families of fourth-graders in particular spent more time hiking after the initiative launched. Nonetheless, our inability to observe where the hiking occurred remains a limitation of the research. We hope to see future research exploring how free access to national parks impacts visitation at state parks and local recreation sites to better determine how families select recreation locations. A separate issue relates to the relatively short life of the Every Kid in a Park program. Due to the short time the program has been in effect, we were unable to explore long-run effects of the program. We hope to see future research using more years of data following the program's inception to study the long-run persistence of program effects both by following cohorts as they age and by studying new cohorts of fourth-graders each year. As mentioned, very little work has studied the effectiveness of positive messaging to specific populations. More research is needed to understand the degree to which families adjust their recreational activities in response to targeted marketing. Despite these limitations, our study contributes to the current literature by expanding our understanding of how families with children respond to free admission at national parks.

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